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**COVID-19 and Challenges to the Traditional Understanding of Individual
Medical Autonomy**

by
Callon Green

A thesis submitted to the faculty of the University of Mississippi in partial fulfillment of
the requirements of the Sally McDonnell Barksdale Honors College.

Oxford
April 2021

Approved by

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ABSTRACT

Callon Green: COVID-19 and Challenges to the Traditional Understanding of Individual

Medical Autonomy

(Under the direction of Dr. Sarah Moses)

Throughout history, vaccines have provided the human population with the ability to combat dangerous illnesses and avoid preventable suffering. Despite the benefits vaccines provide to the public health of the United States, anti-vaccination sentiment and resistance to vaccine uptake are still prevalent in the modern day. As the COVID-19 pandemic has developed into a major public health crisis that can be controlled through vaccination, the issues underlying vaccine resistance are becoming more critical to return to normal life. Using COVID-19 as a case study, it is evident that the individual choice to deny vaccination can have consequences on the health of the community.

Various arguments can be made regarding an individual's obligation to become vaccinated and contribute to the health of society. However, many individuals see the burden of vaccination to be too great, and believe they can remain protected by herd immunity without taking on any individual risk. Individual medical autonomy dictates that people should have the freedom to decide what medical choices they make. However, autonomy has to have limitations when the individual's choices impact public health. In the case of vaccination, when a person decides to not vaccinate, they are choosing to not contribute to the herd immunity that protects their community from disease. Thereby, they are putting individuals who are medically unable to become vaccinated at risk of contracting dangerous diseases. This thesis discusses the moral

arguments for why individual autonomy should be limited when public health is at stake, and how autonomy can still be respected through medical professionals educating their patients on vaccines and addressing their concerns.

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LIST OF ABBREVIATIONS

ACIP	Advisory Committee on Immunization Practices
CDC	Centers for Disease Control and Prevention
COVID-19	Coronavirus disease 2019
EEOC	U.S. Equal Employment Opportunity Commission
EUA	Emergency use authorization
FDA	Food and Drug Administration
MMR	Measles, Mumps, and Rubella
mRNA	Messenger ribonucleic acid
NVIC	National Vaccine Information Center
OWS	Operation Warp Speed
SARS-Cov-2	Severe acute respiratory syndrome coronavirus 2
TAG	Technical Advisory Group on Behavioral Insights and Sciences for Health
WHO	World Health Organization

Chapter 1

Introduction

Introduction to the COVID-19 Pandemic

From the rapid development of SARS-Cov-2 being identified as a novel infectious agent causing COVID-19 illness in December of 2019 to the declaration of COVID-19 as a pandemic by the World Health Organization (WHO) in March 2020, it was unclear what the future held for the public health of the United States. Countries across the world grappled with understanding the nature of the virus, how to prevent it, and how large of a threat it was to global health. As health officials dove into research and leaders struggled with how to protect their citizens, the virus unhesitantly spread through populations. As 2020 continued and the precautions to stop the spread of infection were identified, masks and social distancing began to be enforced by law in many places.

However, since the early days of COVID-19 related lockdowns and regulations, the race to find a vaccine has been at the center of all discussions regarding the return to normal life. The modern science that has given us the ability to develop vaccines is “one of the most important measures of preventative medicine to protect the population from diseases and infections” (Hussain, Ali, Ahmed, & Hussain, 2018). As a result of herd vaccination and improved sanitation, the world has seen many highly communicable and deadly diseases eradicated or having a low incidence of occurrence (Asveld, 2008, 245). With the impact lockdowns had on both everyday life and the global economy, the need for a vaccine became evident. Despite masks and social distancing being able to slow the spread of the virus in the short-term, a long-term vaccine solution to avoid future outbreaks was needed.

COVID-19 Vaccine Development

Given that the record time frame for a completely novel vaccination to be developed is no less than four years and no previous coronavirus vaccines have ever been used for humans, the approach to creating a vaccination was going to be as unprecedented as the pandemic itself. Fortunately, SARS-Cov-2, the underlying virus of COVID-19, is 80% identical to SARS, and research on the structure and mechanism utilized in transmission was not completely unknown in the scientific field (Thompson, 2020). In response to a need for accelerated development and manufacturing capabilities, Operation Warp Speed (OWS) was established in May 2020. This task force is a joint effort by various government organizations and the private health sector to “accelerate control of the Covid-19 pandemic by advancing development, manufacturing, and distribution of vaccines, therapeutics, and diagnostics” (Slaoui & Hepburn, 2020). OWS allowed the vaccine to be researched while other essential vaccine development processes, such as manufacturing and distribution, were being executed in parallel to advance the speed at which a novel vaccine could be deployed. The goal of the OWS, to have a novel vaccine both approved, manufactured, and beginning to be distributed by the end of 2020, was an unprecedented objective within modern medicine. The private companies were given the ability to begin developing vaccines with the backing of the United States government to ensure “no technical, logistic, or financial hurdles hinder vaccine development or deployment” (Slaoui & Hepburn, 2020).

As outlined by *The New England Journal of Medicine*, candidates for support by OWS were chosen according to strict guidelines to achieve rapid yet safe and effective

vaccine development. First, the preclinical or early-clinical data gathered by the candidate must depict evidence of both safety and efficacy. Second, the vaccine data must show the potential to enter “large phase 3 field efficacy trials” by July to November of 2020 (Slaoui & Hepburn, 2020). Third, the candidates had to prove their vaccine technology would not only be a fast and effective way to manufacture vaccines, but also that the technology utilized proves “scalability, yields, and consistency” to ensure 100 million doses could be created by mid-2021 (Slaoui & Hepburn, 2020). The final candidate restriction was the specific platform of vaccine technology the companies were approved to use: “the mRNA platform, the replication-defective live-vector platform, the recombinant-subunit-adjuvanted protein platform, or the attenuated replicating live-vector platform” (Slaoui & Hepburn, 2020). OWS used known data from SARS-CoV-1 mechanisms to determine which platforms were likely to be the safest and most effective means of creating a vaccination for SARS-CoV-2. Through the advancement of multiple vaccines with various strategies, the OWS sought to mitigate the risk of failure with the need to bear the financial costs of advancing the typical time frame of vaccine development. It was also noted that the size of trials was maximized to ensure that the safety, efficacy, and quality of the vaccination were not compromised due to the rapid process of parallel operations (Slaoui & Hepburn, 2020).

The efforts of OWS were worthwhile with Food and Drug Administration (FDA) issuing emergency use authorization (EUA) to Pfizer-BioNTech vaccine and Moderna vaccine for COVID-19 in December 2020 (“COVID-19 Vaccine Distribution”) and the Janssen vaccine in March 2021 (“FDA Issues,” 2021). The Pfizer-BioNTech and Moderna vaccines, with above 90% efficacy rates after two doses, utilize messenger RNA (mRNA) to genetically train the body to create spike proteins as an immune response;

thus, in the event of SARS-Cov-2 entering the body, the antibodies can block spike attachment. The Janssen vaccine, by Johnson and Johnson, with an efficacy rate of 72% after one dose, uses a virus called Adenovirus 26 (Ad26) that cannot cause illness within cells but can train an immune response in the body that ultimately prevents the attachment of the spike proteins SARS-Cov-2 uses to attach and infect cells (Corum, Wee, & Zimmer, 2020).

The Importance of Mass Vaccination and Herd Immunity

For a vaccination campaign to be effective in disease eradication, herd immunity must be achieved within a population. Herd immunity is attained when a large enough number of people in the population are immune to an infectious agent, whether that be through the development of antibodies from previous infections or vaccination. As a result, the chances that someone will transmit the disease to someone without immunity are low, therefore, bringing the disease to low amounts of cases or eradicating it (Orenstein & Yang, 2015, 99). In previous studies of highly communicable diseases, such as measles, it has been observed that herd immunity rates in a specific population need to be around 96% to 99% to prevent an outbreak from occurring (Hussain et. al, 2018). While the Centers for Disease Control and Prevention (CDC) still states that their experts are unsure of how many vaccinations would need to be administered to achieve herd immunity, various other public health experts have weighed in (CDC, “Key Things to Know,” 2021). From the early days of COVID-19 vaccination preparation, the World Health Organization has stated it believes a 60 to 70 percent rate of herd immunity could slow the transmission. However, more recently Dr. Anthony Fauci, the director of the U.S. National Institute of Allergy and Infectious Diseases, has claimed he believes

the range of immunity needed to completely stop the transmission of the coronavirus will probably be closer to 85 to 90 percent of the population (McNeil, 2020). However, American society does not need a complete lack of transmission to return to pre-pandemic lifestyles. Dr. Fauci states it is more important to protect those who are most vulnerable to severe cases so that the effects of the pandemic are milder. Viruses like the flu are never curbed to complete eradication; however, large amounts of the population are vaccinated to protect the vulnerable while maintaining normal lifestyles without lockdowns (McNeil, 2020).

Ultimately, as the number of cases and deaths surged throughout 2020 and into 2021, the endorsements by public health officials to avoid large gatherings, wearing masks, and getting tested were not only precautions against the mass spread of infection but a call to sacrifice personal desires and comforts to prevent the unnecessary loss of life within our country. As the pandemic has advanced, there are various ethical questions regarding burdens and benefits, including the future choice to become vaccinated against COVID-19.

Introduction to Anti-vaccination Sentiment and Compulsory Vaccination

Throughout history, as new vaccines have been designed, distributed, and in some cases required by law, the rise of anti-vaccine sentiment has risen correspondingly. While there have been many protests against compulsory vaccination dating back to the 1879 establishment of the Anti-Vaccination Society of America to oppose the smallpox vaccine, the first U.S Supreme Court case regarding the influence the state has on public health is *Jacobson v. Massachusetts* in 1905 (“History of Anti-vaccination,” 2018). In this case, Lutheran pastor Henning Jacobson refused to be

inoculated with the smallpox vaccine based on concerns of safety regarding the manufacturing and administration of the vaccine (Caplan, 2018). This case, which is at the core of modern public health policy regarding vaccination mandates, upheld the authority of states to require vaccination as long as it is “for the common good, for the protection, safety, prosperity, and happiness of people,” and the health risks associated with the vaccine do not cause an “absurd consequence” (Orenstein & Yang, 2015, 100).

Essentially, the Court set a precedent for future vaccination laws that the need to protect public health through the benefits vaccination provides outweigh the right of the individual to decline vaccination. The Court acknowledges that there are risks associated with vaccination, but that State power to require vaccination does not violate the Fourteenth Amendment to the U.S. Constitution because regulating vaccination “will protect the public health and the public safety” (Malone and Hinman, 2003). The Court elaborated on how public health impacts liberty by saying the Constitution “does not import an absolute right in each person to be, at all times and in all circumstances, wholly freed from restraint,” and that there are “manifold restraints to which every person is necessarily subject for the common good” that allow organized society to exist. Further, the Court rejects exemptions based on personal beliefs because allowing them “would practically strip the legislative department of its function to care for the public health and the public safety when endangered by epidemics of disease” (Malone and Hinman, 2003).

The anti-vaccination sentiment is not just seen in individuals who are against vaccination due to the belief that the harm of receiving a vaccination is greater than the good it does for a person’s health. Despite the legal history of vaccine mandates, various states allow citizens to evade vaccination policies based on their personal belief systems

through philosophical and religious exemptions (Hussain et al., 2018). As a result of allowing individuals to remain unvaccinated, the world continues to see people suffer from vaccine-preventable illnesses. The global outbreak of COVID-19 continues to remind the world of how vulnerable human populations are to disease and the dangers associated with anti-vaccine sentiment encouraging others to not prevent the spread of infection. Further, understanding the anti-vaccination movement and the reasons underlying vaccine resistance is important to mitigation of the challenges that will have to be overcome to reach global herd immunity against COVID-19.

Current Vaccine Laws, Schedules, and Exemptions

Every year the Advisory Committee on Immunization Practices (ACIP) provides a recommended list of vaccines to be received by individuals and a schedule of when to receive them. ACIP also provided guidelines on which vaccinations can be avoided due to specific medical limitations, such as allergies and immunocompromising conditions. This schedule of recommendations is then approved by the CDC. According to the 2021 immunization schedule, there are ten recommended vaccines for children from birth to 6 years of age: Varicella (chickenpox), DTap (diphtheria, tetanus, and pertussis), Hib (*Haemophilus influenzae* type B), HepA (hepatitis A), HepB (hepatitis B), Flu (influenza), MMR (measles, mumps, and rubella), IPV (polio), PCV13 (pneumococcus), and RV (rotavirus) vaccines. Individuals age 7 to 18 years have 4 additional vaccines added to their recommended schedules along with those already recommended at earlier ages: the HPV (human papillomavirus), MenACWY and MenB (meningococcal disease), and Tdap booster (tetanus, diphtheria, and pertussis) vaccines. While many view vaccines as targeted towards children, adults have recommended vaccinations, too,

based on their age group and population subgroups, such as a Tdap booster, annual flu vaccine, and shingles vaccine. As of February 2021, the ACIP recommends the use of three COVID-19 vaccinations under EUA for ages ranging from 16-18 years of age and older (CDC, “Immunization Schedules,” 2021).

Using the CDC’s vaccine policy recommendations, public health officials in state health departments advise local legislatures to create vaccine mandates (NVIC, “Vaccine Requirements,” 2021). Following the development of the Childhood Immunization Initiative in 1979 to raise vaccination levels, all fifty states had compulsory vaccine laws by the 1980-1981 school year (Malone & Hinman, 2003). Currently, all 50 states and the District of Columbia require vaccinations for children to attend school for diphtheria, tetanus, pertussis, poliomyelitis, measles, mumps, rubella, hepatitis B, and chickenpox. However, all states also allow varying exemptions that are based on medical, religious, or philosophical objections to inoculation (Orenstein & Yang, 2015, 100-101).

Medical exemptions encompass conditions that prevent vaccination such as allergies, immunocompromised patients, and pregnancy. Religious exemptions apply to those who “hold a sincere religious belief opposing vaccination to the extent that if the state forced vaccination, it would be an infringement on their constitutional right to exercise their religious beliefs.” However, a “compelling State interest,” such as “limiting the spread of serious communicable diseases,” allows states to regulate the religious beliefs “if exercise of personal religious beliefs substantially threatens the welfare of society as a whole” (NVIC, “Frequently Asked Questions,” 2021). The 1944 case of *Prince v. Massachusetts* supports limitations on religious exemptions by dictating that “the right to practice religion freely does not include liberty to expose the community or the child to communicable disease or the latter to ill health or death” (Malone and

Hinman, 2003). Lastly, philosophical exemptions apply to individuals whose personal beliefs lead them to conscientiously object to vaccination (NVIC, “Frequently Asked Questions,” 2021). Many philosophical exemptions are grounded in peoples’ beliefs on bodily integrity and disagreement with the government’s dictation of medical choices (Malone and Hinman, 2003). According to the National Vaccine Information Center, while all 50 states allow medical exemptions, only 46 states allow religious exemptions, and 16 states allow philosophical exemptions. Currently, California, Mississippi, New York, and West Virginia have the strictest vaccination laws, only allowing medical exemptions, but effective September 2021, Maine will also ban the use of religious and philosophical exemptions (NVIC, “State Law,” 2021).

Influence of the Anti-Vaxx Movement

In recent history, as more vaccines have been introduced, the anti-vaccination (Anti-Vaxx) movement has continued to spread false information and fear regarding recommended vaccinations. As access to social media and the internet has grown, the ability to share information about vaccination and read anti-vaxx views has become more available. This form of misinformation has lasting consequences on resistance to vaccination. A recent example of safety-related anti-vaccination sentiment arose after a publication by Andrew Wakefield claimed the measles, mumps, and rubella (MMR) vaccine caused brain damage resulting in autism development in children (Hussain et. al, 2018). Despite the study being retracted, multiple studies disapproving the association of MMR and autism, and Wakefield being disbarred from the practice of medicine in the UK, the concerns over the safety of the MMR vaccine is still observed today. For example, the organization Generation Rescue, established in 2005 and still

existing today, continues to support Wakefield's scientifically disproven claims that vaccines can cause autism in children. Celebrities, such as Jenny McCarthy and Jim Carrey, use their cultural influence to further this group's platform and continue to lead people to believe false claims about vaccines (Eggerston, 2010).

Today, the internet and social media continue to be a major area of concern with anti-vaccination sentiment because they facilitate the spread of misinformation and perpetuate the anti-vaxx movement. Typically, a layperson will go to a source that they can understand rather than a reliable source with data they cannot interpret from lack of understanding the science. It has been observed that 480 or more websites exist that promote anti-vaccination misinformation, described by Peter Hotez as a "media blitz" that impacts parents' choices to vaccinate based on personal opinion and not scientific expertise (Hotez, 2020). As a result of the anti-vaxx movement, vaccine coverage rates dropped, causing a lack of herd immunity and vaccine-preventable illnesses to remain in society.

Consequently, the most recent infamous display of what happens when herd immunity is not attained through vaccination was the 2014-2015 outbreak in the United States at Disneyland Resort in Anaheim, California, where the population was believed to only have been around 50% to 86% vaccinated (Hussain et. al, 2018). The outbreak led to 131 infections. Of these 131 cases, 82 cases had their immunization records verified, revealing that 70% of these individuals were not vaccinated against measles. When a study was conducted to determine the reasoning behind why these individuals remained unvaccinated, 49% were due to personal beliefs, 28% were too young to receive the scheduled vaccination, 4% missed the vaccine dose, and 19% were unknown reasons (Harriman, 2015).

As a result of such outbreaks, public health is threatened and medical experts are set back in the eradication of the disease. These consequences bring about the legal debate over what an individual's ethical duty to vaccinate is, whether vaccination should be mandated, and what exemptions should apply to such legal measures. For example, to prevent further crisis, in June 2015, California passed Senate Bill 277, which banned personal and religious exemptions from vaccination (Hussain et. al, 2018). With the global and unprecedented magnitude of the COVID-19 pandemic, such debate will continue to ensue until herd immunity can be attained in the population.

Purpose of Study

It became clear at the start of the COVID-19 pandemic in early 2020 that there was resistance to changes in lifestyle such as social distancing and wearing masks. As science developed, experts were encouraging the public to wear masks based on how valuable wearing them could be to prevent the spread of COVID-19, and as a result, limiting hospitalizations, avoiding overwhelming the healthcare system, and preventing needless death. When mandates were put in place requiring the use of masks in public, it appeared that tensions only rose further. From watching the news about infection rates rising because of deliberate decisions to not take health precautions to seeing reports of fights breaking out over customers attempting to enter stores without masks, I remember asking myself an important question -- why will people not do something uncomfortable for them for the sake of preventing the needless suffering of others? To me, it seemed obvious that if I could do a small, almost effortless action to prevent others from dying or from losing their loved ones, that I would do it, even if it were sometimes uncomfortable. However, not everyone was willing to make the effort to be

cautious for the sake of others, and despite efforts to curb the spread of infection through precautionary measures, a vaccine would be needed to ultimately bring infection rates down to levels where there could be a return to normal life.

By March of 2020, timelines for vaccine development and manufacturing began to be published and figures were developed on how many vaccines would be needed to curb infection rates. When it seemed like the pharmaceutical agencies and various government agencies were willing to do whatever it took to provide a vaccine by the end of 2020, it was difficult to hear people I was speaking to saying they would not become vaccinated because of the risks of the vaccine influencing them personally outweighed their desire to contribute to preventing death and suffering in others. The current issues regarding personal freedom and discomfort that were associated with the precautionary measures being advised were combined with the anti-vaccination sentiment that has been historically present in our country. These issues ultimately framed my thesis as a discussion of what ethical arguments can be made to encourage others to become vaccinated and where autonomy needs to be limited for the sake of public health. I raised the question of what ethical arguments are made for vaccination and whether vaccine mandates that are commonly seen would be applied to the COVID-19 vaccines because of my interests in science and how the law impacts public health decisions.

With no current government mandates regarding forcible uptake of the COVID-19 vaccine, the decision to vaccinate during this time brings about the core ethical debate of vaccination. As with any vaccination, there are risks and benefits associated. However, with the spread of a highly communicable disease that highly affects those most vulnerable to the risks of vaccination, ethical principles promote vaccination as a burden that adds to the public good and protects the vulnerable. As

society moves forward towards herd immunity and the return to normal life begins, questions regarding non-emergency authorization and mandates will occur, which adds to the ethical debate as to whether individual rights outweigh the risks non-vaccination pose for achieving the public good of herd immunity. Ultimately, the theories and principles discussed in Chapter 2 discuss whether or not limitations on an individual's autonomy are justified if they are for the public good, and if there is still an innate ethical social responsibility towards bettering community health if there are no mandates in place. Further, Chapter 3 outlines the need for a solution to the public health consequences caused by resistance to COVID-19 vaccination, and how to reframe traditional definitions of autonomy to allow limitations on absolute freedom while still respecting individual autonomy through other means. The goal of Chapter 3 is to understand the reasons why individuals will refuse vaccination, despite their ethical obligation to the common good, and discuss how this issue can be combated through both educational and policy-focused interventions that maintain respect for individual freedom. Ultimately, my thesis seeks to argue that when challenged with a public health crisis, ethical arguments have shown that individuals have limitations on their individual medical autonomy over choices that could have harmful impacts to other people in the community. However, despite these limitations, it is still the obligation of healthcare professionals to address the concerns about and ensure knowledge of the medical decision being made. Overall, my thesis uses various moral arguments to show the basis of how individual autonomy conflicts with achieving the common good in the case of a public health crisis.

Chapter 2

Ethical Arguments

Matters of public health intended to promote the well-being of the community, such as vaccination, are bioethical issues due to the intersection of scientific knowledge and societal values (Pierce & Randels, 2010, 2). Bioethics is defined as the “exploration of ethics in the realm of health, medicine, biology, and environment” (Pierce & Randels, 2010, 4). The underlying ethical principles determine what one individual ought to do and ought not to do (Pierce & Randels, 2010, 5). The decision to become vaccinated is unlike any other medical choice an individual makes in their lifetime because the consequences of inaction and anti-vaccination sentiment are directly influential on the health of the community the individual resides in (Levi, 2013, 1). The uptake of vaccines must occur in the majority of individuals and compliance with vaccination programs must be widespread for vaccines to work effectively. When herd immunity is achieved, it is very unlikely to see outbreaks of diseases the vaccines are used to prevent unless there are groups of non-participants. This form of protection is desirable because it promotes the health of the entire community and protects those vulnerable groups who are physically unable to receive vaccinations (Asveld 246, 2008). However, despite the unparalleled ability to prevent unnecessary death and illness in mass populations, vaccines are not always willingly accepted, and many people appeal to the rights of individual autonomy to avoid their obligation to vaccinate either themselves or their children (Levi, 2013, 1).

When debating public health and vaccination obligations, moral theory is important to the foundation of bioethics because morality is essentially how people

determine what decision is right from wrong. Religious influences play a key role in the development of morality and ethics. Secular perspectives, which are non-religious ethical systems, are generally highly cohesive in practice to what is seen in religious doctrine as a result of the spiritual influences that formed the foundations of the bioethics field. The key difference is that religious ethics address an “ultimate reality, such as God,” whereas secular approaches do not (Pierce & Randels, 2010, 19).

In the discussion of bioethics, both secular and religious perspectives are utilized due to studies depicting that 80 to 90 percent of people in the United States believe in some form of god (Pierce & Randels, 2010, 22). Bioethics in America is influenced by moral theories from theology because it was developed within a majority Christian culture, and therefore, it is common to see Christian ideals such as the concept of love for one another and the common good as factors behind what is considered ethical healthcare choices (Tomašević, 2013). Historically, theologians and moral theologians also contributed to the development of bioethics in the 20th century. However, even if someone does not believe in a god, they still operate within a belief system, and despite the source of their beliefs on morality being different, common ground can be found to integrate moral norms into society through secular ethical theories (Pierce & Randels, 2010, 23). Three key Western philosophical theories regarding morality which are significant in bioethics are utilitarianism, deontology, and principlism.

Utilitarianism

Utilitarianism, developed by Jeremy Bentham and refined by John Stuart Mill, is a theory that “considers actions to be justified or unjustified on the basis of their consequences” (Pierce & Randels, 2010, 5). When actions are being considered, they are

considered purely based on their utility, meaning they promote happiness. The backbone of utility is that “actions are justified if they tend to produce the greatest good for the greatest number of people,” and the person taking action “may not privilege his or her own well-being over that of anyone else when determining the morally best course of action” (Pierce & Randels, 2010, 5). Bentham and Mill both determined that happiness results from both the reception of pleasure and avoidance of pain by all agents involved. Utilitarianism is a challenging theory because all potential consequences of an action have to be anticipated, regardless of intentions to bring about happiness. If good consequences are not produced from the action, then the action will not be considered good (Pierce & Randels, 2010, 6-7).

Utilitarian ideas can be applied to promote vaccination. As anti-vaxx groups challenge the safety and efficacy of vaccine programs, many endorse opting out of vaccination on the ground of “respect for individual choice and bodily integrity” rather than the safety that is produced from herd immunity (Caplan, 2018). However, health care policy is in disagreement with no limitations on individual freedom because it is guided by utilitarianism, which is an “ideology that a rule for society should be established that has the best outcome for the greatest amount of people in society” (Hussain et. al, 2018). When an individual has been informed about the risks and benefits of vaccination, their informed consent is an acknowledgment of the good they would do for the overall health of everyone in their population (Vaughn, 2017, 203).

Further, when herd immunity is applied to vaccine ethics of distributive justice, it is seen to maximize utility or the good, for society, if all people who are able to be vaccinated can be (Vaughn, 2017, 724). Importantly, this maximized utility protects vulnerable groups, such as infants or immunocompromised individuals, who are unable

to receive a vaccination to protect themselves (Hendrix, Sturm, Zimet, & Meslin, 2016, 274). Giubilini further argues the idea that utilitarian ideals promote an obligation to be vaccinated because “the expected harm to others of non-vaccination remains larger than the expected harm of vaccination to the vaccinated individual” (Giubilini et al., 2018, 551). When herd immunity has not yet been achieved within a community, as is exemplified by COVID-19 in America, every individual who chooses not to vaccinate is imposing the risk of harm on others. Utilitarianism, therefore, supports the moral obligation to become vaccinated unless the cost of vaccination to the individual will outweigh the risks imposed on others by non-vaccination (Giubilini et al., 2018, 551). Overall, utilitarian ideals underlie the occurrence of vaccine mandates, which exemplify the ethical framework of vaccination -- where there is “a limit on individual autonomy when it conflicted with the public good” (Caplan, 2018).

Deontology

Deontology, influenced mainly by Immanuel Kant, is a theory that “focuses on the nature of actions, holding that something about an action itself makes it right or wrong” (Pierce & Randels, 2010, 7). This theory contrasts with that of utilitarianism because the consequences of the action are not as relevant to determining if it was right, but that the moral value of an action is rooted in if the action was taken from a place of “pure motive of moral duty” (Pierce & Randels, 2010, 7). Further, Kant based the morality of an action on the principle of the “categorical imperative,” which is the display of respect for both oneself and all people as equally autonomous and to not regard others as objects used to achieve the ends of one’s goals (Pierce & Randels, 2010, 7). Kant’s ethical principles are reflected by informed consent for vaccination, where a

physician cannot force a patient to become vaccinated against their will just because it is believed to be in their best interest. Instead, patients need to be treated with respect through providing them with all the information necessary to make an informed medical choice that benefits both their health and the health of the general public (Vaughn, 2017, 203).

Immanuel Kant's deontological approach can be applied to societal ethics because individuals should "act that the maxim of [their] will could always hold at the same time as a principle establishing universal law" (McCartney, 2017, 3). With substantial evidence showing that vaccinations are effective at preventing disease, it cannot be true that the choice to not vaccinate could be a universal law because if everyone in society were to not become vaccinated, it would violate other moral principles such as the preservation of life and avoidance of harm. We do not exist alone in the world, and to live in society is to acknowledge the responsibility one has towards safeguarding the lives and health of all members of society (McCartney, 2017, 3). Social ethics focus on our responsibility to and obligations towards the society we exist in. These ethical principles align with a religious ethical approach, which is Catholic social teaching on the common good. The Catholic Church teaches that people ought to vaccinate to achieve the protection of the health of all. The ethical justification underlying vaccination is that there is a personal responsibility to society of "pursuing the good," which cannot be done unless public health directives, such as becoming vaccinated, are followed (McCartney, 2017, 4).

Principlism

The secular theory that has many shared perspectives with religious ethical arguments is the bioethical theory of principlism. Four moral principles form the foundation of principlism: respect for autonomy, nonmaleficence, beneficence, and justice. By creating universal principles for ethical arguments that can be applied to all cultures, it allows every individual to interpret these principles to fit their internalized belief system (Pierce & Randels, 2010, 12). However, bioethical conflicts can occur when these principles contradict one another because none of these four principles takes primacy over another. When this type of moral ambiguity occurs, balancing must occur to ensure that the best outcome can be reached and others are not harmed by an individual's choice (Brand-Ballard, 2003, 236).

Autonomy

The first principle of bioethics, respect for autonomy, is acknowledging a “person’s rational capacity for self-governance or self-determination,” and allowing the person to exercise this freedom of choice without any overarching pressures (Vaughn, 2017, 81). The choice to act or not to act in terms of the betterment of public health falls under the principle of autonomy because of the idea that a person “freely acts in accordance with a self-chosen plan,” and the individual acts with “liberty, or independence from controlling influences” (Pierce & Randels, 2010, 31-32). More specifically, in terms of public health, when someone respects the autonomy of another, they are respecting their right to make their own choices regarding their health and body (Pierce & Randels, 2010, 13). At the core of most arguments regarding vaccination is autonomy, as receiving a vaccine is an individual choice for one’s own body or the body of their children. However, exercising autonomy in the case of vaccination differs

from many other health-related choices because your individual choice has the potential to positively or negatively affect the health of the greater community. For a vaccine program to succeed, there needs to be “widespread compliance” (Asveld, 2008, 246). The right for an individual to freely choose their actions is just as essential as the respect of other individuals whom that choice could impact. If mass amounts of people were to choose non-participation, the vaccine programs would fail in their entirety (Asveld, 2008, 246). When choosing to vaccinate or not, the choice is always made with an effect on the public, and in this way, the legitimacy of the claim has to reflect shared values across the population that one is affecting (Asveld, 2008, 251).

Physicians make an ethical commitment to respect the autonomy of their patients through the acquisition of informed consent before any treatment or procedure occurs (Pierce & Randels, 2010, 31). Informed consent occurs when an autonomous and informed person agrees to have medical treatment (Vaughn, 2017, 196). In approaching informed consent, a medical professional has a duty to provide a patient with information and education that is relevant to their treatment (Pierce & Randels, 2010, 32). However, patients have the right to not adhere to medical advice and the ability to refuse treatment (Vaughn 2017, 196). Physicians show respect for that patient’s autonomy by acknowledging “that person’s right to hold views, make choices, and take actions based on personal values and beliefs” (Pierce & Randels, 2010, 32).

When applied to vaccination, those receiving inoculations are entitled to education and information regarding the vaccine mechanism, risks, benefits, and any alternative options they have, such as personal-belief exemptions (Vaughn, 2017, 198). Then, when the individual chooses to become vaccinated, they have agreed they have knowledge of and are willing to assume the risks associated with the decision (Vaughn,

2017, 203). If false information was given to an autonomous individual that was relevant to the choice they made, this would be a direct violation of autonomy (Zimmerman, 2017). Further, individual freedom is reflected in vaccine programs by ensuring that people have the right to question vaccination and voice their opinions on the programs (Asvled, 2008, 252). Even the Catholic Church, the largest Christian denomination in the world, acknowledges that there are reasonable objections to vaccination, such as concerns over if a vaccine is necessary, safe, and effective, or whether or not they trust government and pharmaceutical agencies promoting vaccination (Carson and Flood, 2017, 2). Catholic teaching expresses that there is a right for people to voice their opinions on vaccination and to have those concerns addressed.

Nonmaleficence

The second principle of bioethics, nonmaleficence, means that individuals should not intentionally bring harm upon another person and that all people “have a right to bodily integrity, implying that their bodily health deserves respect by other individuals” (Asvled, 2008, 252). In society, there should not be a fear of being hurt by other people, but instead a reliance on the fact that every member respects the body and health of others (Asvled, 2008, 252). This theory can be seen within medicine generally in regards to the relationship between the patient and provider, but the principle of nonmaleficence can also be applied to vaccine uptake as a contribution to bettering public health.

An aspect of non-maleficence that is indirectly addressed by individuals not seeking to hurt others is trust, especially trust in the health care system that no great amount of harm will be inflicted upon you intentionally for profit. This trust can be

portrayed in a diversity of ways, such as trust in the companies manufacturing the vaccine to a reliance on the health care workers distributing it to honestly and empathetically address the concerns regarding the risks of vaccination. Trust in the source, information, and safety associated with a vaccine is a major influence on the willingness of people to receive inoculation. With the science regarding the need for vaccines coming from the pharmaceutical companies that profit from their use, it is unclear how large of an influence personal gain is in promoting certain vaccines (Carson and Flood, 2017, 3).

Another dimension of trust in vaccines is understanding the science behind them. As stated in “Catholic Social Teaching and the Duty to Vaccinate,” “The capacity for self-correction is the source of science’s immense strength, but the public is unnerved by the fact that scientific wisdom isn’t immutable” (Carson and Flood, 2017, 3). Science is a field that constantly modifies its knowledge based on new wisdom and discoveries. For the public, this process can be confusing and their beliefs may be harder to change once established, and there is often a lack of understanding of the frequency with which scientific breakthroughs occur (Carson and Flood, 2017, 3). However, in the Catholic faith, none of these concerns are taken as a reason to refuse vaccination. Rather, the church holds “the necessity of vaccination as a collective action to optimally affect the common good” (Carson and Flood, 2017, 3). Therefore, unless there is a concern about safety that greatly outweighs the benefits of vaccination, all people are expected to act based upon the moral obligation towards the common good of community health.

There are also Jewish ethical arguments that emphasize the role of “respect for a person’s intellectual authority in their specific area of expertise” to encourage individuals to trust the healthcare system’s vaccination recommendations (Levi, 2013

2). When individuals believe that vaccines will not work or that they will pose some form of danger to themselves, they are essentially showing a lack of trust in scientific experts to ensure the safety of inoculations (Levi, 2013, 4). Unfortunately, most individuals do not have expertise in the scientific field that is required to understand mass data sets produced about vaccines or to understand the nature of the vaccination itself. If one does not trust the authority of medical experts, they will begin seeking information that they can better understand, which leaves them vulnerable to misinformation spread by groups of people who are against vaccinations but have no definitive knowledge that their information is accurate (Levi, 2013, 5).

Beneficence

The third principle of bioethics, beneficence, is an obligation to seek out and provide benefits to others (Pierce & Randels, 2010, 12-13). Beneficence is seen in the public health sector because professional ethics teaches that medical professionals have a duty towards caring for others. Beneficence calls medical professionals to act in the best interest of their patients by providing them safe and effective means of treatment. The ethical duty of beneficence means they intend to perform treatments that do good by their patients and avoid harm (Vaughn, 2017, 81). In the case of vaccination, various principles of bioethics may clash, especially when the doctor's duty to beneficence by providing beneficial treatment potentially interferes with the individual autonomy of the patient (Pierce & Randels, 2010, 14). This conflict occurs when the course of action the patient takes is not advised by the professional, such as not following the recommended schedule of vaccination or using certain exemptions validated by their personal beliefs. In regards to vaccination, if a physician highly discourages the parent from opting their

child out of vaccine programs, and the parent does so anyway, the physician is responsible for protecting the welfare of the child if it is believed that the parent is trying to intentionally cause harm to their child by avoiding vaccination (Vaughn, 2017, 81).

Justice

The final principle of bioethics, justice, refers to distributive justice in the scope of vaccine uptake, which is the “fair and equitable distribution of benefits and burdens” (Pierce & Randels, 2010, 14). Free-riders of vaccination are the greatest threat to justice because failure to vaccinate depletes the immunity of the population and because they don’t share in the fair burden that produces the benefit of immunity. These individuals go against the common good and cause harm to the whole community if an outbreak occurs. Ultimately, any member of the population who can bear the burden of vaccination to benefit from herd immunity should do so not only for fairness but also for the beneficence of protecting the unvaccinated (Hendrix, Sturm, Zimet, & Meslin, 2016, 274).

The concept of distributing benefits and burdens equally is reflected in Lotte Asveld’s concept of vaccine ethics. One of the key aspects of promoting distributive justice amongst individuals in a population is overridingness, which means that when making a choice that affects other people “the dominant aspect of one’s identity should be that of the citizen” (Asveld, 2008, 252). This value relies on the fact that when a choice has to be made in the public sphere, that individual values will not override the duty of citizenship and reasonings that benefit the public good. This value is reflected in Carson and Flood’s article where the authors identify an essential element of Catholic teaching as the idea of the common good, which is defined as “the objective realities of

the interdependence of human beings and cooperation necessary to achieve constitutive ends of human nature” (Carson and Flood, 2017, 7). Therefore, the Church believes that despite the potential self-interested objections, it is morally and socially expected that people will vaccinate to achieve living in social solidarity with others.

The Catholic Church also identifies justice and love to be essential values connected to getting vaccinations that contribute to the common good. Justice is seen as the fulfillment of the minimal duty humans have towards living in solidarity with one another, which is “giving each person what is due to him or her” (Carson and Flood, 2017, 8). Love is rooted in justice because it is the active choice to achieve the common good for the benefit of others even if it comes as a sacrifice to oneself. As it pertains to the COVID-19 vaccination, we not only have a duty to achieve individual justice, which is giving other people what is due to them, but distributive justice, which is allocating resources to all, especially those who are most vulnerable without them (Carson and Flood, 2017, 8). This type of distributive justice can be seen in efforts to ensure immunocompromised and high-risk individuals are the first to receive vaccinations to preserve their health before it becomes affected. As society works to achieve the common good through receiving the COVID-19 vaccination, love of one another is shown, but also a commitment towards the preservation of economic and political common goods are maintained by reaching herd immunity that allows public life to go back to normal (Carson and Flood, 2017, 8). Ultimately, Catholic social teaching promotes a duty to vaccinate towards committing a sacrifice that is aimed at achieving the common good of all members of society, and when individual autonomy is used to avoid this responsibility, it is acting against the good of their neighbor and community (Carson and Flood, 2017, 8).

Distributive justice is also discussed by Rebecca Levi in her essay on Jewish ethics, where she states that the individuals who are ultimately deciding their contribution towards herd immunity are going to benefit from it whether or not they contribute because they are embedded in a community. In areas where vaccination rates are high, if an individual does not get a vaccine, they will likely still be safe from contracting an infection because they have been surrounded by people who did comply with their moral obligation to vaccinate (Levi, 2013, 8). Herd immunity should be something that all communities seek to achieve because it is in itself a “public good,” meaning that no one is excluded from the benefits of being protected from disease even if they choose not to personally vaccinate and everyone can equally benefit from herd immunity because one person’s prevention of disease does not take away from the prevention of others (Giubilini et al., 2018, 548). This concept is due to theories of “layers of embeddedness” where an individual that is “within a biological community is linked by simultaneous vulnerability to and responsibility for the well-being of others in that community” (Levi, 2013, 9).

Further, despite the obligation to vaccinate not seeming as prevalent when there are already high levels of vaccination and herd immunity has been reached, it becomes less negligible of a contribution when there is no herd immunity. This importance rests on the fact that when herd immunity is near reach, each individual who is deciding to vaccinate moves the community closer and closer to the ultimate goal of preventing contagion (Giubilini et al., 2018, 549). When people decide not to vaccinate due to disbelief or fear they essentially are still relying on the science behind the vaccination process because they are reliant on others becoming vaccinated to protect themselves. Based on a Jewish ethical perspective, Levi argues that this inaction is unethical due to

an emphasis on obligations to help others and not acting out of freedom if it means bringing harm to your community (Levi, 2013, 9).

Overall, the Catholic Church “endorses a view of civic authority in which individual rights are balanced by duties to the common good” (Carson and Flood, 2017, 6), meaning that unless the burden of vaccination becomes excessive, it is an expectation that people receive vaccines as a contribution towards the common good of their community. Since vaccines are heavily researched and tested before being distributed to the public, and in the case of COVID, the vaccine is free to those receiving it, it should not be seen as an excessive burden to get vaccinated. Also, since becoming vaccinated moves society towards herd immunity, it is intrinsically the right thing to do in order to achieve the common good (Carson and Flood, 2017, 6).

With vaccination comes the responsibility for all members of society to collectively act towards the common good even if it entails some individualized personal risks. The common good is not only the good of one whole person but also of all people at every level of society, especially in consideration of those who are physically unable to act. The Catholic Church teaches that “the human person cannot find fulfillment in himself, that is, apart from the fact that he exists “with” others and “for” others” (Carson and Flood, 2017, 7). Humans are drawn towards living social lives, but to do so requires people to not only respect individual rights but to also realize they have a meaningful duty towards one another to deny their self-interests if it means acting in a way that benefits the majority of others (Carson and Flood, 2017, 7). When it comes to the common good that can be achieved through vaccination, herd immunity is the result of a “social matrix of shared living and shared responsibility,” meaning that protection is

only achievable through the collective actions of many people acting in solidarity towards the good of others (Carson and Flood, 2017, 7).

The Catholic Church names solidarity as a moral principle that is the core value of most teaching. Solidarity is a moral responsibility that is defined as “a firm and persevering determination to commit oneself to the common good” (Carson and Flood, 2017, 7). It is essential to understand that the importance of vaccination is not a battle of whether or not the vaccine is a benefit to ourselves, but whether it is a fulfillment of the duty towards each other so people can exist safely together. The achievement of the common good cannot only be focused on close family and friends, this duty is towards all people universally. Further, solidarity should be an act that accepts sacrifice for others, and within the Catholic Church, this virtue is not seen as an option but is essential to living a virtuous life (Carson and Flood, 2017, 8).

Discussion

Overall, both secular and theological bioethical arguments regarding vaccination promote taking action to benefit community health. Since herd immunity is something that one can benefit from without participating in, there is an ethical responsibility towards justice to participate in an equal share of the burdens for the public good to be achieved. Despite the importance of autonomy and personal freedoms in society, in areas of public health where everyone’s safety can be impacted by the choices of a few individuals, there is only a justification for autonomy in situations where there is a true religious or medical dilemma preventing vaccination. For example, in the case of the California Disneyland measles outbreak that was previously detailed, individuals who had refused to become vaccinated on grounds of their personal beliefs endangered the

health of many children who were too young to become vaccinated. It can be seen in that situation that a person's freedom needs limitations so that they may not cause an undue burden on those who are unable to protect themselves against harm.

In the particular case of COVID-19, the magnitude of the problem concerning infection and vaccination is worldwide, and the key to protecting the health and safety of Americans is through vaccination. In the context of this form of public challenge, the primary ethical concern cannot be autonomy, if it is understood as absolute freedom to make an individual decision that has global implications. With COVID-19 vaccinations under EUA, mandates could be made to require their uptake. However, a critical aspect of integrating respect for individual autonomy can be through explaining, educating, and acknowledging the concerns people have regarding the development and manufacturing of the COVID-19 vaccine. By challenging the traditional assumptions individuals hold about their autonomy regarding their bodily integrity, health authorities will have to balance the need to ensure the well-being of the collective population with individual liberty. These authorities can ensure the levels of inoculation needed for herd immunity are achieved and patient autonomy is respected by fostering trust in healthcare, motivating people to become vaccinated, and properly educating people on the risks associated with vaccination.

Chapter 3

Applications and Interventions

The idea of applying ethical theories to solve moral problems regarding how autonomous personal choices impact the safety of others and the common good is not a new concept by application. The challenge of individual interests and choices conflicting with the collective societal interests can be seen in *The Tragedy of the Commons*, an essay written by Garrett Hardin. The idea behind Hardin's essay is that every member of society equally contributes to and takes from the commons for everyone to reap the benefits fairly. However, if individuals take advantage of the commons and do not foster its sustainability, it fails, leading to the understanding individual interests must be controlled in favor of the community. When applied to vaccination, the commons is a society not suffering from infectious disease because it is highly vaccinated against the infectious agents. There is a herd effect observed in mass vaccination, and as the burden of disease is less observed in society, individuals avoid vaccination believing they will be protected by herd immunity without having to accept risks associated with vaccination. However, not vaccinating weakens herd immunity, and ultimately, if a large number of people act in terms of individual interest, the commons will fail and outbreaks occur. It has been observed in society that ensuring herd immunity is critical, and as such, mandates have been put in place to ensure high vaccination rates and avoid the "tragedy of the commons" (Malone and Hinman, 2003, 262).

Another common moral experiment as it concerns individual choice affecting the safety of others is the "Trolley Problem." In this ethical dilemma, an individual has to choose whether to sacrifice the life of one person to save the lives of many. This

challenges the individual to question what is the morally ethical, or right thing, to do in this situation (Brand-Ballard, 2003, 239). Across years of surveys conducted by Michigan State University, about 90% of people believe the choice to kill one person to save many is the right thing to do (Cloud, 2011). If this situation were to be applied to vaccination, where it is understood that no vaccine is perfectly safe nor perfectly effective, it would be analogous that the risks of vaccination causing harm to one individual is worth the outcome of preventing the suffering or death of many other individuals. However, most commonly, the choice to vaccinate is made by a parent for children, and perspectives can change when the one person who would be harmed is someone you love and have an internalized duty to protect. Social experiments have shown that only one-third of people (33.3%) will protect the mass amount of people if it means harming a family member (Cloud, 2011). These experiments prove the problem of addressing the risks and benefits of vaccination, and why ultimately, personal autonomy can be selfishly motivated and has to be limited when it concerns individuals not accepting their social contract to participate in community disease prevention (Brand-Ballard, 2003, 239).

Despite these common ethical dilemmas being integrated into our society and their conclusions a majority of the time being to act in the best interest of the common good and protection of the most amount of people, those same conclusions are not always observed when it comes to vaccination. The choice to vaccinate individually is an acceptance of a personal contract to protect the individual, but also to protect the vulnerable, such as those who cannot be vaccinated due to medical concerns or age restrictions (Malone and Hinman, 2003, 264). When an individual's freedom of choice can endanger public health, principles of nonmaleficence, beneficence, and distributive

justice are all at odds with autonomy. In these situations, traditional views of autonomy as a person's ability to freely choose what happens to their body are challenged. Patient autonomy has to be reframed to promote educational and policy interventions as a means of respecting the autonomy of a patient, but not allowing one person to threaten public health and the common good. While there are legal grounds for compulsory vaccination, it appears there are effective ways of achieving herd immunity while also respecting the medical autonomy of patients through various efforts that incentivize vaccine acceptance in society.

Vaccine Requirements and Mandates

In order to understand autonomy as fostering educated choices through patient outreach and counseling, the opposite must first be understood. The opposite being government regulation and mandates for vaccination, which have been seen in every state through compulsory vaccination laws to attend school in the United States. While there are medical, religious, and philosophical exemptions, the states with the highest levels of vaccination rates are those that only permit medical exemptions. These laws have proven that requiring vaccination is one of the most effective means of ensuring herd immunity. However, due to the current vaccinations being under EUA for individuals 16-18 years of age and older, the target of these laws will be among adults, which is harder to implement since not being able to attend school is not the alternative for not becoming vaccinated. Modern mandates for vaccination would be more focused on the incentive of a return to normal life, limiting what activities a person can do without their COVID-19 vaccine. The ultimate goal of the three recommended COVID-19 vaccines is a return to normal life without the burden of contracting a highly

communicable virus. The drawback of acceptance of the COVID-19 vaccines is that there are not years of safety and efficacy data as is typical with required vaccines (Bomey, 2020). With the idea of herd immunity in mind and the ability to safely return to public life, an important aspect of vaccine roll-out is if and how vaccination can be mandated, in what circumstances, and what the exceptions are.

Requirements For Work

Although the idea of vaccine mandates is typically applied to children attending school, in the past, vaccination mandates have also been applied to adults. Compulsory vaccination in adults was historically seen in Cambridge, Massachusetts in 1901, where it was required by law that anyone aged 21 and older get a vaccine against smallpox, and refusal would result in a monetary penalty (Kramer, 2020). Today, many private employers and the military have the right to require vaccination, and those rights will remain for requiring the COVID-19 vaccine to be able to return to the workplace. It would not be a new concept to require vaccination as an employer, as is typical of “high-risk workplaces,” such as hospitals or meat processing plants, to require their employees to get certain vaccinations, specifically the annual flu vaccine (Parsons, Hoffman, and Kaplan, 2020). These high-risk workplaces have the legal right to require the vaccine since it is the concern of all companies to preserve the health and safety of all those within the workplace. It is especially critical that those employees who are in contact with high-risk populations become vaccinated to prevent the infection of the elderly, immunocompromised, and those too young to be vaccinated (Carson and Flood, 2017,).

In December 2020, the U.S. Equal Employment Opportunity Commission (EEOC) announced that it would allow employers to require COVID-19 vaccinations among its employees, except for specific medical or religious exemptions (Moore, 2021). Given the high volume of infections and deaths in the United States, even if there is no specific legal mandate requiring vaccination at national or state levels, it was thought to be unlikely that legislators would generate any laws that would prevent vaccine requirements at the employer level (Parsons, Hoffman, and Kaplan, 2020). However, in January 2021, a Mississippi Legislator, Dan Eubanks, sponsored House Bill 719, which would “prohibit public and private employers from requiring any of their employees to receive a vaccination against COVID-19 as a condition of the person's employment or continued employment with that employer” (Adams, 2021). The bill subsequently died in committee.

Despite the ability to require vaccination in the workplace, some exceptions will have to be addressed. For instance, the Americans with Disabilities Act protects those who are wanting to opt-out of vaccination due to health concerns that make them a high-risk for complications vaccination groups. If it can be determined that the employee that is asking to not receive the vaccination “imposes an undue burden on operations and on the health and safety of coworkers” then the accommodation request can be denied (Parsons, Hoffman, and Kaplan, 2020). Similarly, in states that allow religious exemptions, cases of religious freedom will be reviewed case by case to ensure a balance of safety in the workplace with protections against religious discrimination. Religious exemptions are not as successful in granting the employee the right to not follow the vaccine mandates within their company as medical exemptions because, as determined by the Supreme Court, exemptions rooted in religious belief can be denied if

they are seen to even pose a minimal threat to the safety of the workplace (Parsons, Hoffman, and Kaplan, 2020).

Various legal repercussions can arise from employers requiring vaccination. The first example of liability will be what course of action will follow a bad reaction to vaccination from an employee that was required to get vaccinated to continue working. Employers will have to plan vaccine programs and follow legal guidelines to ensure they are not held responsible for any hazards associated with the vaccine, especially in concern to those employees who are at a higher risk of complications (Parsons, Hoffman, and Kaplan, 2020). Ultimately, the decision between the balance of the risks and the benefits of requiring the COVID-19 vaccination will be determined by individual employers. If it is deemed that the potential liability issues outweigh the benefits to health and safety, then there may not be a requirement within that work community to receive a vaccination. While there will be concerns about the liability and employee satisfaction, there will also be the need to prevent any outbreaks in the workplace and the potential hazards those can cause not only to employees but to customers of companies (Bomey, 2020). This lack of requirement will give individuals the freedom to then decide what their risk assessment of vaccine uptake is and what their moral obligations are to receiving it to protect themselves and others. Ethically speaking, it may be a moral obligation for employers who know they are serving high-risk populations to require the vaccine to promote health and safety for the most number of people (Bomey, 2020).

Lifestyle Incentivized Requirements

Another aspect of vaccine mandates is going to be seen in typical returns to normal life that are outside of the workplace, which relates more to vaccination requirements for the customers of businesses. Many experts are beginning to predict that proof of vaccination may be required for individuals to enter events with a mass amount of people, such as a sporting event or concert (Kramer, 2020). For the same legal reasons businesses can require clothes to enter, they will be able to ask for proof of vaccination if it ensuring a better environment and not causing any form of illegal discrimination. However, if the employees at such a business were required to be vaccinated the business as a whole is safer because the worker that is coming into contact with many more people per day than the customer themselves will be protected against the virus (Kramer, 2020).

Arthur Caplan, a bioethicist for the New York University medical school, states that “the best way to impose a mandate is to reward people with more freedom if they follow that mandate” (Kramer, 2020). Caplan thinks that if you give people a reason to be inoculated, like to attend their favorite events, then they are being given “a reward for doing the right thing” by being given more freedom to go places they want based on having the vaccine (Kramer, 2020). Furthermore, another key business that could require a COVID-19 vaccination would be airlines because to lift travel bans they must have a way of ensuring that anyone traveling is safe from globally transmitting the virus (Kramer, 2020). The overall goal of mandating vaccinations on a consumer level is to reach groups of people that want to be in public and are willing to get a vaccine to safely do so.

An exemplary leader in creating incentives to get vaccinated is Israel, which had already vaccinated half of its population with the first dose of Moderna as of February

2021. Israel's government created a "Green Badge" system, allowing only those who are fully vaccinated to participate in leisure activities, such as going to a restaurant or event hall (Kershner, 2021). This system uses badges with QR codes to certify vaccination when entering venues. This system came about under health minister Yuli Edelstein, who claims that getting vaccination is both a "moral duty" and "part of our mutual responsibility" (Kershner, 2021). The justification being held behind this limitation on freedom without vaccination is that citizens should not have the right to endanger others because of their autonomous choice to refuse vaccination. The motto behind this program is that "whoever does not get vaccinated will be left behind" because the choice to not vaccinate keeps the non-vaccinator away from participation in leisurely activities (Kershner 2021).

Federal Mandates

While no compulsory vaccine laws have been observed at the federal level, in February of 2019, the FDA's commissioner, Dr. Scott Gottlieb, stated that if states were continuously proving their vaccine procedures were unable to prevent outbreaks of vaccine-preventable diseases that the federal government may have to act to ensure the safety of all citizens. While this raises issues of federalism, in a highly mobile society, it is impossible to say that ineffective vaccination mandates do not have the potential to impact the entire country if a large-scale outbreak were to occur. Gottlieb reiterated this point when he spoke against the common use of state exemptions, saying that states are "creating the opportunity for outbreaks on a scale that is going to have national implications." Similarly, American Medical Association board member, Dr. Patrice Harris, believes that "protecting community health in today's mobile society requires

that policymakers not permit individuals from opting out of immunization solely as a matter of personal preference or convenience” (Ducharme, 2019). With members of government organizations insisting that states with low vaccine coverage are allowing exemptions that could lead to mass outbreaks, it could be observed that the federal government would take over if the COVID-19 vaccination programs were not being implemented to a level where herd immunity could be reached causing an endangerment of community health.

Repercussions of Vaccine Mandates

A potential drawback to requiring a vaccination is that it could cause individuals to be more resistant to receiving it if they are not given the personal choice to vaccinate. While some believe that an easy way to ensure that workers are compelled to vaccinate is to require the vaccination for employers and customers, others believe that mandating vaccines will only cause anti-vaccine sentiment due to concerns about the safety of the high-speed vaccination production process (Bomey, 2020). Specifically, Kelly Moore, the director of immunization education for the pro-vaccine Immunization Action Coalition, has stated that from previous vaccination responses, typically when it is required for people to get a vaccination it is not taken well despite the evidence of health benefits to the employees overall. She also believes that companies should await any long-term data that can be collected on the vaccine before mandating it rather than immediately moving towards requiring vaccination. She does not think that any public health officials will suggest requirements for vaccination in all workplaces and to make the best choice for their employees, companies should consider what those most

educated on the science of the vaccination have to say about receiving it before mandates are made (Bomey, 2020).

Preservation of Autonomy

In practice, when mandates for compulsory vaccination are utilized, the principle of autonomy is limited. Many believe that their loss of freedom to make their own medical choices means these forms of laws could not exist. However, as has been seen in multiple previously discussed court cases, the government's role to maintain public health overrides an individual's choice to not become vaccinated. Given the EUA status of the three COVID-19 vaccines on the market in the United States, the feasibility of a vaccine mandate requiring a person to be vaccinated may not be possible, but regulations are being observed through restrictions on the return to normal life. While requirements have been shown as a way to justifiably limit autonomy, incentivized requirements allow for the practice of autonomy. If a person freely chooses to not become vaccinated, they do so knowing they will not enjoy the same lifestyle that they could if they were to receive the vaccination. While there are still limitations to protect community health and not allow the free-rider to endanger others, there is still the freedom to choose to not vaccinate.

Autonomy As Education

The ability to autonomously choose to become vaccinated can be impacted by laws and mandates. However, having well-educated and respectful healthcare providers and easily understood information about the vaccine can function synonymously for respect for autonomy by showing care for the concerns of patients. For mass uptake of a

vaccine to be seen within communities, psychological information about people's behaviors must be utilized in the creation of vaccine programs. With multiple COVID-19 vaccinations available for commercial use to the American public, vaccine literacy will be a key determinant of how widely accepted the vaccine is within communities. Vaccine uptake will not be seen at the levels needed to reach herd immunity without programs in place to provide easily understandable information to the public about the immunization process ("Vaccine acceptance," 2020).

The Technical Advisory Group (TAG) on Behavioral Insights and Sciences for Health is a division of the World Health Organization that is dedicated to understanding the behavior and decision-making processes of individuals, especially regarding our daily impact on public health. In response to the upcoming COVID-19 vaccination, this board has published a report on what communication tactics and information will be needed to effectively bring about vaccine acceptance ("Vaccine acceptance," 2020). TAG identified various aspects of vaccination that have been and will continue to be barriers or enablers during COVID-19 vaccine rollout. Especially in the case of an accelerated vaccination process, just simply providing people with scientific information alone will not be enough to ensure that herd immunity is realized ("Behavioural considerations," 2020, 1). COVID-19 is especially challenging because two of the three recommended vaccines need to be administered in multiple dosages, long-term effects will not be known until the duration of testing participants continues, and the vaccines are not perfectly effective ("Behavioural considerations," 2020, 2).

Every community is different in terms of social norms, widely held beliefs, trust in the healthcare system, levels of scientific literacy, and other aspects that are ingrained in the behavioral vaccine acceptance process. To create vaccine programs that are

effective across multiple communities, these populations have to be interacted with so that their needs and concerns can be heard and addressed. Vaccine promoters, such as healthcare workers, pharmaceutical companies, local government officials, and other trusted information sources, will not only learn more about the community through this form of engagement but also this interaction will effectively build trust between the endorser and the community (“Behavioural considerations,” 2020, 2).

Equitable Access

Due to COVID-19 being a worldwide health crisis, before any method of increasing vaccine uptake or mandating vaccination can be utilized, equitable access to the vaccine is the most important topic in terms of ensuring the end of COVID-19 spread. With specific countries having more funding for vaccine development and distribution, these countries will focus inwards to ensure their citizens are safely vaccinated. However, there remains a dividing line between the countries that have readily available funding and those that do not (Gostin, Karim, and Meier, 2020, 1). Health law will have to be implemented globally to guarantee that countries do not “undermine equitable access” and allow for a more universal approach to stopping the spread of COVID-19 across the world (Gostin, Karim, and Meier, 2020, 3). This type of concern for worldwide access is seen through COVAX, which is a part of the World Health Organization’s Access to COVID-19 Tools (ACT) Accelerator. COVAX was designed under the knowledge that to end the pandemic, vaccination rates must reach herd immunity levels in every area of the world, despite their access to healthcare and levels of wealth needed to secure vaccinations (Berkley, 2020). It will be impossible to contain the COVID-19 pandemic on a global scale unless all countries realize herd

immunity through equitable access to vaccines worldwide. There will be no protection against outbreaks in certain regions that will have the potential to spread globally if vaccines are not distributed equally across the world. Without worldwide cooperation, there is no guarantee of safety (Gostin, Karim, and Meier, 2020, 2).

Viewing autonomy as policy efforts leads to respect for patients being displayed through assurance that they are being offered safe and effective treatments no matter their cultural or economic status. Both low and middle-income countries do not have the same financial resources to research and produce vaccines as more developed countries do. Focusing on “vaccination as a universal right” is an essential element to bringing global governments to work towards equitable access (Gostin, Karim, and Meier, 2020, 3). A key legal framework will be human rights laws. COVID-19 has a larger impact on marginalized communities, but focusing on human rights will call global governments to consider that all have dignity and the right to equal access to vaccines that are essential to ensuring the safety of their communities (Gostin, Karim, and Meier, 2020, 3). Human rights law also has a focus on scientific progress, which means that there should be equitable international access to the vaccination because there should be equal access to all forms of scientific advancements. However, the existing “Global Public/Private Partnerships (GPPPs) lack the legal accountability necessary to ensure benefit-sharing” (Gostin, Karim, and Meier, 2020, 4). To ensure the levels of global distribution necessary for worldwide prevention of COVID-19, new forms of health law will have to be developed that focus on human rights and equitable global access to necessary vaccinations.

As the COVID-19 pandemic has developed, it has been reported that there are “ethnic disparities” of infection, meaning the virus has had a larger impact on

communities of color and may continue to broaden this gap if steps are not taken to ensure equitable access to the vaccination (Michaud and Kates, 2020). Due not only to the general mistrust in the healthcare system, but people of color also may not be as able to participate in vaccine uptake due to concerns about the cost of vaccination or the access of when and where they can receive the vaccine (Michaud and Kates, 2020). Building trust and vaccine acceptance within these communities will be essential to ensuring vaccine uptake and reducing the levels of transmission.

Another aspect of equitable access is having the ability to physically go to a facility to receive a vaccination. Not all individuals choose to not become vaccinated due to personal dilemmas. Some would desire to become vaccinated if time and location restraints were nonexistent. A key method of vaccine acceptance is providing an “enabling environment,” which focuses on the logistics of vaccine uptake to reduce the barriers, such as where and when a vaccine can be received, that keep people from being vaccinated (“Behavioural considerations,” 2020, 3). Typically, most individuals are not purposefully avoiding a vaccine, but inconveniences in the logistics of the process prevent them from going to an administration site to get inoculated. Key factors such as the location of a vaccination clinic, times when vaccines are available, and the cost of the vaccine are the most common barriers. As COVID-19 vaccine rollout has begun, the ability to receive vaccines at non-traditional locations is improving the access people have to vaccines (Ventola, 2016). With retail providers like Walmart, Kroger, Walgreens, and CVS providing vaccination, individuals can become vaccinated in locations they would already be going to rather than having to go to a doctor’s office. By providing a vaccine program structure that meets all the needs of varying environments, including

efficiency and accessibility, people's behaviors will change to reflect increased vaccine uptake ("Behavioural considerations," 2020, 4).

As various COVID-19 vaccinations have been granted EUA from the Food and Drug Administration (FDA), the focus shifts away from when a vaccine will become available to how the distribution process will happen to equitably roll-out vaccines to the mass population. A vaccine distribution plan this large scale has not been executed before and many questions remain regarding the logistical challenges of mass vaccination (Michaud and Kates, 2020). Aspects being considered are how to most effectively distribute inoculations in terms of administration sites, transportation challenges, ensuring multiple doses are being received and tracking those who have been vaccinated to follow health and safety patterns. Other considerations would focus on the underfunding of public health-related resources and whether there are funds available at the state and local levels to accurately distribute the vaccine (Michaud and Kates, 2020).

Patient-Provider Interactions

Healthcare professionals can motivate vaccination through communication efforts with patients. With the COVID-19 vaccine program still at the beginning of its path to herd immunity, there is currently not any federal or statewide mandate for uptake. Despite the ethical argument that individuals should become vaccinated, there are various barriers other than not wanting to become vaccinated that keep people from receiving a vaccine, which is why motivating people to receive a vaccine is important to the execution of vaccine programs in society. Healthcare providers need to be trained in communicating with vaccine-hesitant individuals and have easily understood materials

available to understand the nature of the vaccine, along with its risks and benefits (Ventola, 2016).

WHO identifies motivational influences ranging from community values to perceived risks of infection and vaccination. In groups of people who do not believe their COVID-19 infection experience will be severe or do not think they are at risk of contracting the virus, there will be less uptake seen not due to lack of vaccine acceptance but because of a lack of willingness or motivation to go get vaccinated (“Behavioural considerations,” 2020, 6). Another determinant of motivation is “anticipated regret,” meaning that a person deciding between inaction and action “expect that an unpleasant future outcome would lead them to wish they had made a different decision” (“Behavioural considerations,” 2020, 6). People expecting the result of inaction to be their family members becoming infected and dying will be more inclined to get a vaccination than those expecting they will suffer some form of complication due to receiving the vaccination. Overall, motivation plays a role in accepting vaccination because of the various influential factors that motivate a person to participate in vaccine uptake. The key to taking advantage of motivational aspects is to effectively emphasize the social benefits of being vaccinated and the consequences of inaction.

Community outreach programs led by healthcare agencies are a multifaceted approach to improving vaccine uptake through education and removing barriers to vaccination. With a rise in technology and social media, health agencies will be able to utilize web-based educational methods for individuals to become better informed on the COVID-19 vaccine (Ventola, 2016). Various health agencies are utilizing electronic information, communications, and scheduling for COVID-19 vaccinations, making the process of receiving a vaccination more efficient. Additionally, vaccination locations are

utilizing other media forms like radio stations detailing information on the vaccine and its side-effects while people wait to be vaccinated. By finding new ways of effective communication, citizens will become more updated on vaccine information.

Healthcare experts are the key communicators when it comes to addressing misinformation on vaccines and fully evaluating the risks with their patients. While talking to the provider helps have concerns addressed, information about the vaccines needs to be fully available before the day of immunization, giving the patient time to grasp the information regarding their vaccination (Ventola, 2016). By providing all of the literature necessary to understand the benefits vaccination can provide and falsifying any misconceptions of risk, patients are given autonomy in the sense that their concerns are being heard and respected by the healthcare provider.

Social Influences

With increasing rates of people being on social media and a rise in access to information online, social influence will play a large role in vaccine information. As has been seen throughout the unfolding of the COVID-19 pandemic, both informed healthcare workers and uninformed consumers, have taken to social media outlets to give out information, whether that be true or false, about the virus and the developing vaccine programs. Despite many sources being informative about what types of vaccines are being researched, symptoms to look out for, and guidelines for proper mask and social distancing, there are also sources of misinformation and conspiracy.

Media is a large determinant of what people's perception is because it impacts what they believe the majority of people are doing or believe, especially if these media sources are influencers that the person has already built trust with ("Behavioural

considerations,” 2020, 4). If it is believed that vaccination is a favorable social norm, more people who would not have been vaccinated otherwise would be seen to seek out vaccination. On the other side, it has been seen in the history of anti-vaccine groups that even small groups of people, if very vocal, can get the attention of a large number of people and be very harmful in the spread of misinformation.

COVID-19 provides an unusual media impact because of its rapid, worldwide development, and the quarantine process itself has led people to rely more on social media sources that they can see from within their homes rather than direct observation of seeing people get vaccinations (“Behavioural considerations,” 2020, 5). Increased visual and media exposure to people believing that vaccination is what the majority of people are doing will be essential to motivating people to get vaccinated. This exposure can come in many forms such as news media coverage to having vaccination clinics be in highly populated areas so others can observe the number of people going to become immunized (“Behavioural considerations,” 2020, 5).

Even with a growing dependence on media outlets, social influences are also seen through actors that are trusted in communities. Health professionals are typically the most looked to source when it comes to advancements in medicine, therefore making them a critical priority to be vaccinated not only for their safety but also to build trust in their communities that healthcare workers believe the vaccine is safe and effective enough to receive dosages themselves (“Behavioural considerations,” 2020, 5). Ensuring the professionals that will administer and recommend the vaccine are knowledgeable about it will also lead to greater vaccine acceptance because they will be equipped to listen to the reasons people are hesitant to be vaccinated and discourage any fears (“Behavioural considerations,” 2020, 6). Another key social influence has been observed

through faith leaders in African American communities that have lower trust in healthcare due to historically unequal access. Namely, Pastor Jerry Young of New Hope Baptist Church and pastor Phillip Sterling of Grace Community Church, both located in the greater Jackson, Mississippi area were a part of a vaccination event led by the Mississippi National Baptist State Convention in conjunction with the Mississippi State Medical Association and the Mississippi State Department of Health. This event was held to encourage the Black communities in Mississippi to become vaccinated after seeing influential people that they trust receive the vaccine (Guantt, 2021).

Communication With High-Risk Populations

In communities that are known to have low vaccine coverage rates, it will be essential for communication to occur that details increasing levels of individuals seeking vaccination (“Behavioural considerations,” 2020, 5). Specifically, during the COVID-19 pandemic, communities of color have been the most vulnerable to the spread of the virus and have not shown interest in becoming vaccinated. A poll conducted by the PEW Research center (before the approval by the FDA of the COVID-19 vaccination in December 2020) revealed that only 54% of black Americans and 74% of Latinx respondents would receive the COVID-19 vaccination (Ojikutu and Stephenson, 2020). Similarly, common vaccinations such as the seasonal influenza vaccine, have lower vaccination rates in communities of color despite their population being high-risk.

Low vaccination rates are typically associated with these communities due to “underestimated perception of infection risk, general anti-vaccine sentiments and lack of access to health care” (Ojikutu and Stephenson, 2020). Further, the cost of immunization, both in paying for the vaccination and time spent away from work, and

lack of transportation are also large factors. Other health stigmas related to obesity and diabetes, which qualify an individual as high risk for both increased symptoms and complications from vaccination, are common in communities of color. These stigmas create a psychological barrier in wanting to be considered high risk and therefore receive the first roll-out of vaccinations (Ojikutu and Stephenson, 2020).

Further, communities of color have a history of unjust treatment in healthcare settings and have shown a general distrust in the system. This form of “structural racism” is seen in these communities through not having as high quality of hospitals and schools, promoted suspicions of the pharmaceutical industry, and feelings of distrust and underrepresentedness in the U.S. government (Ojikutu and Stephenson, 2020). To promote vaccination in these communities, a differential approach will need to be used in comparison to what is seen in populations that have high vaccination rates. With varying attitudes towards the healthcare system, different barriers will have to be addressed.

Discussion and Conclusions

This chapter has identified many ways that healthcare agencies and providers can utilize educational programs and incentivized policies to effectively reach herd immunity without forcing vaccination. However, in the case of COVID-19, where vaccination is anticipated to be required to return to normal lifestyles, the traditional framework of autonomy has to shift. This shift encompasses education on vaccines, respectful communication about concerns and risks with providers, equitable access, and other community outreach efforts as ways to reframe autonomy. By ensuring individuals are fully knowledgeable about the vaccine and their concerns about risks are

addressed, healthcare agents are respecting the integrity of a patient without allowing them to further worsen the public health crisis.

According to the *New York Times* vaccine distribution page, the United States is administering around 3.33 million doses per day (April 14, 2021). At the current rate of vaccination, the US would be looking at herd vaccination levels causing a lowered infection rate starting in June and continuing into October before full herd immunity could be achieved. With the combined efforts of millions of individuals becoming vaccinated daily, each dosage pushes our country closer and closer to achieving an immunity level that will allow the return to life without the pandemic restrictions put in place. Since there are currently no mandates in place to require COVID-19 vaccine uptake, ethical principles and morality should encourage individuals to receive a vaccination to contribute to the common good of preventing infection. Ultimately, the choice to become vaccinated during this pandemic rests on assessing the risk and benefits of immunity, such as how infection would affect the individual, especially if they have an underlying condition, and the potential risks associated with vaccination and emergency use authorizations. My thesis shows that many moral arguments underlie the obligation to limit individual autonomy when the choice of the individuals can cause an undue level of harm to their community. In the case of vaccination, when the risk of non-vaccination for the majority of people poses a greater threat to public health than the vaccination poses to the individual, autonomy should be limited to ensure that no single individual can harm others through their medical choices. However, limiting freedom does not negate the need to respect autonomy. Respect for autonomy can be shown to individuals through educating them on the vaccine and acknowledging their concerns.

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