ONE MEASLY CHANGE: AN UNORTHODOX APPROACH TO ADDRESSING THE ULTRA-ORTHODOX MEASLES OUTBREAK

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ABSTRACT

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Since October 2018, over 400 individuals in the Ultra-Orthodox (Haredi) community in Brooklyn, New York have contracted measles, a disease once eradicated in the United States. This disease, preventable through a two-dose measles-mumps-rubella (MMR) vaccine, is one of the most contagious infections and has serious long term health consequences. Both public and private officials—namely, the New York City Department of Health and Mental Hygiene (DOHMH) and individuals within the Haredi community—have taken a number of steps to address the measles outbreak, implementing policies to increase vaccination rates. This paper details those interventions and points out how many of such policies do not properly account for the idiosyncrasies of the Haredi community, such as its hierarchical structure and its insular nature. The paper concludes with specific recommendations on how policies could be improved to address the particular biases related to vaccination uptake among Haredim.

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My Capstone Journey

"What? It's 2018! An article about a measles epidemic should be dated 1918—not 2018," I wrote in my family WhatsApp group last November in response to an article about a small outbreak of measles in Brooklyn, New York. I subsequently set a Google Alert for "Orthodox Measles" and continued to follow the spread of this disease. 3 cases. 14 cases. 29. 42. 86. 120. The numbers kept growing.

I was sitting in a Religious Studies class a few weeks later, learning about the modern applications of religious ideals, when I began to think about how this outbreak in a traditional religious community could not be a coincidence. There must be some reason that this Ultra-Orthodox community has remained under-vaccinated and over-infected by this disease, I thought. With the support of Professor Steven Weitzman, I began writing a literature review in the hopes of understanding how this community got to where it is today. That paper laid the groundwork for the literature review in Section 2 of this paper.

The new year brought with it an increase in the number of measles-infected individuals. After sitting through one Behavioral Public Policy class, I recognized that the measles epidemic was just the kind of problem that could be tackled with a behavioral policy approach. With support from Professor Enrique Fatas, this course gave me the skills necessary to understand the population with which I hoped to target my intervention, and to develop my own policy proposal. While this was quite a constructive and formative exercise for me, upon completion I felt that a formalized, testable policy like the one I constructed would not in fact be applicable in this context.

So, I wondered, what else can I do?

I took it upon myself to get to the core of the problem. How do you learn about an insular community? Well, of course, you speak with members of that very community. Since I was doing my research from New York City, I planned to go into these Haredi community to do on-the-ground observations and interviews. But in late May, I hit another roadblock. After visiting the doctor and inquiring about the measles-related health alert posted outside his office (See Appendix 1), I received the following email:

> *"Elisheva…your measles titers were low, suggesting that you may not have immunity. In reality, you might, because if exposed to the measles virus your immune system might mount a response...Not to worry in general but the interviewing activity might not be a good idea."*

So instead, I switched gears a bit. I began combing through every measles-related article that I had in my computer search history, and contacted individuals who I thought could be helpful in my research—admittedly not an easy task in a population that seldom uses the internet. I arranged phone calls with those who did respond, and spent hours chatting with rabbis and physicians, leaders and lay-people, vaxxers and anti-vaxxers. These phone interviews were ultimately a far better alternative to my original plan, since some would be uncomfortable with one-on-one in-person interactions, especially with an outsider like me.

Alas, this research opened my eyes to a new world. It has allowed me to integrate my academic coursework in public health and healthcare with my interest in religious studies and my passion for behavioral science. I have learned that in any field of research, understanding the idiosyncrasies of a population is crucial, since their unique behavioral biases can define what types of interventions are most effective. As I enter the healthcare profession, this is an important concept to remember: not everyone responds the same way to certain ideas, information, or interventions. This project allowed me to explore the decision-making processes of one minority population, which helped me better understand how culture, history, and community define a group and dictate their needs.

More generally, my goal in entering this masters program was to understand how behavioral science could be applied to healthcare. Health-behavior change and other health-related nudges have helped shape the field of behavioral science by giving tangible proof that behavioral change is important. This Capstone Project expands upon that literature by presenting a behaviorally-informed approach to understanding a widespread disease epidemic. While this paper will not "solve" a medical crisis nor end a disease outbreak on its own, it provides a strong foundation for collectively improving the current situation, all while accounting for long-term change as well.

It is with much excitement that I present this paper to my readers: professors, policy-makers, community leaders, physicians, and any others who stumble upon this line of

research. A famous Jewish idiom says “It is not incumbent upon you to complete the work, but neither are you at liberty to desist from it” (Birnbaum, 1949). As this medical crisis is still ongoing and the work still incomplete, I am not yet ready to desist from it. I therefore encourage you to write to me with feedback and suggestions for future research.

Introduction

The Jewish holiday of Sukkot is celebrated every October as "the holiday of happiness": a period of rejoicing and celebrating, and of spending time with family and community. For the New York City Ultra-Orthodox (Haredi) Jewish community, however, the holiday did not end in "happiness", but in something far more severe—an ongoing medical crisis, a measles outbreak that has since infected 622 individuals as of July 2019 (City of New York, 2019). The epidemic is suspected to have begun at a holiday celebration in the Ukrainian town of Uman, where many Ultra-Orthdox Jews went to visit the grave of the esteemed Rabbi Nachman. The insufficient measles-mumps-rubella (MMR) vaccination rates in the Haredi community, coupled with an ongoing measles crisis in Ukraine at large, facilitated the spread of the disease to holiday travellers. Perhaps most ironically, Rabbi Nachman himself was a deep believer in the use of vaccines, stating that "one must be very very careful about the health of children...One must inoculate every baby...because if not, it is like spilling blood" (Milgram, n.d.). Alas, the disease spread and quickly infected the predominantly Haredi neighborhoods of Williamsburg, Borough Park, and Rockland County, New York.

This epidemic has been deemed one of the worst measles outbreaks in America history. Measles—a disease previously considered eradicated in the US—is a highly contagious virus transmitted through airborne spread and can lead to significant brain damage, or even death (CDC, 2019). Hundreds of children and adults have been infected and hospitalized, leading New York Mayor Bill de Blasio to officially deem the outbreak a "public health crisis". As public health officials struggle to get the outbreak under control through bans, mandates, and financial incentives, some individuals have responded with pushback, calling such officials anti-Semitic and Nazi-like (Scutti, 2019). One particularly extreme example of this, albeit uncommon in the Ultra-Orthodox community specifically, was the donning of yellow stars—reminiscent of the yellow stars that Nazis forced Jews to wear in 1930s Germany. The stars featured the words "No Vax", using the colloquial abbreviation for vaccine, demonstrated in Figure 1 below, as a way for anti-vax advocates to compare their situation to that of Holocaust victims (Dolsten, 2019).

Figure 1. *Anti-Vaxxers Using Anti-Nazi Image* (Dolsten, 2019)

That anti-Semitic rhetoric is not without foundation. In fact, much of the news coverage has framed the narrative in a way that blames the community for avoiding vaccines and putting the lives of fellow New Yorkers in danger. While anti-vaxxers surely exist in the community—and receive a disproportionate amount of media coverage—they are a minority in the population (Weinstock, 2019). Further, various anti-Semitic incidents have been reported, including a well-publicized case of a Metropolitan Transportation Authority bus driver refusing to stop for an Ultra-Orthodox man, as well as a general uptick in community hate crimes (JTA & Oster, 2019; Katz, 2019). Many of these accusations are inaccurate. New research by the New York State Department of Health demonstrated that while the statewide MMR vaccination rate is 96%, the rate in Borough Park is 97% and the rate in Williamsburg is 94%—numbers that have likely grown since they were last measured in 2018, due to the recent outbreak. This is to say that the vaccination rates in these Jewish communities are not so low, especially when comparing Orthodox schools to other private schools, where vaccination rates are as low as 50-60% (Weinstock, 2019). These statistics demonstrate that achieving a 96% vaccination rate—the threshold for measles herd immunity—will not single-handedly end the outbreak (CDC, 2019).

The Ultra-Orthodox community is internally trying to fight this outbreak, all while the New York City Department of Health and Mental Hygiene (DOHMH) is working towards the

same goal. This paper provides a review of such efforts on the public and private levels, as well as the collaborative efforts among community members and the State. It seeks to understand how public health officials could better address the measles outbreak among Haredim (plural of Haredi) by exploring the ways in which this unique population makes its health-related decisions, the source of anti-vaccination attitudes in the community, and the reasoning behind the ongoing outbreak despite high vaccination rates. The shortcomings of the existing policies—evidenced by the persistence of this outbreak—as well as potential areas of improvement will be highlighted in order to help policymakers and community leaders develop stronger interventions. The efforts thus far have indeed both spurred vaccinations and slowed the disease's spread (Weinstock, 2019). But since this devastating outbreak is costing individuals, the health care system, and the City of New York hundreds of thousands of dollars, and the community hundreds of healthy lives, it is imperative that the interventions be appropriately evaluated and improved going forward.

The remainder of this paper is structured as follows. First, I will present a literature review to explore the driving forces, including history and culture, behind vaccine hesitancy and disease proliferation. I will then discuss the behavioral biases present in this community surrounding the topic of vaccine choices. I will describe existing policies and interventions, with recommendations for how to improve those policies. I will conclude with suggestions for next steps that should be taken in order to end this outbreak, based off of the literature, news articles, and personal interviews.

Literature Review

In trying to understand the phenomenon of interest, I turned to existing literature from the fields of history, anthropology, behavioral science, and beyond. The following four-part literature review seeks to answer the question of, how did we get to where we are now? What are the underlying forces—social, historical, and otherwise—that allowed this measles outbreak to develop? I will first look into the relationship between religious and healthcare institutions. I will then focus specifically on Jewish perspectives towards vaccinations. In Part Three, I will outline the reasons cited in the literature for vaccine hesitancy, and I will conclude with some examples of interventions that have addressed vaccine hesitancy.

Part One: Religion & Health

The Religion-Health Divide

Many scholars reflect on the longstanding divide between the realms of health and religion. The relationship between the two groups has been "marked by contention and controversy" (Levin, 2016, p. 345) and has been "a messy story" (Cadge, 2012, p. 14), a sentiment that some scholars attribute to the perceived separation between physical and spiritual health. Many religious individuals believe that health is reliant on God rather than on human intervention, arguing that since a higher power controls one's destiny, one need not take personal responsibility for health (Koenig, 2008). One study developed this idea by demonstrating that belief in God's "locus of control"—demonstrated by agreement with the statements "God is in control of my condition" and "God is directly responsible for my condition getting worse or better"—was negatively correlated with likelihood of taking responsibility for health outcomes (Wallston et. al, 1999). However, some academics are of the opinion that religions generally encourage healthy living and discourage actions that are harmful to the body, which indicates that health and religion are perhaps not as separate as often perceived (Koenig, 2008; Levin, 2016).

The Religion-Health Partnership

Given the assumed separation between health and religion, religious leaders and public health workers may seem like unlikely partners. As one scholar notes,

> The idea of partnerships between the public health establishment and associated agencies, on the one hand, and religious institutions and organizations, on the other, may seem unlikely or counterintuitive. But in theory, as well as historically, public health leaders' solicitation of faith-based partnerships is consonant with both the longstanding prophetic role of religious institutions, at least ideally, and historic principles of public health practice (Levin, 2013, p. 369).

In recent years, the government and medical institutions have recognized the importance of working with religious communities, given the potential for influence and impact. In 2001, the Bush administration created the White House Office of Faith-Based and Community Initiatives to encourage faith-based organizations to provide healthcare (Levin, 2016). Likewise, at the launch for the Healthy People 2020 Initiative in 2010, the U.S. Assistant Secretary for Health announced, "faith-based organizations are a tremendous example of the social determinants approach at work…we have viewed that partnership as a very valuable one" (qtd. in Levin, 2013, p. 369). In fact, a cross-sectional national study of health departments found that such partnerships have become quite common; more than 83% of surveyed departments reported at least one partnership activity with faith communities (Barnes & Curtis, 2009).

Scholars site a range of reasons that such partnerships are deemed valuable. Faith organizations have resources—both physical and emotional—for helping with needs assessment, health education, and community organization, which are beneficial for promoting health and addressing health concerns. As one scholar notes, "it would be foolish to ignore such resources, especially in a time of federal resource scarcity" (Levin, 2013, p. 378). He adds that this partnership approach is successful for three main reasons: public health workers and religious leaders share similar concerns; many religions have tenets related to health; and religious organizations can encourage health-related interventions in people who would otherwise be hard to reach. Furthermore, both Levin (2013) and Jarrett et al. (2015) note the inherently social nature of religious organizations. Places of worship are often centers for social connections, in which people exchange information that could be relevant and valuable in altering behavior,

particularly because religious-based interventions allow individuals to integrate the new behaviors into familiar processes and systems.

Part Two: Jewish Perspectives on Vaccination

The United Nations International Children's Emergency Fund, UNICEF, published a set of guidelines on how public health officials should engage religious communities around the topic of vaccinations. In their pamphlet, they note the importance of understanding the religious tenets and the tradition's historic outlook on vaccination (UNICEF, 2004). To properly apply the research on behavioral change to the measles outbreak in the Haredi community, it is imperative to understand how Jewish tradition approaches the topic of vaccinations.

Historical Jewish Perspectives on Vaccinations

The advent of inoculation in the early eighteenth century—and the subsequent development of vaccinations—presented the public with new opportunities and questions. The Jewish community was not *immune* to such discussions; while Jewish thinkers had long engaged with the topic of medicine in religion, this innovation raised new issues for Jewish decision makers, known as *poskim*, as they were presented with "new circumstances never fully anticipated by their ancestors" (Ruderman, 2002, p. 116). They sought to understand whether or not use of vaccination was against the will of God, and whether vaccination was an unacceptable attempt by man to intervene in God's plans (Bush, 2012). Opinions across the Jewish community were far from unanimous: on one end of the spectrum was Marcus Herz, a secular Jewish physician and philosopher who vehemently opposed vaccines, maintaining that they were philosophically and morally wrong, and refusing to acknowledge their effectiveness. On the other end were individuals such as Jewish Portuguese physician Jacob de Castro Sarmento, who expressed positive regard for the smallpox inoculation in his 1721 *A Dissertation on the Method of Inoculating the Small-Pox*, and German philosopher Alexander ben Solomon, who wrote an article in 1768 in the widely-published Jewish Enlightenment journal *Hame'assef,* in which he pushed for the Jewish community to promote vaccination (Sarmento, 1721; Ruderman, 2002).

In the early discourse on vaccinations and inoculations, a common thread exists: both those in favor of and in opposition to the practice rooted their reasoning in biblical and rabbinic texts. As the first to engage in this debate, the eighteenth century scholars likely used the textual

sources as a means of validating their arguments. Many made reference to the biblical obligation to build a *ma'akeh,* a railing to prevent people from falling from a roof. The passage has been understood in the Talmud and the Shulkhan Arukh to mean that there is an obligation to prevent dangerous situations that could lead to death or injury, so some eighteenth-century *poskim* argued that use of vaccines was an example of danger prevention.

Risk associated with inoculation became a key point of emphasis in early debates. Inoculation was met with fear and skepticism, as reflected in the writings of religious figures who highlighted potential dangers rather than potential life-saving measures. One critic, for example, said that even a small risk is problematic, since Jewish practice holds that it is not justifiable to lose one child for the sake of saving others. In his writing, ben Solomon specifically addressed the issue of risk, acknowledging that the probability of death from inoculation is so minute that it should not keep people from vaccinating. He alluded to other risky medical procedures that had long been accepted in the Jewish community, such as bloodletting and purgation, and even noted that activities like traveling in the desert or at sea are quite dangerous, yet are not prohibited by Jewish law (Ruderman, 2002).

Edward Jenner's successful vaccination in England in 1796 brought with it more confidence in the safety and efficacy of the practice. As a result, much of the conversation and debate shifted away from the potential risk of vaccinating and reflected excitement about the new medical technology. For example, Judah Jeiteles, a prominent member of Prague's Jewish and medical communities, wrote in 1821 that vaccination was part of God's will to preserve human life; in fact, he viewed vaccines as an expression of divine intervention (See Appendix 2). Similarly, one Kabbalistic writer argued that there "is a commandment to publicize this tested cure which God bestowed on us in this generation, and which previous generations were not privileged to enjoy" (qtd. in Ruderman, 2002, p. 128). Rabbi Israel Lifschitz, a prominent rabbi and religious commentator living in Poland in the late 1700s, called Jenner "one of the righteous among nations" for his lifesaving cure (McNeil, 2019). The new conception of the vaccine as a God-given gift was coupled with increased utilization of the practice across Europe.

As the practice became more popular and widely accepted in society, the Jewish community faced more external demand to encourage vaccination. Many governments

recognized the benefit of mass-vaccination and imposed mandatory immunizations. The writings of Jewish *poskim* reflected such changes, with new emphasis on putting the good of society over personal preferences. New governmental policies and a broader social pressure from external forces led more Jewish leaders to write favorably about vaccination (Ruderman, 2002).

In the second half of the eighteenth century, *Haskalah*, the Jewish Enlightenment movement, gained popularity and began to take over the Jewish vaccination discourse. Marcus Herz's anti-vaccine attitude, for example, reflected the Enlightenment belief that man was "the noblest creature on Earth…with unique moral, intellectual, and physical attributes over all other living species" (Ruderman, 2002, p. 139). Inoculation, he believed, was not logical and rational, since it was using a lesser species—animals—to help save the noblest species, humans. On the other side of the spectrum, ben Solomon, who wrote in *Hame'assef*, offered a mix of both religious arguments and rational ones. Referencing a Deutoronomical quote, he argued that "it is permitted to use the new cure from the doctors of our time, new ones, who came but lately, 'whom your fathers did not know'" (qtd. in Ruderman, 2002, p. 117). Yet he also used logical reasoning in addressing those who argued that inoculation is an expression of doubting God's providence: "would we say that a person has abandoned his trust in God by trying to save his own life and sustaining himself during a famine?", he asks (Ruderman, 2002, p. 121). The Enlightenment approach to vaccines paved the way for future Jewish thinkers in the nineteenth through twenty-first centuries who incorporated more secular perspectives in their arguments for and against vaccinations.

Contemporary Jewish Perspectives on Vaccinations

Modern debates surrounding vaccination are much the same as earlier debates. For one, modern thinkers still utilize old sources to provide text-based support for their arguments. Many scholars make reference to the twelfth-century Maimonides, who held that any health-promoting practice considered to be the normative standard of care should be practiced, since it is part of the proper service of God. Others reference R' Moshe Isserles's sixteenth century commentary which explains that one must not only refrain from dangerous activities but must also proactively prevent dangerous behavior. He states that, in times of plague, one should flee from cities at the onset of the plague, rather than waiting for the plague to spread to a point of imminent danger.

Later commentators apply this to smallpox epidemics as well, stating that parents must remove their children from danger. Since most of those commentaries were written before vaccinations developed, they were referring to the physical removal of children from smallpox-infested locations, but many modern commentators apply this idea to vaccination as well (Bush, 2012). These text-based proofs demonstrate how religious figures today continue to look back at historical answers to similar questions.

The contemporary debates are also reflective of early debates in that they talk about risk. However, these discussions focus on risk of disease rather than risk of vaccination. Scientific evidence demonstrates that the risk of contracting such diseases as measles or polio is significant enough to warrant vaccinations (Levi, 2014). But, referring to Isserles's argument that one must flee from cities at the onset of a plague, some religious commentators have argued that one must proactively protect his children only when there is *significant* danger. Given that the ratio of people infected with childhood diseases like polio and measles is quite low, some religious authorities say there is not *significant* risk, and therefore there is no religious obligation to vaccinate. Such *poskim* fail to acknowledge that the rates of childhood disease are low only *because* of the high rates of immunizations, which Rabbi Asher Bush points out in *Vaccination in Halakha and in Practice in the Orthodox Jewish Community*, a detailed account of the varying arguments and perspectives on vaccination in the Jewish community today. Bush himself supports vaccination, emphasizing the issue of risk throughout his paper. He raises the idea of herd immunity, noting that "the unvaccinated portion of the population plays a significant role in the start and spread of the outbreak…the unvaccinated population is indeed causing a most unnecessary risk to the larger vaccinated population" (Bush, 2012, p. 204). Likewise, recent debate has emerged among rabbis regarding whether a person should put himself in danger in order to protect others, but many have concluded that this question is irrelevant in the case of vaccines, since there is an imbalance of risk: getting vaccines puts one is little danger, while the disease itself puts one in great danger, so the minimal danger is preferred (Weiss, 2019).

Modern literature on vaccination is distinct from that of the eighteenth century, since the argument is not suggesting that vaccinations are *prohibited* in the Jewish faith, but rather that they are simply *not obligatory*. A number of influential rabbis of the late-twentieth and early

twenty-first centuries, including Yehoshua Neuwirth, Hershel Shachter, and David Bleich, argue that, given the relatively low risk of infection, parents cannot be forced to vaccinate their children, even if their concerns associated with vaccinating are irrational. However, these rabbis agree that parents are not exempt from law or school policies that require vaccination, especially when that would jeopardize the health of others (Bush, 2011). It is important to note that the aforementioned rabbis were writing at a time when the dangers of the diseases were not imminent, as no outbreak existed, and some rabbis have since changed their opinion on the obligation to vaccinate (Bush, 2019).

More recently, amidst the current outbreak, a number of rabbis have tried to shift the discourse by attempting to find sources that would actually make vaccination religiously *obligatory*. Some have compared the fight against disease to a fight against an attacking army: just as we do not worry about risking lives to fight a "*milchemet mitzvah"*, a war that is obligatory to fight, so too we should not worry about risking lives to fight against a plague, epidemic, or other disease that is attacking one's body. Other rabbis point to the religious obligation cited in the *Talmud* and the *Shulchan Aruch* for all residents of a city to take part in guarding that city. They argue that this requirement to contribute to the betterment of society or to a public necessity applies in the case of vaccinating in order to guard against disease (Weiss, 2019). These arguments, while perhaps farfetched, have grown in popularity in response to the needs of the community amidst such outbreaks, and should therefore be understood in that context.

The modern debate persists, but Bush aptly summarizes the discourse on religious obligations and exemptions from vaccination requirements by explaining that "there is no position in *halakha* that says there is any prohibition or compelling reason to refrain from such vaccinations" (Bush, 2012, p. 211). See Appendix 3 for more detail.

Part Three: Reasons for Denying Vaccination

This distinction between prohibition and lack of obligation marks a significant change in attitude towards vaccinations, and implies that Jewish people who deny vaccination do so not from a religious standpoint but for other reasons. To better comprehend this vaccination perspective, one must understand the unique nature of this community. However, it is important

to note that, as discussed in more detail later in this paper, the anti-vaxxers are a slight minority within the Haredi population.

Context

Ultra-Orthodox Judaism is characterized by its strict adherence to tradition and *halakha* (Jewish law) and its rejection of the secular world. Haredim moved to the US in two waves: a pre-World War II migration was made up of Jews seeking a socially and economically improved life outside of Europe, and was characterized by its acceptance of American culture upon their arrival; the second group came after the Holocaust and consisted of Jews who viewed outside forces, especially the government, as dangerous and threatening to their way of life (J., 2019). Since their arrival in the US, the communities have become increasingly closed off from outside influences, and today remains an insular community bound by religious law and administered by rabbinical leaders (Jaroslawicz-Neufeld, 2019).

Vaccine Hesitancy

A few features of this group make it particularly susceptible to vaccine skepticism and to disease transmission. The highly social nature of the population of interest lends itself to being a breeding ground for infectious diseases like measles (Jaroslawicz-Neufeld, 2019; Lernout et al., 2009). Interestingly, there is no religious foundation for vaccination refusal in the Jewish tradition, and there is an oft-cited obligation of "*venishmartem me'od l'nafshotechem*", to guard one's health and seek medical attention when ill (Bush, 2012; Pager, 2019b; Henderson et al., 2008). Anthropologists, ethnographers, and historians over the past ten years have tried to better understand the reasons for vaccine hesitancy in this unique community; the key influencers are detailed below.

Traditionality

The pervasiveness of Denialism—the rejection of new ideas or data that do not fit into existing beliefs—has contributed to underutilization of vaccines among Haredim (Levi, 2014). The Haredi community, committed to traditional principles, has long expressed skepticism of new ideas, particularly scientific ideas that run contrary to religious beliefs. This has led to a general mistrust of the medical establishment and widespread negative perceptions towards medicine and science (Henderson et. al, 2008). Likewise, many Haredim rely on "old-world

wisdom", such as the idea that, as one doctor currently treating measles patients quoted, "my *bubbie* [grandmother] and aunt had measles and lived to be ninety" (qtd. in Cohen, 2018).

Fear of Outside Influence

Much of the hesitancy towards immunization stems from fear of the outside world. Vaccines, which are by definition injecting a foreign substance into one's body, are perceived as untrustworthy to some individuals. They believe that trusting God to maintain one's health should outweigh the need to inject oneself with a risky substance that may cause disease (Henderson et al., 2008). A general skepticism of and negative attitudes towards government are correlated with under-immunity in this population (Muhsen et al., 2012). As one rabbi-doctor explained, much of the community is "busy fighting the influence of the evil outside world...They say, 'those evil people [in government] are trying to tell us what to do, trying to push these evolution ideas onto us, trying to push abortion'", so they reject vaccines too, viewing them with an equal amount of skepticism (Bush, 2019). A pro-vaccine educator corroborated that "there's a mentality of, 'if it's coming from the government, it must be bad—other than financial aid'. The minute it becomes about government regulation, it becomes, 'why are they doing this to us?'"—a concept that she refers to as the "Cossack Mentality", in reference to the oppressive European group that performed pogroms against Jews during the twentieth century (Jaroslawicz-Neufeld, 2019).

It is important to note that the current outbreak in the New York Haredi community spread from the Israeli Haredi community, where many reject vaccinations for political reasons. Because many Haredi people do not support Israeli statehood, they refuse to accept its government's authority. That attitude, coupled with longstanding skepticism of governmental health agencies and the broader medical establishment, has led many to refuse vaccination as part of a broader rejection of Israeli governance (Cohen, 2018).

Insularity

A related notion is the community's insularity, which leads not only to skepticism of outside authority, but also perpetuates the belief that individuals are not susceptible to external dangers like disease (Henderson et al., 2008). Since the community deliberately separates itself from the outside world, some believe that, as one Haredi parent stated, "we don't need

[vaccinations]. We don't have anything to do with other ethnic groups. We've only got to do literally with Jewish people" (qtd. in Henderson et. al, 2008, p. 249). Such a belief is false, since no population is truly immune to outside contact. While this attitude may generally be a reason that the population today has low immunization rates, it is unlikely that this belief persists amidst the current outbreak, since it is impossible to ignore the susceptibility of Haredim to the disease.

Misinformation

Another contributing factor to the vaccine attitudes among Haredim is the way in which informal social networks influence transmission of information. The insularity limits access to medical information, since most individuals do not use the internet and many do not read English books to attain medical knowledge (J., 2019). Many have minimal direct exposure to media, so trickles of medical information—often with no scientific backing—enter into the community and spread among individuals. For example, rumors of the dangers of vaccines, such as possible links to autism or even cancer, are often left unconfirmed by science, yet believed by many (Henderson et al., 2008). In fact, safety concerns are cited as one of the main sources of vaccination refusal in this population (Wombwell et al., 2015). Furthermore, the increase in vaccine hesitancy worldwide means that there exists more literature that has the possibility of trickling into the Haredi world. In fact, anti-vax advocates have reportedly targeted the Haredi population because of their susceptibility to such misinformation (Pager, 2019a). This has unfortunately left Haredim misinformed about the dangers—or lack thereof—of immunizing (Dube et al., 2013). See Appendix 4.

Social Norms

Relatedly, the impactfulness of social networks may influence vaccine hesitancy and uptake. One study emphasizes the role of social norms in influencing immunization decisions. Knowledge, or even perception, that those around you—individuals whom you trust, who are similar to you—have been vaccinated may influence one's choice to immunize, especially in hyper-social and insular communities like this one. There is also evidence that social duty impacts vaccination choices; if immunizing is perceived as a duty to the community to help maintain herd immunity, then individuals may choose to vaccinate. However, herd immunity is complex and may be unintelligible to this relatively uneducated population (Dube et al., 2013).

Lack of Education

The Haredi population has low levels of higher education, so they often misunderstand medical information and are susceptible to being misinformed about vaccination risks (Wombwell et al., 2015). Haredi women are especially unlikely to be college educated, which is problematic since those women are often responsible for medical care of children, including vaccination (Simhi et al., 2013). In fact, one study found a positive correlation between maternal education and children's immunization among the Ultra Orthodox population, indicating that lack of education may influence vaccine hesitancy (Muhsen et al., 2012; Zamir & Israeli, 2017). Also, since many Haredi schools do not offer in-depth science courses, "science is not a language most people speak" (Levi, 2014, p. 174), making vaccination an incomprehensible practice. See Appendix 5 for anti-vaccination arguments among less-educated Haredim.

Hierarchical Structure

One particularly influential aspect of this population is its hierarchical structure. There exists a widespread belief that rabbis have "*das torah*", meaning that anything the rabbis say is a transmission of the word of God. This gives the community a hierarchical structure, since individuals are heavily reliant on rabbinical figures for decisions beyond just the religious realm, including medical decisions. Many rabbis have recently objected to the use of vaccines *because* of the "*venishmartem me'od l'nafshotechem*" obligation; the seemingly large risks associated with immunization outweigh the benefits, and so, in their eyes, vaccinating is *countering* the requirement to protect one's health (Turner, 2017). Furthermore, the related mistrust of non-rabbinic authorities perpetuates a belief that individuals do not need to follow "*chukas goyim*"—the law of the land—and should remain skeptical of governmental motives in devising policies related to vaccines (J., 2019).

Part Four: Interventions to Address Vaccine Hesitancy

Since vaccine hesitancy is the core problem, this section will describe various policy approaches that use behaviorally-informed approaches.

In a comprehensive literature review, Sadaf et al. (2013) studied interventions addressing vaccine refusal in parents. A number of the policies target parents directly through informational or educational campaigns. Of the fifteen studies evaluated in the literature review about parental

attitudes towards vaccination, eight campaigns led to statistically significant improvements in shifting attitudes, and among the ten papers studying the impact of educational campaigns on parental intention to immunize, half demonstrated a statistically significant positive impact (Sadaf et al., 2013). Overall, though, evidence was limited on effects of interventions addressing parental vaccine hesitancy and refusal. One significant limitation of many of the reported studies was failure to include measurable outcomes, relying instead on indirect evidence and observational data. Many of the studies were underpowered and thus could not detect significant changes, such as shifts in parental attitudes. While educational pamphlets were cited to be the most effective intervention among the reported policies, this may only be a result of underreporting of other types of information-based interventions. The literature review notes the absence of high-quality evidence, and calls for the development of "randomized trials on cost-effective interventions with outcomes that are measured in terms of the impact on vaccination rates among refusing parents" (Sadaf et al., 2013).

Public and private policymakers have recently begun to design behaviorally inspired interventions to target vaccinations. Most notably, a number of studies explore behavioral techniques to address flu vaccination uptake. Drees et al. (2015), for example, used behaviorally-informed incentives to encourage immunization without a mandate, including distributing "I'm vaccinated because I care" badges to those who complied. The authors found that the use of peer pressure (the badges), accountability (involving managers in implementation), and financial incentives (inability to receive promotion if non-compliant with vaccination policies) were associated with higher immunization rates. The applicability of these findings may be limited, though, as the study was implemented in two hospitals among health care professionals, who may be more inclined to vaccinate. Further, flu vaccination—which is done annually—may be different than MMR and other routine childhood immunizations.

Similarly, in looking at the ethics behind mandatory flu vaccinations, Dubov & Phung (2015) suggest that nudging individuals towards immunizing is more effective and more ethical. They outline the specific cognitive biases—omission bias, ambiguity aversion, present bias, and availability bias—at play, and outline existing policies that could address those biases, including use of commitment devices, opt-out systems, and social norms-framed educational campaigns.

This study again focuses on just seasonal flu immunization only in health-care workers, but the behavioral diagnosis is relevant in this case of MMR vaccination.

Chen & Stevens (2016) focus on misconceptions about flu vaccinations and suggest ways to combat those misconceptions through nudges. After identifying behavioral biases, the authors suggest policy interventions, including "putting a face on it" to personalize messages through the voice of vaccinated individuals; "making it personal" by including named individuals in ad campaigns as well as personalized statistics; framing health messages as a loss frame; and using commitment devices to encourage follow-through. While these policy proposals are relevant and creative, they are limiting in that they have not been implemented so their impact and effectiveness are unknown.

Finally, Bronchetti et al. (2015) use randomized control trials on college campuses to evaluate the effects of two low-cost nudges on flu vaccination uptake. The first took advantage of peer effects by having volunteer students endorse immunization in an informational email, and the outcomes were compared to a control group that received just an informational email. The second treatment condition received the same email as the control, with an additional audio clip of a sick person coughing in order to make sickness more salient before a person made a plan to get vaccinated. These two conditions did *not* result in increased vaccination uptake, but the higher rates of opened emails in the first intervention suggests some power of peer influence, which could still be influential in other contexts. It should be noted that these findings—while discouraging—may only be reflective of college students and flu vaccinations, and so these behaviorally informed interventions may still be applicable in the context of MMR.

Policy Approaches to Interventions in Similar Contexts

Two distinctive factors particularly stand out in the Haredi community in a way that influences its receptivity to health interventions: its hierarchical structure and its insularity. A vast amount of literature exists on the role that religious leaders can play and have played in health interventions in similarly-structured religious communities. Awe (2018), for example, suggests that leaders can promote immunization to constituents in one-on-one interactions such as marital counseling. This paper, however, has two key limitations. First, the proposal to include health promotion in marital counseling has never in fact been tested in a formal study, so its

merits cannot be evaluated. And secondly, the study, like much of the literature on this topic, assumes that the religious leaders are "highly educated" about the disease and therefore believe in the need to vaccinate. Such is not the case in the Haredi community, where much of the problem stems from the fact that some leaders are explicitly opposed to vaccines or are otherwise uneducated about them. Similarly, Ruijs et al. (2013) advocates for religious leaders to promote immunization, and notes the impact that health campaigns by such leaders have had on increased participation rates of congregants in the given health behavior. However, he notes that these types of interventions only work among leaders who are not explicitly anti-vaccination. Such a policy would only be applicable to rabbinical figures who are pro-vax but have not gone out of their way to promote immunization.

The second characteristic, insularity, also plays a key role. One study on Orthodox Protestants, a similarly insular group, found that many non-vaccinating parents were following tradition—doing what friends and family have done—rather than making a deliberate choice to immunize. Those who made a deliberate choice often asked friends' opinions on the matter or discussed the topic with parents or religious leaders. The study notes the applicability in other communities where tradition plays a critical role, like the Haredi one. Since skepticism of external authority has been a longstanding tradition in this population, stemming back to the post-WWII era, vaccination refusal is in line with such beliefs. As such, the paper argues that nudging individuals to make a deliberate choice regarding immunization is key to uptake, since those in the study who followed tradition remained unvaccinated, not even considering the alternative. The paper also mentions the role of social control; some individuals who chose to immunize were hesitant to discuss that with other community members, or even family members, out of fear of stigmatization (Ruijs et al., 2012). Another study in the same population reported that the strongest predictor of vaccination was parents' vaccination—another testament to the group's reliance on tradition. Given the increasing rates among Orthodox Protestants, the authors suggest that "probably it is sufficient to...let time do its work" and not to intervene further (Spaan et al., 2017). Despite the similarities between these two communities, though, this policy implication, while untested, would likely be inapplicable in the Haredi world, where

immunization coverage has actually declined over generations. Also, neither of the papers suggest a socially- motivated policy intervention—a key limitation.

Behavioral Biases

The Haredi population is quite distinctive in its nature, so while looking at policies in comparable communities may be beneficial, it is important to address the specific behavioral biases present in this group. The biases detailed below have been extensively described in the literature on vaccine-hesitant populations, and corroborated by first-hand interviews.

First, in this insular world that does not have access to a wide array of news sources, individuals tend to overestimate the occurrence of an event that they have heard about—known as the **availability bias** (Dubov & Phung, 2015). They tend to use what is in their immediate circle to understand the measles situation, with a common trope being, "I had a family member survive measles, so it can't be so bad". Further, because international Haredi enclaves are quite interconnected, some individuals cite the fact that much of Europe does not have mandatory vaccination policies, yet family and friends there are not suffering from measles (Jaroslawicz-Neufeld, 2019).

Likewise, individuals considering immunizations typically face **confirmation bias**, meaning that they have the tendency to seek out information that confirms their existing beliefs, rather than evaluating information from all sides. Evidence shows that there is a tendency to accept information that reinforces existing world views (Song et al., 2014). As one Haredi father and rabbi explained, when he heard rumors that vaccines are the cause of medical problems, he continued to research this issue, and attributed his children's ear infections to immunizations. After this discovery, he stopped vaccinating his children, and today remains a staunch anti-vaccine advocate (Gottesman, 2018). Such is exemplary of parents who look for "easy answers" to their medical problems, and turn to evidence that supports their existing beliefs about the cause of their misfortunes (Bush, 2019). This issue is exacerbated by the fact that individuals generally have lower levels of education as well as limited access to diverse sources of information. When they hear rumors of the dangers of vaccines, they continue to expose themselves to other negative information, rather than seeking out sources on the positive aspects of vaccines (Meppelink et al., 2019).

Authority bias, the tendency to believe the opinions of an authority figure, influences many Haredi families, who use rabbis as the authority on decisions in all aspects of life, including medical decision-making. When a rabbi opposes vaccination, individuals trust his authority and often do not seek out a second opinion, even from a medical professional. This bias is further intensified in this community, where the authority of the rabbis is often left unquestioned because of the perceived divinely influenced status of rabbis (Jaroslawicz-Neufeld, 2019). Put simply, "'*das torah'* are the magic words" (Bush, 2019). That is, "people don't understand what is the job of the rabbi, and the rabbis find it intoxicating to be asked about everything" (Bush, 2019). Relatedly, there is evidence of **in-group preferences**, where individuals are more likely to trust and support ideas and opinions of those who are similar (Hampton et al., 2018). In fact, people are more likely to accept messages from experts who have similar cultural and social values (Song et al., 2014). This bias can drive people to listen to the authority of those in the in-group, rather than the authority of an outside force like the DOHMH—an idea that is surely exacerbated by the fact that the external authority is also one that is already viewed as foreign and threatening. However, it is important to note the intricacies and nuances of these biases. One rabbi cited the fact that many individuals "absolutely follow great rabbis in every other case" aside from the case of vaccination decisions (Glatt, 2019). In the case of the measles vaccine, there is "disregard of [rabbinic] authority by people who would be willing to listen to [that] authority in other contexts", and they choose to follow the minority group of rabbis—those who are anti-vax—in place of following their typical *posek*, religious decision-maker (Glatt, 2019). This is perhaps explained by the in-group bias, since "it's not a coincidence that [an anti-vaxxer's] base for making health decisions is [other] non-college educated white folks" (J., 2019). While other prominent figures have questioned Rabbi Dr. Glatt's assertion about who is the authority figure in this case, this claim highlights the complexities and nuances of the community.

Social proof is the idea that people use other similar people as a way of determining how they should behave. In the tight knit, homogenous Haredi community, one person's choice heavily influences the decisions of others (Wissler et al., 2002). Social isolation—such as risking alienating families in terms of marriage prospects—is at stake in this community, so people tend

to mimic the actions of those around them, following the norm and avoiding doing what others consider to be "wrong" (Jaroslawicz-Neufeld, 2019).

Related to the low levels of education is the common belief in "*segula*", a mystical good fortune, and in non-scientific supernatural powers (Jaroslawicz-Neufeld, 2019). There exists a strong belief in alternative medicine, which is connected to the **naturalness bias**, the tendency to prefer natural substances even if they are subservient to synthetic treatments (Dubov & Phung, 2015). When children are in a healthy state, it seems unnatural for a parent to inject the child with a synthetic substance that could cause illness (Serpell & Green, 2006). As one scholar explained, "the person behind the counter at the health food store has the authority in this community" (Bush, 2019).

In addition to these biases that are particularly prevalent among Haredim, there are some biases that are common among anti-vaxxers that certainly exist in this population as well.

Omission bias, the tendency to have a preference for a potentially harmful *inaction* over a potentially less harmful *action*, influences parental decisions about MMR immunization. The bias is particularly pertinent in this community, where inaction can be seen as leaving one's fate in God's hands, which is viewed by some as a true testament of faith. Evidence suggests that framing immunization as a norm may target the omission bias, since failure to immunize is an active decision to reject that norm (Wroe et al., 2005).

The tendency to prefer a *known risk*, such as continuing to live unvaccinated, rather than an *unknown risk*, such as a vaccination with vague risks and outcomes, is called **ambiguity aversion**. When information about the safety of a treatment is confusing or inconsistent, individuals tend to opt out of the treatment (Dubov & Phung, 2015). This was demonstrated to be true in a study on MMR vaccinations, in which perceived lack of consensus about the merits of immunization drove parents not to vaccinate (Serpell & Green, 2006). Notably, the issue of risk has been at the center of the rabbinical debate about vaccines. As noted in the literature review, many rabbis who do not believe that vaccination should be mandatory point to the fact that vaccines hold some risk—notably ignoring the risk of the disease itself (Levi, 2014).

Existing Interventions

Since the outbreak began, both the DOHMH and community members alike have taken steps to minimize the spread of measles. All parties have been working towards the same general goal—ending the epidemic—but have used varying methods to do so. To the credit of community leaders, many local organizations have worked in coordination with the DOHMH to ensure the strongest outcomes. This collaborative effort is surely not a given, due to the aforementioned skepticism of government and external authority.

What follows is an overview of the government-enacted policies, with comments on ways that the policy could be improved, followed by a discussion of some of the smaller-scale interventions happening internally in the community.

Publically-Implemented Interventions

1. School Immunization Requirements

School immunization requirements have existed across the US since 1823, when city officials began to address the fact that compulsory school attendance brought with it an increased rate of infectious disease. While there has been general acceptance and approval of these policies, by the 1970s, most states added religious exemptions to vaccines (Reich, 2016). In New York, the policy stated until recently that every student in public, private, or parochial schools be vaccinated for measles, among other diseases, with certain exceptions including "children whose parent, parents, or guardian hold genuine and sincere religious beliefs which are contrary to the practices herein required" (New York State, n.d.). This policy, however, remained ineffective in many regards, since the exemption clause is easily abused. Because there is no requirement for authorization by a religious authority, the form itself is easily attainable, and the process for exemption is quite straightforward, some anti-vax parents have used the religious exemption form to avoid vaccination. This phenomenon exists in the Ultra-Orthodox community, despite the fact that no Jewish doctrine forbids vaccination. The dean of a Haredi school explained that "it's not the Torah that is opposed to [vaccines]. You're opposed to it, and you happen to be religious", and another school administrator expressed a similar sentiment: "religious exemptions? They're total bulls**t, excuse my language" (J., 2019; Jaroslawicz-Neufeld, 2019).

Perhaps the only way to improve the school immunization policies is by banning religious exemptions, which New York State decided to do in mid-June 2019 (Allyn, 2019). This move is promising, since a number of studies found that implementation of state exemption allowances for vaccinations leads to increased use of such exemptions (Omer et al., 2006; Omer et al., 2012; Safi et al., 2012; Thompson et al., 2007). But the introduction of non-medical exemption led to a decrease in medical exemptions, indicating that parents may have previously sought out medical exemptions when they were opposed for other reasons (Sadaf et al., 2013). This concerning finding was corroborated when California passed Senate Bill 227 (SB277) to eliminate non-medical exemptions in the state, and the rate of *medical* exemptions actually increased (Mohanty et al., 2018). Alas, making stringent policies may not be most effective.

Another approach could be to change the nature of the religious exemptions themselves. Studies show that increasingly complex school vaccination exemption requirements correspond with lower exemption rates. This finding suggests that one way schools could help lower the number of unvaccinated children is by making exemption forms longers and more difficult to complete (Omer et al., 2006; Omer et al., 2012; Rota et al., 2001; Salmon et al., 2005). More research on the most effective type of vaccination exemption is underway but could be quite informative for New York State policymakers (Buttenheim, 2019).

2. Restricted School Attendance

Enforcement of required school immunization policies has historically been challenging, since "[t]eachers, principals, and school personnel were then, as they are today, largely uninterested in public health enforcement" (Reich, 2016, p. 38). To address this issue, many states including New York have put the responsibility on school administrators to ensure that children are either vaccinated or exempt. During an outbreak, the state has the right to declare that the unvaccinated children be restricted from attending school, so as to curb the spread of disease. In the most recent outbreak, the DOHMH did just that: in December 2018, it issued an emergency health measure that ordered schools in certain zip codes to prohibit unvaccinated children from attending school (Pager, 2019b). Some schools ignored the policy, allowing unvaccinated children to attend, which reportedly allowed the disease to spread significantly (Feldman, 2019b).

This policy was crucial for stemming the spread of disease since schools put children into close quarters—breeding grounds for the spread of disease. However, this policy was imperfect in practice. It seems that a significant setback for the success of this policy lies in the fact that it did not partner with the school administrators. Representatives from the schools themselves were not involved in the making of the policy, and some were not motivated to comply with the policy and enforce it. In fact, 23 child care centers and other Jewish schools were closed by the State for non-compliance, leading to more resentment of the authority (LaVito, 2019). A group of vaccine-opposing parents ultimately sued the county in a case that is still under litigation, claiming that the government was unfairly overreaching by banning children from school (Brody, 2019).

Another issue with the school attendance policy is that it is not targeting the right population. About 60% of measles cases have been in the under-5 population, as many young children are not fully vaccinated (Weinstock, 2019). Those pre-school age children are too young to be affected by school-related policies and continue to spread the disease even in the presence of such policies.

3. Restrictions from Public Spaces

While the school exclusion policies did increase vaccination uptake, the policies failed to end the measles outbreak. In March, Rockland County—home to a significant portion of the outbreak—declared a state of emergency that banned non-immunized children and teenagers from all public places, including supermarkets, schools, restaurants, and places of worship (Gold & Pager, 2019). This policy, though, is confusing and difficult to enforce, since it is ambiguous who is responsible for enforcement—the government, the parents, or the store owners, for example. Legislators argue that it was intended to encourage parents to cooperate with the Health Department, but it again failed to address the underlying issue of mistrust of the government (Maslin Nir & Gold, 2019). Likewise, a common trope among non-vaccinating parents is, "I'm not going to put my child at risk to save another child" (qtd in. Reich, 2019, p. 3), so the legislators' premise that one would keep their child out of public spaces seems flawed.

Furthermore, this kind of intervention would not be effective in this specific community, since spread of the highly-contagious disease is not limited to public places; in a population with large families and frequent social gatherings in non-public places like family homes, the spread

of the disease could not successfully be stopped through a ban of this nature (J., 2019, Jaroslawicz-Neufeld, 2019; Lernout et al., 2009).

Since this policy could not be regulated and had no measurable outcomes, it is difficult to evaluate its effectiveness. It seems that it did more damage than it did help the situation. For one, it only further created a sense of distrust of government, and it put the credibility of the DOHMH at stake, since the policy seems unreasonable and unfeasible.

4. Mandatory Vaccinations

Most recently, Mayor de Blasio called the Haredi measles outbreak a public health emergency, and declared mandatory MMR vaccinations in certain infected zip codes, with a fine for non-compliance. This measure, while extreme and unprecedented, is the first to specifically target unvaccinated individuals, since the DOHMH plans to check immunization records and track down unvaccinated people who have been in contact with one of the hundreds of measles-infected individuals (West, 2019a). This policy has arguably been the most impactful measles-related policy thus far because it led many individuals to vaccinate (Weinstock, 2019). But the policy is imperfect, and there is much room for improvement. First, due to its extreme nature, the policy has already faced legal opposition; five parents sought a restraining order for themselves and their children in order to prevent the implementation of the vaccine mandate (Katersky & Keneally, 2019). In addition, it is possible that the $1,000 fee for non-compliance will not drive anti-vaxxers to vaccinate. This fine may be a strong enough punishment for people who are simply vaccine hesitant, but for those who have strong oppositions to vaccines, the $1000 may still be a worthwhile investment.

Another reason that the mandatory vaccinations are not enough to stem this outbreak is rooted in the fact that it is not the unvaccinated alone who are contracting measles. In fact, the Haredi community does not have low vaccination rates. While the statewide average is 96%, the rate in Borough Park is 97% and in Williamsburg is 94%—rates that have grown since this statistic was measured in 2018 and since the outbreak began, with 22,300 MMR shots given in Rockland County since the outbreak in October, and further evidenced by the graph in Figure 2 (Belluz, 2019; Goldblatt, 2019; Weinstock, 2019). This rate is quite high relative to some other private schools in the area, where vaccination rates are between 50 and 60 percent. Because of

the interconnectedness of this community, the 96% threshold for herd immunity is not sufficient to stem this outbreak. But it is not low vaccination rates alone that are at play here.

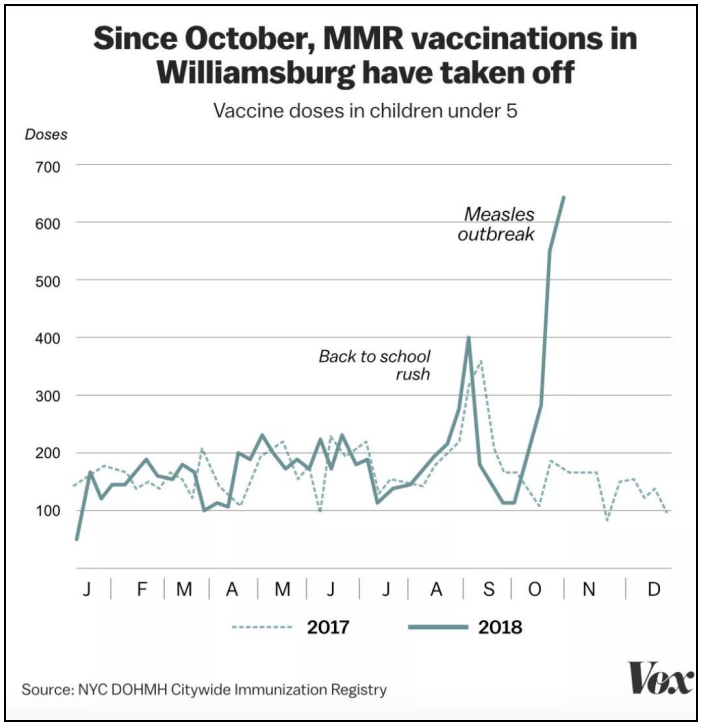

Figure 2. *Vaccine Uptake Over Time* (Belluz, 2019)

Two main issues have come to the surface: the lack of information about vaccinating, and the changes—and subsequent confusion—regarding vaccination guidelines and schedules. Many individuals are only *partially* vaccinated or were vaccinated but no longer have disease immunity (Weinstock, 2019). While still considered among the 96% of vaccinated individuals, these people are still able to contract and spread the disease. Increasing the vaccination rates is important, and driving unvaccinated individuals to vaccinate is surely influential, but it is perhaps even more important to encourage those who are under the false impression that they are safe from the disease: the semi-vaccinated.

While the DOHMH bans, mandates, and other policies may be problematic, it is important to note, as one community leader working on the measles problem explained, that the DOHMH "does what is their expertise" when enacting such stringent policies (Katz, 2019). These publicly-enforced policies will not be successful on their own. Many Haredim already have the belief that the government is "out to get them" and therefore feel that *any* government

policy—especially such a targeted one—should be vehemently rejected (J., 2019; Jaroslawicz-Neufeld, 2019). Due to the barriers that secular governments face in working with these communities, using a more behaviorally informed approach is essential. Alas, it seems that New York policymakers have not properly accounted for the behavioral idiosyncrasies of the Ultra-Orthodox. Improved policies would address the idiosyncrasies of this population by working from *within* the community, using community leaders and taking into account various stakeholders; by accounting for the perceptions of government; and by accounting for the social norms and characteristics of the Haredi population.

It is for this reason that the DOHMH has reached out to leading community organizations, including the Agudah and the United Jewish Organizations of Williamsburg and North Brooklyn (UJO), to promote behavioral change together.

Privately-Implemented Interventions

1. Informational Ad Campaigns

When the outbreak began in late 2018, the DOHMH responded with informational ad campaigns. In the hopes of making them relevant to the population of interest, they wrote some of the posters in both English *and* Yiddish. But to the disappointment of linguistic scholars and community leaders alike, the Yiddish was poorly translated. In addition to misspelling words like "sneeze" and writing "measles" with three different spellings throughout, the advertisement included nonsense statements like "the rash is allowed to take 4-2 days after the fever rises" and "talk to your health worries nourisher" (Cohen, 2019). These mistakes reflect poorly on the DOHMH, so to prevent further issues, the Department partnered with community organizations that have a better understanding of the cultural and linguistic idiosyncrasies of this community. One of the better-translated advertisements can be seen in Figure 3.

Figure 3. *Poster Encouraging Measles Vaccinations*
This NYC Department of Health poster reads, "Stop! Do you have fever, rash, cough, trouble breathing? Tell the staff immediately" (Oster, 2019)

The UJO is an umbrella organization for social services and other services in Brooklyn that primarily serves the Haredi community. The organization has partnered with the DOHMH because of the understanding that "most people here aren't just going to accept what they say". The negative image of the DOHMH, coupled with language and cultural barriers, "makes it hard for them to get their message out, and that's a message we support," explained David Katz of the UJO. Because the organization is so communally involved and has experience sending out messages to the community, the city reached out to UJO to help out, as they have in previous outbreaks heavily concentrated in the community. The UJO has focused on reaching the anti-vax population specifically, targeting them with informational campaigns and distributing educational material. The organization reports that their efforts to increase vaccination have been successful, in part because other trustworthy organizations like Hatzoloh—a privately-run EMS team that supports the local Jewish community—have supported vaccination as well, and they hope that their continued efforts in this space will be impactful (Katz, 2019).

Agudath Israel of America, the Agudah, is a leadership and policy umbrella organization for the Haredi community whose origins date back to 1910's Europe. In recent years, the Agudah has worked with the government as a liaison to the Ultra-Orthodox community, and in this outbreak, they too have worked with the DOHMH to disseminate information in a way that community members could comprehend. For example, they published full-page advertisements in local newspapers, many written in Yiddish, to make people more aware of the issue, to help them better understand the affected age groups, and to demonstrate that this is something behind which the Agudah—and not just the State—stands. Interestingly, when those advertisements were published, there was an agreement between the two organizations that the involvement of the DOHMH would be obscured. In fact, the DOHMH themselves suggested that they keep their name off in order to avoid negative repercussions (Weinstock, 2019).

These public-private partnerships may in fact be the key to the success of ending the measles epidemic, since they demonstrate a collaboration that brings together different parties with varying skill sets to represent the same end goal. Re-educating the public about the facts, and using a trusted organization as the voice to do so, has already been quite impactful.

2. Public Statements by Community Leaders

In another demonstration of use of an influential voice, many schools, synagogues, and community organizations have made public statements to express their approval of vaccines. The tone and the content of the messages vary, but one theme remains consistent: it is imperative for individuals to vaccinate, both for personal and communal purposes. A few examples are described below and can be read in full in Appendix 6.

In an email to families of students at Yeshiva of Far Rockaway, an all-male high school in Queens, New York, the head of school emphasized the anti-Semitism that stemmed from the outbreak, noting the history of Jews being blamed for epidemics. The writer is careful to acknowledge the opinions of some anti-vaxxers who may base their objections on religious grounds: "It need not be said, that all that happens to us is only *min hashamayim* [from God]", he writes. He subsequently emphasizes that, even if this is true, there is a need to vaccinate "to avoid arousing the hatred of *goyim* [non-Jews]", quite a unique foundation for why one should vaccinate, tapping into the community's insularity and fear of outsiders. Readers should fear "not

only the peril of measles, but also more importantly the peril of hatred of our people". Rabbi Perr closes his letter by encouraging email recipients to "reach out to the anti-vaxers" in the community to spread the word about the need to immunize (Perr, 2019). This type of message could shift the social norm by changing the normative expectations of how one should act. The full text of this letter is in Appendix 6.1.

Similarly, Ezras Nashim, a female EMT group in the Ultra-Orthodox community that recently gained fame from the film 39Queen, published a statement for the community. In their message, the writers—certified medical professionals—argued that failure to vaccinate "has no medical basis and is antithetical to the Torah", and also goes against community beliefs and culture. "We are a tight knit community that looks out for one another", they write, and specifically cite some passages from Jewish texts to support their claims throughout. The statement also mentions concepts that would be particularly triggering to readers, including "family", "Orthodox Jewish culture", "community", and "Jewish law". Ezras Nashim calls for "all parents" to take action to protect themselves—not only the unvaccinated, since everyone should "ensure that they themselves are properly immunized", they say (Ezras Nashim, 2019). Like the letter sent by the Yeshiva of Far Rockaway, this statement taps into the community norms and the bias of social proof: people want to do what others are doing, so acting in a way that is productive both for oneself and one's community would likely be appealing. The complete statement can be read in Appendix 6.2.

The Agudah is one of the most reputable organizations in the Haredi community, and despite the fact that it is a religious organization that typically does not deal with medical issues like epidemics, the organization published a statement regarding the measles outbreak. Avrohom Weinstock, who has run much of the Agudah's measles efforts, explained that the organization decided to step in when they realized that the outbreak "had repercussions for *frum* [religious] Jews in terms of *chillul Hashem* [desecrating the name of God]" so this quickly became a religious issue, of importance to the Agudah. One of the Agudah's key actions was publishing this statement, since it publicly demonstrated the organization's pro-vaccine attitude. The statement focused on the anti-Semitism issue, since that is one of their greatest concerns in this outbreak, and chided "individuals and media outlets [who] point the finger of blame for the

spread of measles squarely—and sometimes viciously—at the 'ultra-Orthodox' community". The writers also make sure not to victim-blame, by acknowledging some of the features of the community that make them particularly susceptible to a disease of this kind: their international travel, their social networks, the great number of young children. The letter closes by acknowledging the steps already taken by many community members, but notes that "our immediate response" is still needed: "it is imperative to build on the Orthodox Jewish community's already high vaccination rate, not to spread a contagion of hate". Notably, the statement gives no mention of the religious arguments for vaccination, and instead uses a more medicalized reason, noting the support of "countless rabbinical figures and leaders, including leading rabbis in the Agudath Israel movement and doctors serving these communities" (Agudath Israel of America, 2019). This was an intentional decision since the authors recognized that a religious argument would not be effective. "Saying *venishmartem me'od es nafshosechem* is not enough, because anti-vaxxers too believe they should guard their health, just in a different way," one of the authors explained. "At the end of the day, it comes down to a medical decision. To make a purely religious argument was not what we needed to be doing" (Weinstock, 2019). Given the power of this organization and the role it plays in the community, this statement is quite impactful, since it demonstrates the approval of authority figures for vaccinating.

These are but three examples of some of the public statements made by influential community leaders. Each of the statements demonstrated above addresses—perhaps unintentionally—some of the behavioral biases, specifically tapping into the social proof and the authority bias prevalent in the community. While impactful, the messages could be improved if they were more behaviorally-informed—a topic that will be further expanded upon subsequently in the Recommendations section.

3. Speaker Events by Experts

Another means of dispersing information has been through speaker events, in which respected authority figures knowledgeable on the topics of medicine and *halakha* speak amongst community members about the importance of vaccination. Rabbi Dr. Aaron Glatt, for example, spends many weekends and evenings in different synagogues, including many in Brooklyn and Rockland County, where he discusses measles and immunizations. He tries to deliver "the

rabbinical and medical message that what they're doing [by not vaccinating] is dangerous for themselves and their community" (Glatt, 2019). He believes that education is the key to ending the outbreak. While Glatt and others have at times faced opposition and criticism—"I've been attacked for doing this"—these voices are still a powerful voice in the community. Glatt notes that "if the *shul rav* [the rabbi of a synagogue] invites me to speak, then that means that the *shul rav* agrees with it", and therefore Glatt in effect has the authority to speak on behalf of the beliefs of the rabbi (Glatt, 2019). This intervention counteracts the authority bias and addresses the lack of information in the community. Whether information alone can lead to behavioral change is questionable, but this type of intervention is important for filling some of the key gaps in knowledge that exist.

4. Vaccination Clinics

To supplement the informational campaigns, the Agudah, in partnership with NYU Langone Health, the local health service Hatzoloh, and other local organizations ran a series of vaccination clinics in mid-May in Borough Park, Flatbush, and Williamsburg, some of the areas most affected by the outbreak. Attendees could receive vaccinations free of charge, and due to the high level of advertising (see Figure 4), many individuals did visit the clinic to receive care. "People came in and said things like 'I don't have insurance. I'm concerned about the outbreak. I have 4 kids in the car. Can you help me?', and we would get them vaccinated", Avrohom Weinstock of Agudath Israel reported.

In addition to the extensive advertising and the stamp of approval by a number of trusted organizations, another reason that the clinic was so successful was because its target population was not exclusively anti-vaxxers. The poster indicates that unvaccinated infants, single-vaccinated toddlers, and adults ages 30-62 should come into the clinic according to "new MMR vaccination recommendations during the outbreak" ("Community Uniting to Combat Measles", 2019). As noted, one of the reasons that the outbreak has persisted is because people *think* that they are immunized when they are not, and because some think that the outdated guidelines about vaccinated after the age of four still hold.

Figure 4. *Poster to Promote Vaccination Clinics, in English and Yiddish* ("Community Uniting to Combat Measles", 2019)

The success of this clinic is quite promising, and additional clinics could be beneficial. Perhaps it would be most effective to combine the aforementioned speaker events with vaccination clinics. That way, people who learn of the importance of vaccinating can opt into taking action while they are still in a hot state. Further, while it was important to locate the clinics in the infected neighborhoods, it would be even more powerful to have those clinics in places that people frequent, such as schools and synagogues, to make the cost of the action as minimal as possible.

5. Women-Centered Events

Many health-related decisions that a Haredi family makes are in the hands of the mothers. Acknowledging that this is the case, some pro-vaccine activists have honed in on this population with interventions specifically targeted at women.

Blima Marcus, an oncology nurse and the former president of the Orthodox Jewish Nurses Association, observed that many women in her Ultra-Orthodox Lakewood community

were expressing skepticism towards vaccines. In response, she began running small group sessions for Haredi women to learn about vaccinations, providing them with factual information—"I came with fifty studies or more"—to debunk myths about autism, vaccine efficacy, and the contents of vaccines. Marcus' focus groups have been successful in altering the opinions of many of the attendees, such as a woman who brought her children to vaccinate and reported to Marcus that "'so far they're not acting autistic'". Marcus notes some of the specific biases and beliefs that influence vaccinating decisions among Haredi women, like misinformation—"there are horror stories being shared all the time that they have no way of verifying"—and fear of outsiders, "belief that everyone is out to get them, that everyone wants to make money off of them." She acknowledges the source of this fear of the medical and governmental establishments: "there's a lot of multigenerational trauma, from having been experimented on in the Holocaust and having gotten either no medical care or poor medical care when they lived in eastern European countries and back in the *shtetl* times" (Schaffer, 2019). Because of her deep knowledge of the community, she has worked from within to leave her mark amidst this outbreak—and to gain much publicity along the way, even from public health officials who have become increasingly reliant on Marcus and her co-workers. As the CDC has searched for new ways to counter anti-vaxxers, they have found that, in the words of one CDC expert, such initiatives "can be more effective than we can" (McKay & West, 2019).

In June 2019, a group of pro-vaccine Haredi women hosted an informational event in Rockland County for women only so that "everyone was comfortable talking one-on-one with healthcare professionals". Shoshana Bernstein, an Ultra-Orthodox mother from Rockland County who "has made it her mission to educate" and organized the event, explained that the purpose was "to reach out to women, who at the end of the day are the sort of gatekeepers of health in the family" (Goldblatt, 2019). The event was hosted in the very same catering hall in which anti-vax supporters had met a month earlier for a symposium; whereas the anti-vax event had hundreds of attendees, this pro-vax one had merely 150. Nonetheless, the forum was important for those in attendance; a question-and-answer panel of medical experts was coupled with the opportunity for attendees to speak one-on-one with health professionals and to take copies of reputable pro-vax

publications. By focusing in on this uniquely impactful subpopulation—mothers—this event provided information to those who could use it most effectively.

6. Children's Book

In 2015, before this measles outbreak began, Ann Koffsky decided to write *Judah Maccabee Goes to the Doctor* in response to discovering that many Jewish families were using religious exemptions to avoid vaccination. According to the publisher, the children's book was written as a way to "use Jewish life and Jewish views to tell stories" and the author saw it as a means of "fight[ing] back with information" to counter the anti-vax misinformation, as seen in Figure 5 (Dreyfus & Ain, 2019; Wishna, 2017). However, anti-vaxxers responded with great criticism; the book was "attacked by trolls on Amazon", giving it low ratings and writing "nasty comments" (Dreyfus & Ain, 2019). Commenters criticized the "book filled with lies" calling it "utter propaganda", its publication "very upsetting", and its author "mental". The book has recently become popular again, and the author notes that even though "it's just a picture book," she hopes to reassure parents, to "make them feel good about their choice and communicate that to their kids" (Wishna, 2017). While this is quite a unique approach, and its effectiveness is both unknown and untested, it is but another demonstration of the ways that members of the Jewish community are coming together to fight this outbreak with full force.

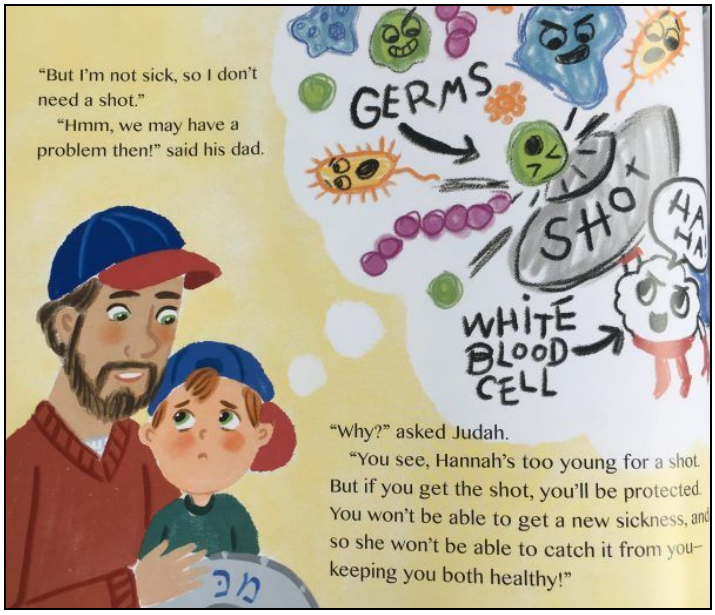

Figure 5. Excerpt from *Judah Maccabee Goes to the Doctor* (Koffsky, 2015)

7. **Mimicking the Anti-Vax Publications**

Sometimes, behavioral scientists find that an intervention works, but the reasoning that it is successful is unknown. While this paper has attempted to identify the behavioral biases at play in this community, it is truly impossible to fully comprehend why the anti-vax movement has had such a loud and impactful voice among Haredim. It is unclear why the PEACH pamphlet had such high readership, and why its content is so highly regarded and trusted. But perhaps the reasoning behind it is not what is important; we know that it is effective, so we can learn from it. This is an approach that some pro-vaxxers have taken. Rather than devise a new unique intervention, they mimic the anti-vax voices and deliver the opposite message.

One example of this is the recent publication of a pamphlet called "A Slice of PIE (Parents Informed & Educated)- Making PIEs out of PEACH: MMR Addition- Bringing Current and Reliable Vaccine Information to Frum Families". The authors call themselves "The Vaccine Task Force of the EMES Initiative"; EMES is an acronym for Engaging in Medical Education with Sensitivity, but it is also a play on the Hebrew word for truth, *emes.* The team consists primarily of nurses who "analyzed the entire PEACH magazine, as well as other common anti-vaxx myths" and who wrote the PIE magazine to provide "accurate refutations and information regarding vaccinations...information on all of the childhood vaccines, the illnesses they prevent, the safety process vaccines undergo, as well as many common misconceptions about vaccines and childhood development" (Vaccine Task Force, 2019). Importantly, the authors defend their credibility upfront by explaining the role of nurses in the medical profession and highlighting not only their proven ethical and trustworthy nature, but also their evidence-based practice that makes them reliant on *truth* rather than questionable findings. The "Slice of PIE" is just a portion of the entire PIE magazine, but provides relevant information explained in simple terminology. It does not include religious arguments, and goes into a relatively high level of scientific analysis of what makes vaccines safe and effective. As such, this document has the potential not only to impact vaccination outcomes, but also to create stronger long-term outcomes by making people more medically and scientifically aware. The magazine gives recommendations on how to find, read, and understand reliable medical information, which could significantly impact this community that has historically questioned

some aspects of the scientific world and has had somewhat limited access to such information. Furthermore, just as the PEACH anti-vaxxing team has distributed copies of their pamphlet at doorsteps, the PIE team has taken up similar actions. In fact, the DOH requested that the team print thousands of copies, and the group has succeeded in recruiting volunteers to distribute the booklets to homes and offices (McKay & West, 2019).

Another publication had a similar goal of providing true information to promote vaccinations. This pamphlet, titled *Tzim Gezint*, Yiddish for "good health" and often said after one sneezes, focuses on providing culturally-relevant information, meaning that, unlike "A Slice of PIE", it includes religious justifications for vaccinating (Green, 2019). The pamphlet was organized by Shoshana Bernstein, the host of the all-women's event in June, who collaborated with The Hudson Valley Health Coalition—"doctors, school administrators, community health organizations and health department representatives...to provide the necessary intervention and education to ensure, that with Hashem's [God's] help, you stay healthy", as the pamphlet's introduction explains. *Tzim Gezint* includes pro-vaccine defenses from the perspective of trusted rabbis, historical accounts of the discovery of vaccines, plainly-written scientific explanations of how vaccines are made and developed, and personal question-and-answers with trusted medical experts from within the Haredi community (Hudson Valley Health Coalition, 2019). The pamphlet targets a number of behavioral biases; for example, one section is entitled "Natural is not Always Best", a refutation of the naturalness bias, and another is called "Talking Immunizations *with* the Department of Health", a direct response to the authority bias, in-group preference, and fear of outside authority. This comprehensive handbook provides an interdisciplinary approach to why vaccination is important, and uses culturally relevant facts, language, tones, and even graphics to deliver its message; an example of this is displayed in Figure 6. The extent to which this pamphlet has been circulated is unknown, but if it spreads, it has the potential to be impactful within this community.

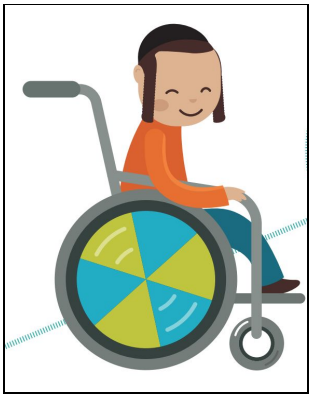

Figure 6. *Graphic from* Tzim Gezint *Pamphlet*
Tzim Gezint uses culturally-relevant images, including a graphic of a boy with traditional *peyot*, side-locks worn by many Haredi men (Hudson Valley Health Coalition, 2019)

Quite impressively, these interventions have driven great change on a small-scale and, increasingly, to a broader population. Much of their success can be attributed to the fact that they have been devised and implemented by people who know the community from the inside, and can thus create interventions that account for the community's unique attributes and needs.

Many believe that the increased vaccination rates, coupled with the greater awareness and the continued efforts by individuals and organizations, will soon lead measles rates to trail off. This plateau, or even decline, in infection rates has in fact already begun, as demonstrated in Figure 7. Continuing with existing intervention is helpful, but improving upon them and supplementing them with additional interventions will lead to the end to this measles outbreak.

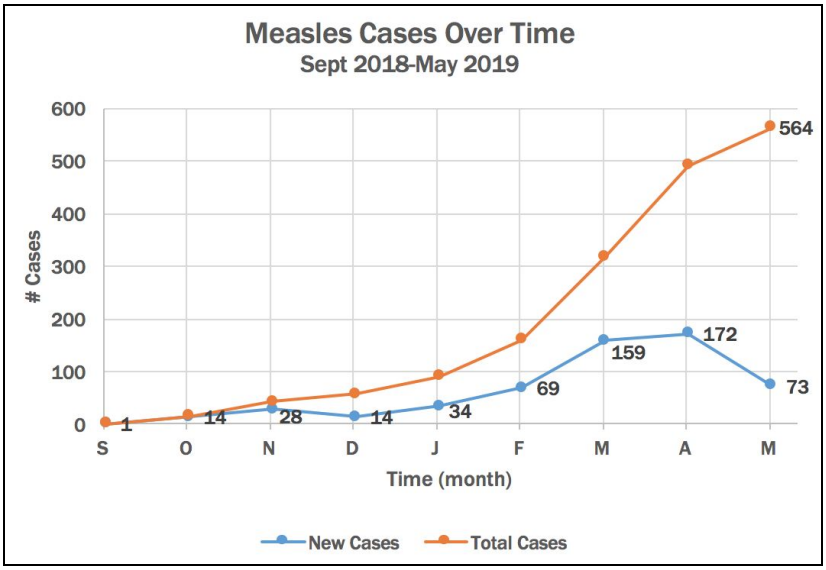

Figure 7. *Measles Cases Over Time* (City of New York, 2019)

Recommendations for Future Interventions

Behavioral scientists, and most notably the UK Behavioural Insights Team, have developed a framework for encouraging behavioral change. The EAST Framework suggests that making a behavior *easy*, *attractive*, *social*, and *timely* will make people more likely to engage in that behavior (Hallsworth et al, 2014). The following recommendations suggest ways in which vaccination could be made easier, more attractive, more social, and more timely.

Recommendation #1: Target the Right Subgroups

Viewing the Haredi population as homogenous is problematic because it does not account for the unique subgroups within. Hence, I recommend that interventions target specific sub-populations: school-aged children, children under 5 years of age, and semi-vaccinated adults.

The first group of interest is school-aged children, since much of the disease's spread has happened in academic institutions, especially in those that have not followed the state guidelines regarding vaccines.

As noted, the State of New York instituted a ban on religious exemptions to vaccination. When similar measures were taken in other localities, there resulted an upward trend in the number of non-religious exemptions—that is, medical exemptions—to vaccinating. New York is at risk of a comparable situation. In order to increase the vaccination rates in schools, the state should implement a more complicated medical exemption process for vaccines. Some doctors have reportedly been overly lenient in granting such exemptions (Offit, 2015). Two ways to target this issue are as follows:

- *Hassle Factors:* To make the exemption process more complex, the state could add in a number of "hassle factors", added steps that make the process longer and more tedious. The EAST Framework suggests that reducing the hassle factors surrounding a specific behavior could lead to the uptake of that service (Hallsworth et al., 2014). On the flip side, increasing the amount of effort that is required to perform an action makes people less likely to perform it. This is a common tactic used by health insurers to make it more

complicated for a medical service or drug to get approved, such as by adding in regulatory review, administrative tasks, or extraneous paperwork. Such could be applied here, for example, by requiring parents to apply for exemption within a specific time frame, to provide sufficient medical records, or to get approval from specific doctors. An obvious problem with this method is that it adds an undue burden to parents whose children actually are in critical need of a medical exemption.

- *Limiting Exemptions:* To ensure that physicians are not being too lenient in their distribution of medical exemptions, the government could limit the number of medical exemptions that each doctor is allowed to grant. A similar tactic has been used to manage buprenorphine distribution; physicians must qualify for buprenorphine waivers, which requires specific training related to the treatment. Those doctors are only allowed to give a certain number of prescriptions, which severely limits patients' ability to attain them. Similar measures are being considered for the distribution of opioids, and perhaps this could also be applied to the distribution of medical exemptions for vaccines. One concern in that some populations need more medical exemptions than others, so giving doctors a limited number of exemptions could be problematic. Also, this could lead to "doctor shopping", which is not unlikely, given reports that there are some doctors within the Haredi community who are reportedly known for being lenient with such exemptions already (J., 2019).
- *Performance Report Cards*: The mandates on doctors could lead to a backlash among those physicians, so to ensure their cooperation in this push for limited medical exemptions, it could be beneficial to use social-behavioral drivers. Another intervention implemented to limit opioid prescriptions has been the use of "Prescriber Report Cards". These reports tell a physician his or her prescribing history, and explains how that behavior compares to that of the "average" prescribing physician (PDMP, n.d.). A similar technique could be used here, with doctors receiving annual performance reports, comparing their distribution of medical exemptions to that of other local doctors. For example, lenient prescribers could get a mailing that says "90% of pediatricians in your community grant fewer medical exemptions". This social norms approach would help

make the prevalence of the desired behavior more salient, and could drive doctors to disseminate fewer exemptions, in line with the behavior of other doctors (Hallsworth et al., 2014).

The second group that demands specific attention is the under-five population. As seen in Figure 8, the vast majority of measles cases have occurred among children who have not yet hit school age. School vaccination requirements are effective, but they do not impact the segment of the population who does not yet attend school.

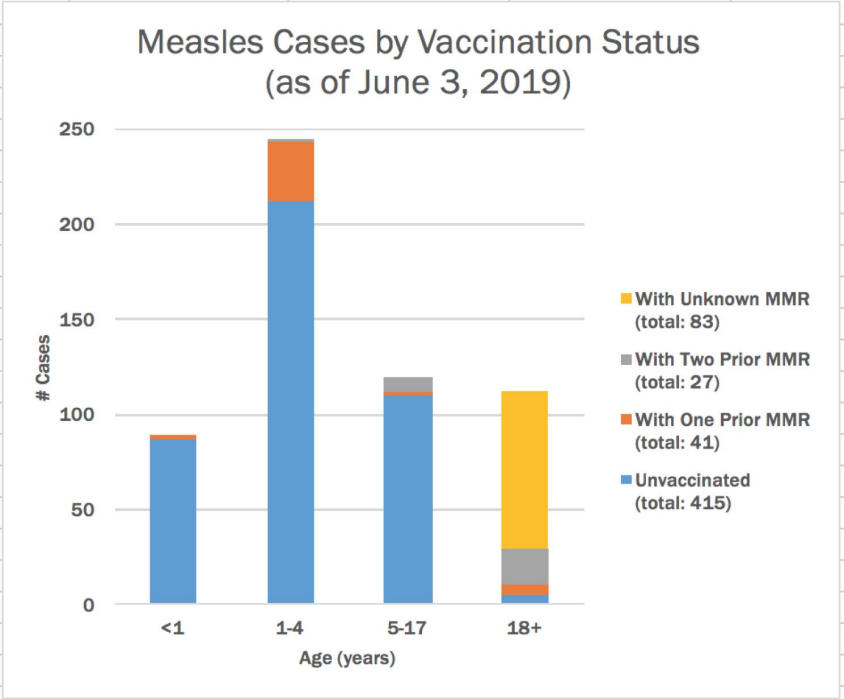

Figure 8. *Measles Cases by Vaccination Status* (City of New York, 2019)

One issue is that parents are not vaccinating their children altogether, or are only partially vaccinating their children, because they do not know about the requirements. The CDC today recommends that children get two doses of vaccines, the first at 12-15 months of age, and the second at ages 4-6. But they also note that children, especially those who are travelling internationally, are able to get the first dose of the MMR vaccine between 6 and 11 months of age. They then need to get two more doses: one at 12-15 months of age, and another one month later (CDC, 2019). Many parents, though, are unaware of these updated requirements and are

under the impression that two vaccinations before the age of five may be dangerous. In order to directly address this, I recommend the following:

- *DOHMH/physician oversight:* Physicians and the health department could make it easier for parents to fully vaccinate their children, just by helping them remember to do so. When parents bring in their child for their first MMR dose, they can be automatically registered to receive a reminder—by text, by phone, by email—six months later when the child is due for a second dose. Alternatively, at that appointment, parents could fill out a commitment device, in which they write down a date and time at which they plan to visit the doctor next. This tactic has effectively been used in various studies to encourage attendance at flu immunization clinics by prompting participants to write down when they plan to attend (Milkman et al., 2011). For a better understanding of commitment devices, see the commitment device used in the Milkman study in Appendix 7; a similar one could be adapted for this case.

The third group to target is the semi-vaccinated adult population. While fewer cases have spread among those above the age of 18, it is important to focus in on this group, since many such individuals are unaware of their susceptibility to the disease. The CDC has recommended that some adults check their immunity and consider revaccination, particularly those who received only one MMR dose as a child, as well as those born between 1963 and 1967 who may have received an earlier form of the MMR vaccine (CDC, 2019). Many are unaware of this requirement, and are under the impression that they have received sufficient vaccination doses for immunity. Measles is often assumed to be a childhood illness, giving people the false impression that they are safe from contraction and spread of the disease. This problem could be addressed with the following actions:

- *Adult-specific events:* The DOHMH should reach out to places that are frequented by adults—workplaces, community centers, and synagogues—to invite them to host adult measles events. These events would offer adults to check their immunization status through a quick blood test. Those who are not immune will be informed and will have the opportunity to be vaccinated at a subsequent event the following week, since that is

approximately how long the laboratory testing takes. The poster for the Agudah vaccination clinics, shown earlier in Figure 4, noted the CDC's adult recommendations, but with just a small line that could easily go unnoticed. Indeed, this was not the focus of the Agudah clinics at the time, but now that a few months have passed and much of the unvaccinated population has been targeted, it could be beneficial to more directly target these semi-vaccinated people.

- *Make it Social*: Since much of the adult non-immunity stems from a lack of awareness of the need to revaccinate, it is important to get out the word. One way to do this is to make it social, such as by distributing "I am immunized" stickers at these events, as done in other vaccination events described in the literature review (Drees et al., 2015). To make the prevalence of the behavior even more salient, the stickers could say "I am part of the 96% of vaccinated adults"; this social norms approach further emphasizes the point that community members are vaccinating, and so others should as well (Hallsworth et al., 2014). Perhaps a rewards system would make this an even more powerful intervention, in case the stickers are not a strong enough social force to encourage others to check their own immunity. The stickers could be used as a token of sorts for discounts at supermarkets and other community stores; this type of financial reward makes the behavior even more *attractive*.

Recommendation #2: Alter the Vaccination Narrative in the Media

While this paper focuses almost exclusively on this micro-outbreak, and while the outbreak has indeed been heavily concentrated within the Ultra-Orthodox community, it would be unfair to say that measles has been exclusively an Ultra-Orthodox issue. Much of the media has portrayed the outbreak as such, depicting measles as a problem among Haredim, spread by Haredim, and even caused by Haredim. This narrative is dangerous not only because it is false and inaccurate and not only because it adds an additional level of hatred and isolation, but also because anti-vaxxers have, in turn, embraced this narrative. "They have consciously turned it into an anti-Semitism thing, which makes it into a Nazi-vs.-Jew thing, which explains the yellow star", as noted in the Introduction (Jaroslawicz-Neufeld, 2019). Even in the early stages of the

outbreak, it became clear that seemingly "every headline includes 'Ultra-Orthodox' which adds an anti-Semitism factor", and that "every time we talk about the measles outbreak, there is a picture of a Haredi guy, and that reinforces the conception that they don't vaccinate, that these people are reckless" (Jaroslawicz-Neufeld, 2019; Katz, 2019). This reality was publicly addressed in an important article in the Atlantic entitled "Measles Can Be Contained. Anti-Semitism Cannot". The article eloquently explains,

> The measles has spread among Orthodox Jews for complicated reasons, and the public-health conditions in those communities are nuanced. The thing about anti-Semitism, though, is that it's not typically compatible with nuance. Vaccines are embraced by the vast majority of Jews and Jewish leaders; anti-vax conspiracy theories are a human phenomenon, not a Jewish one. And yet associations have staying power. With every new case of measles in Jewish Brooklyn, with every photograph of an Orthodox school paired with an article on the outbreak, the perceived connection between Jews and disease grows a little stronger. And no vaccine can eradicate that (Green, 2019).

This article was the first of its kind, and others have followed suit, including the Liquid Lunch TV program. The show featured Allison Josephs, an Orthodox woman who directs "Jew in the City", an organization that breaks down stereotypes about Orthodox Jews. On the show, she discussed some of the misconceptions related to the measles epidemic, including why the community has been particularly affected by the disease due to reasons beyond their own control. A screenshot of that show can be seen in Figure 9. While her words are influential, it should be noted that this media coverage is limited in its impact; the TV show has a relatively small viewership, with only 250 views on YouTube. More news coverage is needed to expose the realities of the outbreak and to directly address this anti-Semitism narrative in the media.

Figure 9. *Jew in the City on Liquid Lunch TV* (Liquid Lunch TV, 2019)

The Agudah, which has already established a relationship with the press, has begun seeking out ways to deal with the long-term consequences of the anti-Semitism backlash, but could not describe their work in more detail because it is still in development (Weinstock, 2019). Unfortunately, even Jewish news sources have perpetuated the narrative of measles as a Jewish problem. In order to ignite change, those sources should shift their stories, offering a broader perspective on the measles problem. The media issue could perhaps be addressed in one of the following ways:

- *Regulating Media Outlets:* Since many of the authors in these Jewish news sources have connections within the Haredi community, that change-in-focus seems feasible, and could be extended to other news sources as well. If this self-regulating method does not work, though, it could be useful to induce external regulation. In the early stages of this measles epidemic, some social media outlets received criticism for allowing the spread of anti-vax information. Facebook, YouTube, and others responded with a commitment to take steps to reduce the dissemination of that false information, including restricting recommended content that contains misinformation and blocking searches related to vaccination skepticism (Johnson, 2019). Just as they regulated against false anti-vax information, so too could these news outlets regulate against the false anti-Semitic information.
- *User Ratings:* Recent research on "fake news" emphasizes the complexity of regulating the media, but suggests that the spread of such news may be controllable through pointed interventions. One approach is to give users the option to rate articles and news sources

as “trustworthy” or “untrustworthy”, and then to have social media platform algorithms select the trustworthy sources and preferentially display their content (Pennycook & Rand, 2019). Applying a similar approach could be considered to limit the spread of articles that overrepresent the Haredi involvement in the outbreak. This intervention is limited in that it requires readers to be informed and involved consumers of news, and, as with the previous intervention proposal, it relies on social media platforms to recognize the severity of this biased media.

- *Target the Journalists*: There are significant limitations in putting the responsibility of altering the media narrative into the hands of social media platforms or consumers. Instead, it could be best to curb the problem at its root by targeting the responsible journalists themselves. Throughout the course of this outbreak, a handful of journalists from key news sources have written extensively on this topic—evidenced by the articles referenced in this paper. Only a small number of journalists are involved in this media representation issue, so addressing those journalists directly is plausible. Studies on fake news have noted the effectiveness of providing guidelines for journalists on how to compose stories and headlines that reflect the truth. Those guidelines include ensuring use of credible interviewees and utilizing storytelling as a means of communicating accurate information (Berinsky, 2017). Another recommendation in the literature is to create partnerships between researchers and the media. Until the publication of the aforementioned Atlantic article, there was little discussion of the role of the media in this crisis; journalists were and are unaware of the effect that their articles have had on the outbreak (Lazer et al., 2017). Those journalists could benefit from learning about those effects, which could be done by connecting them to researchers; perhaps this paper is a step towards completing that goal, since it is being shared with members of the media who have extensively covered this measles outbreak.

Recommendation #3: Change the Messaging Surrounding Vaccinations

Through mass emails, public statements, and advertising campaigns, many leaders have tried to get out one key message: get vaccinated. As discussed, the tone, content, and the source

of those messages varied greatly, and unfortunately it is difficult to measure the effectiveness of each type of message, as no known controlled studies exist, and because it is hard to separate out the effects of different messages. The research seems to indicate that messaging styles could be improved, beginning with who sends them, how they send them, and what they say.

First, it seems that the strongest messages are delivered by those who have the greatest perceived authority: rabbis and doctors. Some of these figures have started working in partnership with one another to further elicit credibility from constituents. In-person messages are likely the most direct and require the least amount of effort by the recipient (since they do not need to open an email, read a long pamphlet, etc.). As such, those authority figures could best deliver their message in synagogue sermons or community talks, like the ones described earlier. Other modes of information transmission including public statements may be less targeted and may have a lower likelihood of being read, but are helpful nonetheless.

The actual messaging is important too. A number of different approaches have been used, and it seems that while no one message is perfect, there are benefits to instituting some fear—of disease, of exclusion, and of damaged self-perception. The potential for negative backlash is addressed below, but needs to be examined further.

1. The Exclusionary Approach

One approach that has been used by some leaders including the influential Satmar Rebbe has been to say "you do not need to vaccinate, just don't come to my synagogue" (Bush, 2019). One school administrator who used this type of messaging when addressing the unvaccinated families in his school noted that this was a way for him to keep the vaccination decision in the hands of the parents, all while keeping the best interest of his school in mind. "I told parents, 'by all means it's your right and responsibility to do what's best for your children, but it's my responsibility to do what's best for the school. I think it's not safe for your child to be in my school. If you want to do your own thing and go off the grid, then homeschool your children'" (J., 2019). This approach alters the choice architecture. It theoretically gives people the ability to choose, but in practice it socially isolates the group that opts out of vaccinating, since they can no longer participate in communal activities. In fact, this was one of the reasons that the school vaccination mandate was originally instituted altogether. It drew "a legal distinction between

compulsory vaccination, in which people who refuse are forcibly vaccinated, and mandatory vaccination, in which people who refuse are denied social privileges, like attending public school" (Offit, 2015, p. 139). One problem, though, is that "you don't just get sick in *shul* or school"; this type of social exclusion only goes so far in a community that has physical interactions outside of formal institutions (Bush, 2019). Social isolation may be impactful in this population, but altering the choice architecture is not enough, as there is a risk of anti-vaxxers embracing this exclusion to, for example, open their own synagogues or schools. To address this specific concern, the messaging should use a gain frame. This means that the exclusion emphasizes that which one has to gain—such as the benefits of being a part of the community—rather than emphasizing the disadvantages of non-compliance, like *losing* the communal aspects. Gain-framed messages are demonstrated to have a stronger influence in disease prevention, as individuals tend to act more risk-averse when they hear gain-framed messages than the alternative (O'Keefe & Jensen, 2007). In this case, the messages would focus on the value of maintaining the community rather than the disadvantages of losing the community.

The question of whether physicians should adopt this exclusionary approach is more complicated, and has been described as a "lose-lose situation" (Offit, 2015, p. 197). On the one hand, if doctors take a stand by refusing non-vaxxers, they send the message that this is not an acceptable opinion for a parent to have. On the other hand, doing so isolates the unimmunized and makes it impossible for doctors to convince those families to vaccinate. This situation could also lead to doctor shopping, which means that the anti-vaxxers would effectively be able to find a cohort of like-minded people, and could create a community for themselves.

2. The Emotional Approach

One of the reasons that anti-vax media is so successful is that its tone is emotional and its stories are heart-wrenching. In an editorial entitled "Fighting for the Reputation of Vaccines," one physician pointed out the "well organized and passionate" nature of anti-vaxxers, who "make strong emotional appeals" to parents about why these should skip vaccinating. Public health workers and doctors, on the other hand, respond with factual, scientific arguments that are

not as appealing to the emotional side of parents. “Dispassionate messages are not sticky. Gut-wrenching stories…are” (qtd. in Offit, 2015, p. 125).

Perhaps adopting the anti-vaxxers’ approach of using an emotional appeal is the key to improving pro-vax messaging. These messages could include personalized stories about children who had long-term negative health outcomes as a result of contracting measles. Doing so would help make the risks of non-vaccination more salient and palpable, and is in line with the Chen & Stevens (2016) study that saw the effectiveness of “putting a face on it” and “making it personal”, as described in the Literature Review. Individuals would presumably be more inclined to sympathize with these stories from people who are similar to them because of the in-group preferences, so including stories from Haredi mothers or showing pictures of Jewish children infected by the disease could have an especially strong impact. Sadly, there is no shortage of such devastating stories in this community in the past few months.

3. The Us vs. Them Approach

As noted, the anti-Semitism narrative has unfortunately been prominant in this outbreak, with measles becoming nearly synonymous with ultra-Orthodox Jews. As such, one line of messaging that has developed is that “the world is looking at us badly”. This was used, among others, by Rabbi Perr of the Yeshiva of Far Rockaway who, in his letter (Appendix 6.1), emphasized the need to “avoid arousing the hatred of *goyim*”. Given the history of the Jewish people being blamed for diseases throughout history, this approach could potentially tap into the desire to protect the face of Judaism. But, as Rabbi Bush notes, this “is an ineffective argument...these people don’t care about what the world thinks” (Bush, 2019). Expanding upon this, Alexander Rapaport, the CEO of one of the largest community charity organizations called Masbia Soup Kitchen, points out that “being a religious Jew, you also get used to having a minority viewpoint. So if something is not mainstream, it doesn’t take away from you believing it” (qtd. in Belluz, 2019). This approach may in fact have potential for backlash, since it may only highlight the us-vs.-them mentality of the community acting differently from the secular world. While this messaging has good intentions, leaders of any insular group should be careful to highlight this argument because of the risk of further isolation.

4. The Expertise Approach

An approach that the UJO and others have found to be influential is one that addresses perceptions of authority. "We get the greatest response when we ask, 'if your child needs surgery and needs an expert, who will you ask? Someone in a different state whose license has been revoked, or your local family doctor who knows you?'" (Katz, 2019). Many of the anti-vaxxers are outsiders who are targeting the Haredi population, so reminding people that doctors truly are trustworthy health experts seems to be effective. Further, it could be helpful to emphasize the fact that the doctors are part of the "us" group, especially since many are themselves Ultra-Orthodox, and anti-vaxxers are part of the "them" group, as described above. Because this is so successful, perhaps the family doctors, rather than public health workers or school administrators or rabbis, should be the primary communicators of the pro-vax message. As noted above, the Exclusionary Approach—"if you do not vaccinate, then I will not be your family doctor"—can be problematic, so instead, doctors could be the spokespeople for health.

One issue is that doctors are already "begging people to vaccinate", but "most people already know what their vaccine decision is" before even speaking to the doctor (J., 2019, Jaroslawicz-Neufeld, 2019). As such, there is a need for parental education well before the child is brought in to the doctor for his first appointment. Family doctors should begin to discuss vaccinations with parents before the child is born, perhaps during prenatal appointments. This timely intervention will likely be effective since parents will be in a hot state, wanting to do all they can to protect the life of their future child.

Recommendation #4: Push for Preventative Care

Relatedly, one issue with the response to measles by both public and private groups is that it has been just that—a response. Rapaport of Masbia Soup Kitchen, points out that "the posters from the city are reactionary" (qtd. in Belluz, 2019). Instead, the public health department could take a more proactive approach to community education, so as to keep them informed about their health choices ahead of outbreaks. This behavior could be made *timely*, as suggested by the EAST Framework, by prompting people when they are likely to be most receptive and helping people plan their response to future events (Hallsworth et al., 2014).

Such an approach could be effective for a number of reasons. First, this could increase the number of vaccinated individuals over time, since talking about the need for vaccines could create a culture of vaccinating, not only at times of an outbreak. Doing so could actually lower the chances of a future epidemic from happening, thereby creating long-term positive outcomes. Another reason that educational efforts should be done at *all* times, not just during outbreaks, is that it could build trust between the community and the health department. Without the presence of a tangible threat like an outbreak, efforts by the DOHMH to educate and vaccinate could be seen as more cooperative and health-promoting than threatening.

Cooperation by private groups is important as well. As noted, catching parents in their "hot state" may be the key to making informed vaccination decisions. Doctors could talk to expecting parents about vaccines during prenatal appointments, but rabbis and religious leaders could take steps even earlier, including addressing the topic of vaccines during pre-marital classes—an approach suggested by Awe (2018) that could be particularly useful in this community, where the religious leaders play an important role. The rabbis are not only respected leaders but are also insiders, part of the "us" group, who could strongly influence the decisions of constituents. These combined preventative efforts could surely drive change by encouraging responsible decision making upfront—not just in times of an epidemic.

Conclusion

Behavioral and decision sciences teach that one must look at the underlying drivers of behavior in order to understand how and why people make certain decisions. Behavioral scientists tend to look at general characterizations of humans to understand how we function, focusing on the broader scale to interpret what makes a person a person. But not all humans are the same. In particular, there are micro-groups that differ from the general population—not genetically or phenotypically different, necessarily, but differing in their susceptibility to certain biases and characteristics. Those groups are sometimes overlooked in mass studies, which can have serious implications when the findings of those studies are turned into policy interventions. This paper honed in on one of those groups, looking at its idiosyncrasies to better understand how to design policies for this subpopulation, particularly in regards to the group's health behaviors as it relates to the current measles outbreak.

The findings of this paper demonstrate that there is a need to work from within the community to understand its unique attributes. A successful society does not leave policymakers to design and implement policies on their own. Rather, we also need anthropologists, community leaders, medical experts, and, of course, behavioral scientists, since including these diverse perspectives is the key to a successful policy intervention.

In the case of the 2018-2019 measles outbreak concentrated within the Ultra-Orthodox Jewish communities in New York, the interventions that have achieved the most success thus far have been the ones developed within the communities: the rabbis who speak in synagogues, the local nurses who talk to mothers, the Jewish authors who distribute children's books. As such, government officials should be willing to step outside the box and to even let go of their role as policymakers; Mayor de Blasio can institute the policies that he sees fit, but at the end of the day, it is evident that the policymakers who work from within the community are the ones who can really make the difference.

But even those policies developed from within are not perfect, thereby leaving a gap for behavioral science researchers to work on. Large scale studies can help determine what types of messaging people respond to: Is it threats? Is it a medical argument? Is it the anti-Semitism narrative? What really gets the individuals in this micro-group to change their behavior?

These questions are important not only in this context, but also in the context of policy-making within any insular community, any group that is separate or different from the mainstream. Only by understanding the behavioral drivers and the unique biases and heuristics of a group, and only by working from within those communities can policymakers really make a sustainable difference. This paper is a starting point for determining the next steps for addressing the measles outbreak. As the epidemic is already on the decline, it is important to figure out what can be done in the future, both in this particular group and in other insular communities, to develop effective policies, especially those regarding medical decision making. These are cases of life and death, so policymakers must be aware of the ways in which they work with these communities, so as to ensure that they are bringing life, rather than promoting death.

This one paper will not change the world, this one Capstone project will not end all epidemics, but it is a means for opening up this important discussion. Alas, it is not incumbent upon me to complete the work, but neither am I at liberty to desist from it.

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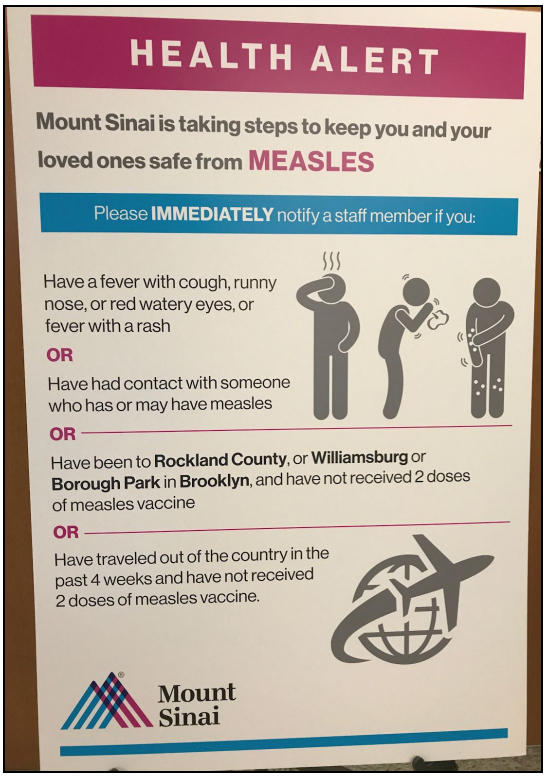
Appendix

Appendix 1: *Measles-Related Health Alert*
Note: The following poster was located in the lobby of Mount Sinai Medical Center, which I visited on May 23, 2019. Mount Sinai has taken significant steps towards limiting the spread of the disease to vulnerable populations, including implementing stringent visitation policies that require guests to prove their immunity before entrance to the hospital.



Appendix 2: *Judah Jeiteles on Vaccinations*
Judah Jeiteles, son of the chief physician of the Jewish community hospital in Prague and key advocate for vaccination in the community, wrote in 1821 in the *Benei Ha-ne'urim* publication:

"Behold it is known to all that in those days God raised the spirit of the dearest of men and the most splendid of doctors, the famous master doctor Jenner in the city of London, capital of the kingdom of England, to save small children from the hand of their oppressor. Lest they be cast away in the youth of their lives, he called to the angel of death to stop! Don't raise your hand to the children; don't let the innocent lad or young girl unblemished by sin be touched. The spoil of the plague comes immediately and destroys immediately, ... a sword making childless, the heat of vipers destroying the infant in the street and the suckling baby at the breast of its mother. These are taken to die, murdered in their mothers' bosom, and these are injured, the beauty of

their countenance transformed into ruin. Others' faces are disfigured with pox, pox, white spots, white spots; some are stricken which bring blindness, lameness extension, and contraction. Anyone who sees them feels disgusted. A father is terrified when he seeing his progeny and a mother is disgusted when she sees the fruit of her womb. Thus the smallpox would have destroyed God's creation, the creatures of his hands; the world formed for habitation would have been made into a waste; [the pox] would have sought the removal of humanity from this earth until it is thoroughly destroyed, were it not for the fact that God extended us to be fruitful and multiply and opened the eyes of the wise-hearted doctor Jenner to find a cure for this plague and expel it from the face of the earth so as to utterly destroy it" (qtd. in Ruderman, 2002, p. 133-4)

Appendix 3: *Modern Haredi Discourse on Vaccination*

In 2009, a number of medical professionals in the Haredi neighborhood of Lakewood became concerned that parents were refusing childhood vaccinations. In response, the community convened a group of rabbinic leaders, who wrote a letter advocating for vaccination (bracketed words are translations from the original Hebrew/Aramaic):

"In [response] to your [question] concerning whether to accept into your school children who are not immunized: After thoroughly researching the issue and hearing from both sides, including medical professionals, the opinion of the [rabbinical court] is as follows:

1. It is our opinion that every parent is obligated [according to the law] to immunize his children in order to prevent serious illnesses [God forbid], both to the child himself as well as a protection to the [community].
2. Schools should enforce this policy as required by law and should insist on immunization records.
3. If an individual, based on his doctor and/or [Rabbi]'s advice, should choose not to immunize his child, the school may accept the child without requiring his immunization. It is in fact recommended that they do so.
4. In a case where the school feels that it will be negatively affected by such a policy (i.e. threats of a lawsuit, fines, parental pressure or negative publicity that could harm the school), the school has the right not to accept the child. [Questions] in this area should be referred to the [rabbinical court].

All of the above must be done in conformity with the [law of the land]" (qtd. in Bush, 2012, p. 206)

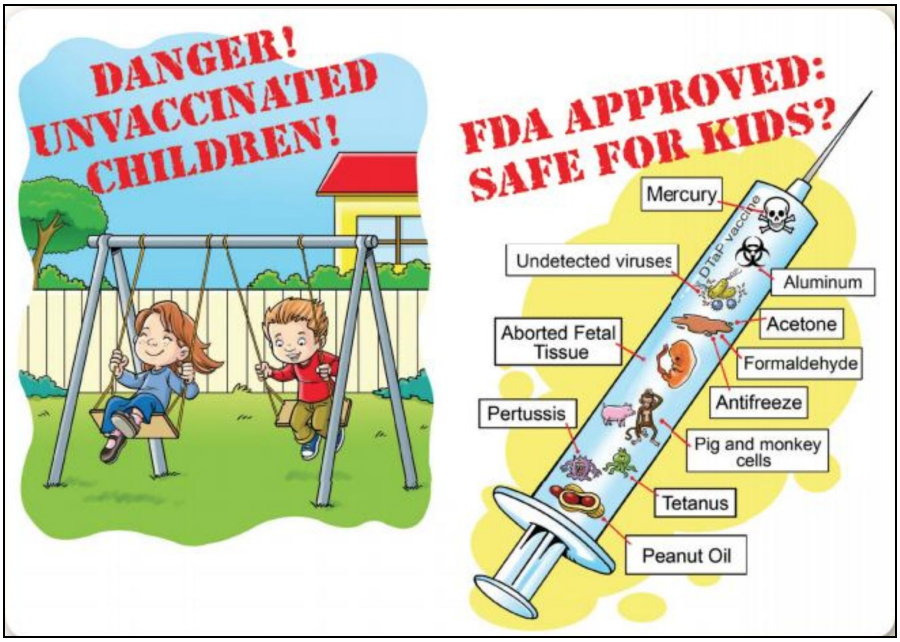
On the other hand, in response to a 2011 mumps outbreak, three rabbis—Rabbis Katz, Kamenentzky, and Malkiel Kotler—wrote a letter to the Lakewood school administrators demanding that unvaccinated children be allowed to attend school:

"In light of the recent mumps outbreak in our community, and in light of the insistence of some school pediatricians that, until the end of the out-break, children who have not received the MMR vaccine should not be accepted into school, we would like to state the following:

- As [followers of Torah law], [the administrators] must understand that taking position on a medical situation, denying a child acceptance to school, or forcing someone to vaccinate his children against his will are all decisions involving serious Halachic [questions]
- Vaccination practices involve risks recognized by the medical establishment. Consequently, each individual has the right to his opinion and choice in the matter, and no one has the power to force someone to vaccinate his children against his will.
- After considering the nature of the current outbreak, the very high percentage of fully vaccinated individuals among the mumps cases, the serious risks associated with the MMR vaccine, and the halachic gravity of denying a child acceptance to school even for one day, it is our opinion that, unless truly obligated to do so law, no school has the right to deny a child acceptance to school on the grounds that he or she has not received the MMR vaccine. It is incumbent upon the [administrators] to insure that school nurses act in this regard in accordance with *halakha*, and not based on secular medical advice alone.

May the [privilege] of conducting ourselves according to [the knowledge of the Torah] be a true protection for our children and bring lasting health to all the members of our community" (qtd. in Bush, 2012, p. 210)

Appendix 4: *Excerpt from Anti-Vaccination Propaganda*
Note: Parents Advocating and Educating for Children's Health (PEACH) has circulated pamphlets and magazines throughout the Haredi community encouraging parents not to vaccinate. Two diagrams from the pamphlet are below (PEACH, 2017).



Appendix 5: *Excerpt from the Vaccination Debate*

Note: While many Haredim do not extensively use the internet, there has been some dialogue about vaccinations happening in Haredi-dominated internet forums. Below is an excerpt from the comments on a blog post by Modern Orthodox Rabbi Natan Slifkin, a pro-vaccinator who has written extensively on the topic on his "Rationalist Judaism" blog (Slifkin, 2019)

Yehoshua April 17, 2019 at 7:15 PM

I wasn't persuaded until I saw that she wrote "pHARMa-satan." That's when I realized the word "harm" is in "pharmaceutical." It's been right there all along! Hiding in plain sight! How could I have been so blind?! I feel so piti-FOOL!

Is it possible to unvaccinate your kids? Asking for a friend...

Reply

Achat sha'alti April 17, 2019 at 8:12 PM

Perhaps the repercussions of lashon hora and sinat chinam these conversations are generating are worse than anything a physical ailment can do to us. Are we giving up our olam haba over this? Doesn't anyone consider the measles outbreak is "me'et Hashem? Or is Hashem out of the picture here? Perhaps it's time for some rabbinic introspection as to what Hashem is trying to tell us rather than trying to lay blame on others. This is the work of the satan. We are supposed to have the Torah as our guide, not the CDC and Paul Offit, an athiest of Jewish heritage, who has come out visciously against metzitza b'peh - he says on his website "...and ultra-Orthodox Jewish mohels spread herpes by using contaminated circumcision tools."http://paul-offit.com/booksby/bad-faith/. He would also like to ban bris milah. Is this an appropriate person to listen to and allow control over our bodies?

Some kosher food for thought.

Appendix 6. *Public Statements*

6.1: *The Yeshiva of Far Rockaway*

YESHIVA OF FAR ROCKAWAY

ישיבה דרך איתן ע"ש מרן הגאון רבי אברהם יפהן זצ"ל

Contact Us

Address: 802 Hicksville Road
Far Rockaway, NY 11691-5298
Telephone: (718) 327-7600
info@yofr.org

Dear Friends,

Someone, I don't remember who, once said, that those who do not learn from history are condemned to repeat it.

It need not be said, that all that happens to us is only *min hashamayim*. Nevertheless, we know that many things were done in our past to avoid arousing the hatred of goyim.

Among them is that the *k'hilos* forbade conspicuous displays of wealth. Causing jealousy on the part of goyim, is not a good thing for us.

It is relevant for us to understand today in America, that all the world is focusing on us as bearers of disease, because of those who do not vaccinate. The amount of attention being focused on our communities because of this, is stunning. I am afraid that Yidden may be yet be blamed, *chas v'shalom*, for every case of measles, and perhaps other illnesses as well. So it was in the 13th Century with the Black Plague.

This accusation would be no more farfetched than the claim that the drug companies are in collusion with the doctors to make people sick.

There is not much that I, one person, can do about this. But perhaps if all of us reach out to the anti-vaxers and prevail upon them, we will lesson not only the peril of measles, but also more importantly the peril of the hatred of our people.

Rabbi Yechiel Yitzchok Perr

6.2: *Ezras Nashim*

בס"ד

Monday, April 15, 2019

Ezras Nashim Statement on Vaccinations

In light of the recent measles outbreaks in the Chasidic/Orthodox Jewish community, Ezras Nashim wishes to make clear that we do not support the misguided anti-vaccination movement, which has no medical basis and is antithetical to the Torah. Jewish law commands us: "*venishmartem me'od lenafshoseichem*" - "carefully guard your health."(*Devarim/Deuteronomy 4:15*).

Chasidic/Orthodox Jewish culture is based on strong family values. Unfortunately, a minority of our community has misrepresented the views, values, and actions of the majority. Many in our community are old enough to remember a time when vaccines were not yet available, and they will never forget the devastating personal losses they suffered. As a result, the vast majority of our community is deeply grateful for vaccines and proudly vaccinates our children.

We are a tight knit community that looks out for one another. As the Talmud (Shevuot 39a) states: "*kol Yisrael arevim zeh lazeh*" - "all of Israel are responsible for each other". We also recognize that our actions have repercussions beyond our Chasidic/Orthodox community, and we must take steps to guard and protect the well-being of all of our neighbors. As such, we understand the importance of vaccinating every eligible individual so that we can protect those who are genuinely medically unable to do so.

We urge all parents to vaccinate their children and ensure that they themselves are properly immunized. If you have questions or concerns regarding vaccinations, please contact your pediatrician or primary care physician. General vaccination guidelines are available on the CDC website (https://www.cdc.gov/vaccines/index.html), and specific recommendations for your community are available from your local Department of Health.

Ezras Nashim, BLS First Response Agency
By: Dr. Allen W. Cherson, DO, MHA, CPHQ, CHCQM, FACEP - Medical Director
Hon. Rachel E. Freier, AEMT-Paramedic - Director
http://www.ezrasnashim.org
https://www.facebook.com/ezrasnashim/
https://www.instagram.com/ezrasnashim/

6.3: *Agudath Israel of America*

Statement from Agudath Israel of America on the Measles Outbreak and "Infectious Hatred"

Agudath Israel of America is deeply concerned about the recent outbreak of measles and the threat it poses to communities around the country.

For that reason, countless rabbinical figures and leaders, including leading rabbis in the Agudath Israel movement and doctors serving these communities, have repeatedly encouraged vaccination in the strongest possible terms. Indeed, the overwhelming majority of children enrolled in Jewish schools are vaccinated. Governmental records indicate that the measles vaccination rates in yeshivos in Williamsburg, Borough Park and across New York State are high, with yeshiva averages statewide exceeding 96%. Similarly high rates were obtained in areas around the country with large Jewish populations. While vaccination rates in certain schools and for preschoolers may be lower, vaccination is the clear societal norm in Orthodox Jewish communities.

Agudath Israel views with equal alarm something else that has spread along with this disease: infectious hatred. Our public discourse is debased when individuals and media outlets point the finger of blame for the spread of measles squarely - and sometimes viciously - at the "ultra-Orthodox" community. Social media comments have been particularly appalling in this regard. This is a time to come together and collaborate to meet a challenge. There is no excuse to use a public health issue - an outbreak we are suffering from - as a platform from which to spew poisonous anti-Semitic rhetoric. The motive behind this hatred becomes readily apparent in light of statistics evidencing that acute Orthodox Jewish outbreak areas have vaccination rates rivaling those of many other municipalities.

There may be reasons why, despite the high percentages of immunization, Orthodox Jewish communities are more susceptible to an outbreak of measles. Epidemiologists have chronicled how international travel by Orthodox Jews to outbreak areas, closely interrelated Orthodox social networks, and high numbers of Orthodox children at ages most susceptible to a highly contagious disease are key factors in the spread of diseases of this kind (see here and here). These are all reasons it is imperative to build on the Orthodox Jewish community's already high vaccination rate, not to spread a contagion of hate.

The eradication of these dual scourges - disease and hate - demand our immediate response.

###

Agudath Israel of America | tzagelbaum@agudathisrael.org

Appendix 7. *Sample Commitment Device*

[Company Name] **IS HOLDING A FREE FLU SHOT CLINIC.**

Many people find it helpful to make a plan for getting their shot. You can write yours here:

_____ , _____ _____ at _____

(day of the week) (month) (day) (time)

Flu shots will be available on site at the [location of relevant free flu shot clinic] at the following times:

Monday, October 26th	7:00 am – 3:30 pm
Wednesday, October 28th	7:00 am – 3:30 pm
Friday, October 30th	7:00 am – 3:30 pm
Tuesday, November 3rd	7:00 am – 3:30 pm
Thursday, November 5th	7:00 am – 3:30 pm