A Feminist Policy Report on Vaccine Equity and COVID-19

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Introduction

Creating equitable access to vaccines has historically been a significant challenge. Vaccine inequity can result from unequal distribution of resources, lack of access to transportation, scarce resources for vaccine distribution, distrust in medical systems, and insufficient funding and infrastructure. Factors such as race, gender, location, and socioeconomic status can all affect vaccine equity.

Achieving vaccine equity is necessary to stop the spread of disease and promote improved health everywhere.[1] As the SARS-CoV-2 pandemic has underscored, infectious diseases are not a distant problem that certain populations can escape; they are a global concern. The planet needs to reach herd immunity to reduce the spread of COVID-19 and its effects, and to do so we must vaccinate at least 70% of the global population.[2] Designing and developing COVID-19 vaccines will not end the pandemic if they are not equally distributed.

Anticipating the world's current vaccine apartheid, the World Health Organization (WHO), GAVI Vaccine Alliance, and the Coalition for Epidemic Preparedness Innovations (CEPI) created COVAX to minimize global vaccine inequity.[3] COVAX focuses its efforts on the development and manufacture of vaccines, but equity extends beyond resource availability. It must also account for racial, gender, and economic disparities within communities. As outlined by the WHO, the COVAX plan for vaccine rollout includes a first stage to vaccinate health workers and social workers and a second stage to vaccinate people over sixty-five and people deemed high risk. The third stage covers "further priority groups" without specifying any plans to prioritize groups suffering from systems of oppression. As countries begin to vaccinate their respective communities, disparities in vaccine uptake are already apparent.[4]

In order for COVAX to be most effective, their approach should consider barriers to access that affect different subgroups within each country. Additionally, COVAX should include ways to account for beliefs that lead to vaccine hesitancy and decreased uptake. Improved communication between COVAX and local groups can address problems specific to certain populations while simultaneously building trust between community members and public health officials distributing the vaccines.

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[1] Kristalina Georgieva, Tedros Adhanom Ghebreyesus, David Malpass and Ngozi Okonjo-Iweala, "A New Commitment for Vaccine Equity and Defeating the Pandemic," May 31, 2021, https://www.who.int/news-room/commentaries/detail/a-new-commitment-for-vaccine-equity-and-defeating-the-pandemic.

[2] Gypsy Amber D'Souza and David Dowdy, "What is Herd Immunity and How Can We Achieve It With COVID-19?" April 6, 2021, https://www.jhsph.edu/covid-19/articles/achieving-herd-immunity-with-covid19.html.

[3] "COVAX: Working for global equitable access to COVID-19 vaccines," World Health Organization, Last modified June 29, 2021,https://www.who.int/initiatives/act-accelerator/covax.

[4] Winnie Byanyima, "A Global Vaccine Apartheid is Unfolding: People's Lives Must Come Before Profit," *The Guardian*, January 29, 2021, https://www.theguardian.com/global-development/2021/jan/29/a-global-vaccine-apartheid-is-unfolding-peoples-lives-must-come-before-profit.

A historical and feminist approach allows policy makers to account for these disparities in vaccine distribution. A feminist perspective focuses on gender inequality and aims to understand how factors such as race, sexuality, class, and ability intersect and compound to

create specific forms of discrimination. A historical approach to policy responses allows policymakers to reflect upon and learn from successful and unsuccessful tactics used in past vaccine campaigns. Policy solutions with a historical and feminist approach that prioritize eliminating disparities will help us end the COVID-19 pandemic.

This policy report begins with an overview explaining why vaccine equity is a feminist issue. It then details the history of different vaccine campaigns including HIV/AIDS in Durham, North Carolina; HIV in South Africa; MERS in South Korea; H1N1 in Mexico (2009-2010); and H1N1 in the United States (2009-2010 and 1976). Each vaccine campaign case study describes the context of the disease; the public health strategies implemented; and the key themes that cut across vaccine campaigns in the past. Finally, the policy report concludes with both short-term and long-term policy recommendations to improve vaccine equity.

Vaccine Access is a Feminist Issue: A Brief Overview

Global health as a discipline grapples with how to best address disparities in health outcomes and care delivery worldwide, with the health of women, adolescents and children being a World Health Organization priority. In particular, the WHO states that gender gaps, harmful cultural and social practices, and gender-based violence are primary concerns for these individuals. Given that inequities in vaccine distribution already exist at the international scale, it is not surprising that women, children, and adolescents are among the most disadvantaged.[5] Indeed, children and adolescents have limited access to COVID-19 vaccines in comparison to adults because fewer vaccines have been approved for their age groups by regulatory entities. Additionally, children are more likely to be living in poverty than adults. Beyond availability of vaccines or other treatments, children and adolescents may also be limited in their ability to legally consent to care.

The barriers women encounter can be further exacerbated by other aspects of their lived experiences, as posited by law experts such as Pauli Murray and Kimberlé Crenshaw.[6] The latter defined the term “intersectionality,” which refers to how different forms of oppression intersect and compound in one’s life. While women as a collective may encounter barriers in healthcare settings, the likelihood increases for women of

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[5] “Expanding Reach: Addressing Gender Barriers in COVID-19 Vaccine Rollout,” World Health Organization, May 3, 2021, https://www.who.int/news/item/03-05-2021-expanding-reach-addressing-gender-barriers-in-covid-19-vaccine-rollout; “Gender and Immunization,” GAVI, Last modified June 29, 2021, https://www.gavi.org/our-alliance/strategy/gender-and-immunisation.

[6] Murray, Pauli, and Mary O. Eastwood, “Jane Crow and the Law: Sex Discrimination and Title Vii.” *George Washington Law Review* 34, no. 2 (1965): 232-56; Crenshaw, Kimberlé. “Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory and Antiracist Politics,” *University of Chicago Legal Forum*, Vol. 1989: Iss. 1, Article 8: 139-167.

color, women of lower castes or socioeconomic statuses, and LGBT women. These barriers may also take different forms worldwide depending on cultural norms.

Ensuring equitable access to vaccines is ultimately a feminist issue because vaccination protects the health of communities, particularly its most marginalized members. Women themselves benefit from vaccines, and so do the beneficiaries of female-dominated professions such as teaching, childcare, and nursing.[7] Women have also disproportionately lost work during COVID-19 due to caregiving responsibilities.[8] Vaccines are especially important for pregnant people, who are at increased risk of complications due to illness. Additionally, the onset of the COVID-19 pandemic resulted in a variety of health services being delayed, ranging from cancer care to sexual and reproductive health.[9] This refocusing of priorities has had adverse impacts on women's health, and vaccination could limit further adverse impacts due to infection.

Thus, a feminism that recognizes the variety of lived experiences for women, children and adolescents will emphasize distributive justice when it comes to vaccination.

Vaccine Policy in Historical Perspective

As COVID-19 continues to spread globally, it is important to examine the disproportionate burden of disease among vulnerable communities and, relatedly, the inequitable distribution of vaccines. Following the rapid development of the SARS-CoV-2 vaccine, current challenges concern the distribution of the vaccine on a global scale and the existing disparities in vaccine access. These health disparities must be understood as the product of historical policies and phenomena. Thus, historical analysis is a valuable tool to contextualize and inform policymaking in this regard.

Historical analysis is the examination and interpretation of evidence from documents and archival materials to understand the past, as well as to contextualize current and future events. Beyond providing background knowledge on an issue, a historical approach to policy analysis demands nuance, raises questions about the present moment, and promotes critical thinking.
Only by synthesizing historical evidence can we accurately define policy issues of the present and account for enduring inequities.

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[7] Sara E. Davies, Sophie Harman, Rashida Manjoo, Maria Tanyag, Clare Wenham, “Why It Must Be a Feminist Global Health Agenda,”*The Lancet*, February 9, 2019, https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(18)32472-3/fulltext.

[8] “COVID-19 Cost Women Globally Over $800 Billion in Lost Income in One Year,” OXFAM International, April 29, 2021, https://www.oxfam.org/en/press-releases/covid-19-cost-women-globally-over-800-billion-lost-income-one-year.

[9] “COVID-19 Continues to Disrupt Essential Health Services in 90% of Countries,” World Health Organization, April 23, 2021, https://www.who.int/news/item/23-04-2021-covid-19-continues-to-disrupt-essential-health-services-in-90-of-countries#:~:text=Among%20the%20most%20extensively%20affected,and%20services%20for%20other%20noncommunicable.

This policy report presents case studies of pandemics in the context of four different countries, examining key actors involved, public health responses and past vaccine campaigns in order to inform equitable COVID-19 vaccine policy. The case studies examined include the 2009-2010 H1N1 pandemic in Mexico, 2009-2010 H1N1 pandemic in the United States, the 1976 H1N1 outbreak in the United States; HIV/AIDS in Durham, North Carolina, HIV/AIDS in South Africa, and the MERS-CoV outbreak in South Korea. Each of these cases prompts important questions about vaccine access among vulnerable communities within and across different countries.

HIV/AIDS Treatment in South Africa (1982-2021)

The first official case of AIDS was reported in South Africa in 1982 and has since proliferated into the largest HIV/AIDS epidemic in the world. Currently, 20% of new global infections occur in South Africa and 20% of all people living with HIV are located in South Africa.[10] The scale of the HIV/AIDS epidemic in South African resulted from the deliberate denial of the epidemic and delayed initiation of a robust public health response, including delayed rollout of antiretroviral therapy (ART). Although the first antiretroviral (ARV) drug was approved in the U.S. in 1987, and highly effective antiretroviral therapy approved in 1995, access to ART in South Africa was hindered by high costs and wide-scale stigma. After prolonged efforts by grassroots activists, including the Treatment Action Campaign (TAC), the South African government launched a treatment program committing to the rollout of free ARVs. Although South Africa is the epicenter of the HIV/AIDS pandemic, it also has the largest treatment program in the world today. The South African government finances nearly 80% of the HIV/AIDS response in the country, with more than 4 million people receiving ART. However, access to treatment remains unequal across South Africa, with migrants and people who are incarcerated largely neglected within the public health response.[11]

Public health officials and community leaders in South Africa contributed to a culture of silence and stigma surrounding HIV, which exacerbated rates of infection throughout the country. Coupled with the stigmatization of disease, xenophobic rhetoric contributed the idea that “outsiders,” migrants, were responsible for bringing the disease to South Africa. Widespread xenophobia disempowered migrant communities from accessing treatment and the public health response lacked proper, targeted interventions to meet the needs of migrant communities that lacked access to ART. In addition to migrants, incarcerated individuals can also be identified as a vulnerable population within the HIV/AIDS epidemic in South Africa. HIV/AIDS infections historically proliferate within prisons due to underscreening, underreporting and a culture hostile to prisoners’ rights. Even though government policies outlined certain minimal protections for migrants and prisoners in the late HIV/AIDS response, actual practice reflected severe stigma and lack of access to treatment for those marginalized communities.

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[10] Sara M. Allinder and Janet Fleischman, “The World’s Largest HIV Epidemic in Crisis: HIV in South Africa,” Center for Strategic & International Studies, April 2, 2019, https://www.csis.org/analysis/worlds-largest-hiv-epidemic-crisis-hiv-south-africa.

[11] Allinder and Fleischman, “The World’s Largest HIV Epidemic.”

Public officials played a key role in the public health response in South Africa, spreading misinformation and stigma. As the epidemic was rapidly intensifying in South Africa, President Thabo Mbeki and Health Minister Manto Tshabalala-Msimang promoted misinformation about the disease. Minister Tshabalala-Msimang promoted pseudo-scientific herbal remedies for AIDS and delegitimized the use of ARVs, while President Mbeki challenged the consensus that HIV causes AIDS. Both leaders severely weakened the public health campaign, which was mostly led by NGOs and grassroots movements during the late 1990s and early 2000s. In addition to delayed national rollout of HIV/AIDS treatment, rural leaders played an important role in impeding equitable access to treatment. Field research in South Africa revealed that rural leaders perpetuated xenophobic narratives about the spread of HIV in their communities, blaming the migrants from neighboring countries. According to the research study, xenophobic rhetoric allowed some groups to live with a false sense of security, ignoring AIDS as something in "other" communities.[12] These xenophobic narratives impeded migrant access to treatment and perpetuated stigmatization of HIV/AIDS in the community as a whole.

The public health campaign shifted away from misinformation and denialism in 2003, after significant international pressure in combination with domestic grassroots activism. In 2003, the South African government approved the Operational Plan for Comprehensive HIV and AIDS Care, Management and Treatment. This plan established ambitious goals to ensure access to AIDS treatment. Importantly, one section explicitly outlines the goal to "provide all South Africans and permanent residents" with comprehensive care and treatment, but prisoners' rights are not mentioned.[13] Beginning in 2000, the government's serving health minister also established national 5-year plans for HIV/AIDS. Only in 2007 did the national plan identify "people in prisons" and "refugees" as high-risk populations, authorizing "interventions for risk reduction" in prisons and "targeted programmes… to ensure that refugees and asylum seekers have access to information and services."[14] Although formal documents increasingly mentioned the right to treatment for migrants and incarcerated individuals, implementation was limited and often ineffective. Undocumented migrants lived in fear of incarceration and deportation, which limited their interactions with social services and healthcare facilities, including getting tested and treated for HIV. For incarcerated individuals, there were significant gaps between legal protections and actual practice. In addition to the National Plans, the Department of Health established guidelines for the management of TB, HIV, and STIs in correctional facilities. However, the political context in which these policy protections operated was hostile to the rights of incarcerated people. Government officials periodically asserted that prisoners enjoy too many rights and better healthcare than the

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[12] George Petros *et al*, "HIV/AIDS and 'Othering' in South Africa: The Blame Goes On," *Culture, Health & Sexuality* 8, no. 1 (February 2006): 67–77.

[13] Government of South Africa, "Operational Plan for Comprehensive HIV and AIDS Care, Management and Treatment for South Africa" (November 19, 2003), https://www.gov.za/sites/default/files/gcis_document/201409/aidsoperationalplan10.pdf.

[14] South African National AIDS Council, "HIV & AIDS and STI Strategic Plan for South Africa 2007-2011," *UNAIDS* (2007): 37-39, https://data.unaids.org/pub/externaldocument/2007/20070604_sa_nsp_final_en.pdf.

public.[15] Moreover, public opinion at large aligns with retributive logic, with many South Africans adhering to the idea that prisoners deserve poor conditions to pay for their crimes. Given this culture of punitivity, access to HIV testing and treatment in prisons is limited and the most effective public health strategy for HIV prevention—to reduce overcrowding—is deterred.

Given the delayed rollout of HIV/AIDS treatment programs in South Africa and level of risk factors, the country soon became the epicenter of the pandemic. Due to international pressure and grassroots movements, the government established the largest treatment program in the world, however high-risk groups like migrants and prison populations were left out of targeted campaigns. Not only did stigma lead to the proliferation of the epidemic in South Africa, but it also contributed to the marginalization of these vulnerable groups within the public health response. Despite certain minimal legal protections for migrants and prisoners, South Africa needed, and continues to need, robust, targeted public health implementation strategies to ensure equitable access to HIV/AIDS treatment.

HIV/AIDS in Durham, North Carolina (1980s-Present)

The Center for Disease Control and Prevention (CDC) first reported cases of HIV in the United States in 1981, confirming that five young homosexual men received treatment for Pneumocystis carinii pneumonia in Los Angeles, California. The HIV virus still does not have a vaccine, but trends of the disease in the US as well as ongoing research and availability of prevention and treatment methods reveal important information for improved pandemic responses in the future. Over the decades, high rates of HIV/AIDS in the southern states of the US have been and continue to be a major issue. The CDC reported in 2019 that southern states have half of the people living with HIV in the US despite having only one-third of the country's population.[16]

The case study of HIV/AIDS in Durham, NC illustrates a better understanding of problems persistent in the South while also providing a perspective to understand how the close proximity of an elite research institution like Duke University affects health outcomes in the local community. Throughout the years, Durham has had relatively high cases of HIV compared to other NC counties. Closer to the beginning of the epidemic, in 1993, Durham reported the highest AIDS rate in NC with 272 cases.[17] Despite this alarming statistic, no money was allocated to HIV prevention during that year. More recently in 2015, Durham still had a startling HIV diagnosis rate of 20.3 per 100,000 residents when the national HIV diagnosis rate was 12.3 per 100,000 residents, and the

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[15] Emily Nagisa Keehn and Ariane Nevin, "Health, Human Rights, and the Transformation of Punishment: South African Litigation to Address HIV and Tuberculosis in Prisons," *Health and Human Rights Journal*, (May 9, 2018), https://www.hhrjournal.org/2018/05/health-human-rights-and-the-transformation-of-punishment-south-african-litigation-to-address-hiv-and-tuberculosis-in-prisons/.

[16] "CDC, "HIV Prevention Progress Report, 2019," National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, 2019, https://www.cdc.gov/hiv/pdf/policies/progressreports/cdc-hiv-preventionprogressreport.pdf.

[17] *The Newsletter For The Lesbian and Gay Health Project and The AIDS Services Project*, 1993, NC Lesbian Gay Health Project Archives, Box 2, Duke University Archives, Durham.

state HIV diagnosis rate was 13.4 per 100,000 residents.[18] While this rate had significantly decreased from 29.9 per 100,000 in 2013, the 2015 HIV diagnosis rate was still concerning.

Duke's history shows a deeply embedded role in progressing research for HIV treatment as well as an HIV vaccine. In 1985, the Duke Human Vaccine Institute (DHVI) was created in response to the HIV epidemic. After failed partnerships with private companies to manufacture DHVI's vaccines for their research trials, the DHVI decided to create their own facility and hire their own team to create the vaccines from start to finish. Additionally, in 1985 Duke was the first center in the world to test AZT, an antiretroviral medication used to prevent and treat HIV/AIDS as well as "every AIDS therapy that has progressed through clinical trials" according to the Chronicle newspaper.

When the DHVI tested new drugs for treating HIV/AIDS during the years 1987-95, people with AIDS (PWAs) and people living with HIV (PLWH) from all over the country came to live in Durham and participate in Duke's trials. Consequently, the HIV case count among residents in Durham significantly increased. At the same time, Duke did not provide any housing support for the PWA's participating in their trials. PWAs were forced to sleep in their cars in hospital parking lots in between tests for the trials.[19] Using Duke's HIV drug trials as an example, medical institutions should take into account how their trials will affect the community where the experiments are hosted.

While medical researchers at Duke were starting to become involved in the HIV field, the recently created North Carolina Lesbian and Gay Health Project (LGHP) created The AIDS Service Project (TASP) devoted to AIDS services. The LGHP was a nonprofit founded in 1982 due to community concerns about the quality of healthcare available to lesbians and gay men. The LGHP was succeeded by Durham's own Lesbian Health Center (LHC) in 1992. Queer women's specific needs for better healthcare in Durham led to the creation of the Lesbian Health Center which was a clinic that held many health workshops about sexually transmitted diseases (STDs) like HIV as well as breast cancer and other common health concerns. Through surveys of queer women in Durham, the LHC found that 84% of the respondents reported at least one negative experience with a healthcare provider and only 54% of the respondents had disclosed their sexual orientation to their primary provider.[20] Here, a feminist perspective reveals the specific barriers that queer women faced in receiving HIV treatment and care in health settings in Durham, NC. The high incidence of negative experiences with healthcare providers along with relatively low levels of trust to disclose sexual orientation show that stigma was a significant problem for queer women in the Durham community at this time.

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[18] Helen L. Zhang *et al*., "Public Awareness of HIV Pre-Exposure Prophylaxis in Durham, North Carolina," *North Carolina Medical Journal* 80, no. 1 (2019): 7-11.

[19] "AIDS Community Residence Task Force Minutes," May 28, 1987. Box 10. NC Lesbian Gay Health Project Archives, Duke University Archives, Durham.

[20] "Triangle Community Works! Mission Statement," February 1998, Box 3, Lesbian Health Resource Center Records, Duke University Archives, Durham.

It is important to use a historical approach and feminist perspective to understand the problems that led to disparities in receiving HIV care in order to prevent the same problems from appearing in the uptake of a future HIV vaccine. In an interview with Thomas Denny, the Chief Operating Officer at the DHVI, he said that we are roughly five to six years away from having an HIV vaccine.[21] He indicated that new innovations employed in the creation of the COVID-19 vaccine will likely expedite the process in generating a vaccine for HIV.

Overall, it is important to highlight that Duke and the DHVI's locations in Durham do not guarantee improved health outcomes in the local area. Duke's research conducted in the Durham community did not increase equitable access to health resources for community members. This lack of access is demonstrated in Durham's LGBT community which took their health into their own hands by creating the NC Lesbian Gay Health Project and later the Lesbian Health Center. Future HIV vaccine research should make a concerted effort to ensure that there is equitable access to the research and promote sustainable vaccine equity. Additionally, considering that an HIV vaccine will likely be available in the near future, policymakers should be aware of disparities in the history of HIV care to minimize inequities in future vaccine uptake.

MERS-CoV in South Korea (DATES)

In May 2015, South Korea was host to a MERS-CoV outbreak. MERS-CoV first emerged in 2012 in the Jeddah region of Saudi Arabia following the zoonotic transmission from camels to humans. Until the 2015 South Korean outbreak, MERS-CoV had been mainly concentrated in the Middle East region. The key issue in the mishandling of the South Korean lies in the public mistrust developed as a result of unclear communication from public health authorities in tandem with the local government. South Korean officials, specifically the Korean Center for Disease Control, did not clearly communicate which hospitals were impacted by patient zero and subsequent infections/treatments which led to community spread as individuals were still in contact with these hospitals and medical professionals on the frontline without any precaution of personal protective equipment (PPE)(B/E). Currently, a specific vaccine campaign for MERS-CoV does not exist. However, the World Health Organization documents that there are over 40 vaccinations in various phases of clinical trials with the majority being in a pre-clinical phase.[22] Despite the lack of a vaccination campaign, important lessons can be gleaned from South Korea's approach to the 2015 outbreak and subsequent changes to their overall public health strategy that left the country better equipped for the handling of COVID-19.

Following the 2015 outbreak South Korea made improvements in their public health strategy as documented in the South Korean's Ministry of Health and Wellness

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[21] Thomas Denny. Zoom videochat, March 26, 2021.

[22] WHO, "List of Candidate Vaccines Developed against MERS-CoV," accessed May 17, 2021, https://www.who.int/blueprint/priority-diseases/key-action/list-of-candidate-vaccines-developed-against-mers.pdf.

(MOHW) management plan release.[23] The MOHW plan includes the tasks outlined and internal hierarchy implemented to surveil potential MERS-CoV cases, properly equip medical professionals, and streamline internal governmental organization. In addition to observing these improvements, the utilization of social media has played an important role in South Korea's public health response management. Social media presents a unique opportunity to inform the public at large of changing public health conditions and advise the public of the best preventative measures. Following the MERS-CoV outbreak, almost 400 million tweets mentioned MERS and MERS ranked as the most searched keyword by Koreans. Furthermore, of Koreans surveyed during the ongoing epidemic, 71.5 percent reported receiving news related to MERS-CoV via social media platforms. In the absence of information from the KCDC and other expected sources tasked with disseminating reliable information, the public turned to information collected on social media platforms. Despite later publications by KCDC, MHOW, among other public health organizations, social media remained a prominent source of information for the public regardless of perceived reliability. At the heart of this phenomenon is media dependency theories along with the public's desire to fill in information gaps on a topic.

At the time of the MERS-CoV epidemic in South Korea, the public health strategy can be summarized as a three-prong system that consisted of (1) quarantine/isolation, (2) temporary cancellation of large gatherings/congregation, (3) correct dissemination of public health knowledge. In regards to quarantine and isolation efforts, an upwards of 16,000 people were quarantined despite the potential for large-scale controversy. As for temporary cancellation of large gatherings/congregations, the government took initiative to cancel both school and large public events despite what could be deemed pushback from the World Health Organization. Despite opposing viewpoints, the closures may have been the reason that the spread of MERS-CoV from the onset of the epidemic remained minimal. Finally, the last aspect of the governmental approach was the correct dissemination of knowledge surrounding public health measures following a notable period of silence which resulted in the initial mass spread of the outbreak.

In regards to increased preparation for pandemic response, South Korea's most recent changes to public health strategy better equipped the country to handle COVID-19. In learning from its past mistakes, South Korea not only expanded its strategic capability but leaned into the lack of initial communication transparency through a comprehensive strategy that can be condensed into a model entitled "The Four C's of Crisis Management": cognition, coordination, communication and control. Social media platforms provide an avenue to achieve efficient public health information in everyday language that eliminates communication and accessibility barriers. Intentional collaboration between public health organizations, government officials, and popular

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[23] Korea's Ministry of Health and Welfare, "Measures to Reform National Infection Prevention and Control System for the Purpose of Immediate Response to Emerging Infectious Diseases," Press Release, September 1, 2015, http://www.mohw.go.kr/eng/nw/nw0101vw.jsp?PAR_MENU_ID=1007&MENU_ID=100701&page=1&CONT_SEQ=326060.

regional/cultural social media platforms can prevent delays in the government action against a pandemic and additional establish trustworthy sources of information.

While the historical perspective provides insight on the lessons learned from the MERS-CoV epidemic, there remains room for a feminist perspective to inform vaccine equity in the development of vaccines and vaccination campaigns. Of MERS-Cov vaccine clinical trials completed, the inclusion criteria included adults aged 18 and older with no gender specifications.[24] These vaccine trials (with the exception of one trial conducted on the effectiveness of MVA-MERS-S) have not yet released their findings. However, what emerges in the exclusion criteria across the different clinical trials is the exclusion of pregnant women and the need for clinical participants to engage in contraceptive measures, remain sexually abstinent, and not plan on becoming pregnant or breastfeed in order to be eligible for the clinical trial. While measures such as these are taken to prevent harm to the fetus in the case of pregnancy and the potential liability, this raises the question of whether this exclusion is ethical especially in instances where pregnant women may be at a higher risk of complications as seen with COVID-19. The exclusion of those who are able to become pregnant in addition to constraints on reproductive health and bodily autonomy reduces the ability to partake in clinical trials as a choice between one's individual reproductive health and scientific advancement. Additionally, the potential consequences for the delayed vaccination of pregnant women on their own individual health but public and global health must be considered as well.

H1N1 in Mexico (2009-2010)

On April 16, 2009, Mexico issued an epidemiologic alert after an outbreak of influenza in La Gloria, Veracruz. This would later be recognized as the beginning of the H1N1 pandemic, although many that fell ill during the outbreak were later found to not have the pandemic-causing strain. Mexico's response was very public but had its flaws; there were disparities in identifying and treating cases, and by July 2010 less than a quarter of Mexicans had been vaccinated. However, Mexico achieved 96.7% coverage of target populations, which included pregnant women, people with chronic illness, health care workers and essential workers, children between the ages of 6 and 23 months and caregivers to infants under 6 months old. Of these groups, pregnant women had the

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[24] National Institute of Allergy and Infectious Diseases (NIAID), "Safety, Tolerability, and Pharmacokinetics of SAB-301 in Healthy Adults." Clinical Trial Report, June 12, 2018, https://clinicaltrials.gov/ct2/show/NCT02788188; King Abdullah International Medical Research Center, "A Clinical Trial to Determine the Safety and Immunogenicity of Healthy Candidate MERS-CoV Vaccine (MERS002)," clinical trial report, November 29, 2020, https://clinicaltrials.gov/ct2/show/NCT04170829. GeneOne Life Science, Inc., "Phase I, Open Label Dose Ranging Safety Study of GLS-5300 in Healthy Volunteers," clinical trial report, January 8, 2019, https://clinicaltrials.gov/ct2/show/NCT02670187. GeneOne Life Science, Inc., "Evaluate the Safety, Tolerability and Immunogenicity Study of GLS-5300 in Healthy Volunteers," clinical trial report, May 22, 2020, https://clinicaltrials.gov/ct2/show/NCT03721718. King Abdullah International Medical Research Center, "MERS-CoV Infection TReated With A Combination of Lopinavir /Ritonavir and Interferon Beta-1b: A Multicenter, Placebo-Controlled, Double-Blind Randomized Trial," clinical trial report, May 18, 2020 https://clinicaltrials.gov/ct2/show/NCT02845843. Marylyn Addo, "Safety, Tolerability and Immunogenicity of Vaccine Candidate MVA-MERS-S," clinical trial report, October 4, 2020, https://clinicaltrials.gov/ct2/show/results/NCT03615911.

lowest vaccine uptake (71.7%).[25] This was also true for the entire Latin America and Caribbean region of the Pan-American Health Organization (PAHO). Therefore, this case study examines the impact of the pandemic on pregnant people in Mexico, and it is guided by the principle that vaccine equity is a feminist issue.

Mexico's pandemic response was partially hindered by insufficient infrastructure—both a lack of specialized labs and formal surveillance systems impacted the government's ability to monitor the pandemic and deliver vaccines and treatment. The country primarily relied on personal connections between government officials in Mexico, Canada, and the United States to get necessary resources, as well as imports from China, Canada, and Europe. Despite the fact that Mexico was better equipped for medical treatment than for prevention, residents of poor, sparsely populated areas were diagnosed and treated much slower than residents of large municipalities, where most cases were concentrated. On the prevention front, the Mexican government launched media efforts to inform the public about wearing masks, social distancing and taking other preventive measures. However, the public remained skeptical of the severity of H1N1. In the early months of vaccine distribution, a prescription was required, which limited access for those without reliable healthcare. Vaccine uptake also remained relatively low due to distrust of the government and a general culture of self-medication.

While men formed the majority of cases and deaths at the end of the pandemic, in the early months women were the ones primarily affected.[26] On May 5, 2009, the Mexican Ministry of Health reported that 50.9% of confirmed H1N1 cases and 57.7% of case fatalities were women, with the majority of deaths being women between the ages of 20 and 40.[27] The pandemic was also said to be a potential cause of increased maternal mortality; in 2009, 62.2 women died per 100,000 live births. This is in comparison to 58.6 deaths per 100,000 in 2006, 55.6 deaths per 100,000 in 2007 and 57.2 deaths per 100,000 in 2008.[28]

No literature on vaccine uptake among pregnant people was identified during this case study, but a series of qualitative studies among a cohort of four expectant women illuminated some potential contributing factors, as well as the impact of H1N1 on this population. The first, which examined clinical outcomes, found that one of the women had financial problems prior to being hospitalized with H1N1 and another experienced

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[25] "Report on the Progress of Pandemic Influenza (H1N1) Vaccination in the Regions of the Americas." Pan American Health Organization, 3 September 2010, https://www.paho.org/hq/dmdocuments/2010/H1N1_Bulletin_Vaccine_Upate_e_Sep_3.pdf.

[26] Secretaria de Salud de México, "Panorama Epidemiológico y Estadístico de la Mortalidad en México 2009." Dirección General de Epidemiología,· Dirección General Adjunta de Epidemiología, June 2011, http://www.gob.mx/salud/documentos/panorama-epidemiologico-y-estadistico-de-la-mortalidad-en-mexico-2009.

[27] "Situación actual de la epidemia." Secretaria de Salud, Gobierno de los Estados Unidos Mexicanos, 5 May 2009, https://web.archive.org/web/20100327043028/http://portal.salud.gob.mx/sites/salud/descargas/pdf/influenza/presentacion20090505.pdf.

[28] Secretaria de Salud, Gobierno de los Estados Unidos Mexicanos, "Panorama."

financial strain as a result of hospitalization.[29] Three out of four babies were born at term and one was born at 34 weeks, weighing about 3 pounds. The second study showed that three out of four of the women had doubts about the origins of H1N1 or believed the pandemic response was political prior to being hospitalized, and this disbelief was partially influenced by family members.[30] However, all four women later said the vaccine was safe and helpful because of the potential effects of H1N1 in pregnancy. This shows that misinformation and trust in authority are both necessary when it comes to vaccine distribution, especially for at-risk groups. Additionally, some vaccines, particularly live attenuated vaccines, are contraindicated in pregnant women. During the H1N1 pandemic, Mexican physicians recommended that pregnant people obtain inactivated vaccines without adjuvants. If this option were not available, pregnant people would be at greater risk. As with children and adolescents, there needs to be sufficient knowledge on how vaccines impact pregnant people and neonatal physiology.

Pregnant people were at increased risk during the 1918, 1957 and 2009 H1N1 outbreaks, and the same is true of COVID-19. Vaccine distribution efforts should take into account information campaigns, financial concerns, access to care, and adequate research on the impact of vaccines in pregnancy.

H1N1 in the United States (2009-2010)

The CDC confirmed the first infections of the 2009 pandemic influenza A (H1N1) virus on April 15, 2009 in southern California, shortly after the initial outbreak in Mexico. Although the United States was timely in implementing a public health strategy and vaccine campaign, it was not fully effective. Only 27% of Americans older than 6 months old received the vaccine by May 2010, with 34.2% of the initial target populations—medical professionals, pregnant women, children, and people with chronic illnesses—receiving the vaccine.[31] Also, despite unprecedented vaccine distribution efforts, health disparities attributed by ethnicity and nativity status both exacerbated disease burden and decreased vaccine uptake and access. Accordingly, of non-Hispanic whites, foreign-born Hispanics, and U.S. born Hispanics, foreign-born Hispanics experienced the lowest rates of H1N1 vaccinations of 15.3%.[32]

Hence, an analysis of how immigrants perceive vaccine campaign tactics and the vaccine itself illuminates the flaws of outreach programs to minority communities and the factors that deter them from receiving the vaccine. The United States' public health strategy was ambitious, but surveillance technology was flawed in providing precise and prompt information. Syndromic surveillance systems permitted the identification of

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[29] Mayra Chavez Courtois, Georgina Sanchez Miranda and Ricardo Figueroa Damian, "Experiencia Hospitalaria: Mujeres Embarazadas con Influenza A (H1N1)," *Desacatos*, no. 36, 195-198.

[30] Chavez Courtois *et al,* 282.

[31] CDC, "Final Estimates for 2009–10 Seasonal Influenza and Influenza A (H1N1) 2009 Monovalent Vaccination Coverage – United States, August 2009 through May, 2010. | FluVaxView | Seasonal Influenza (Flu) | CDC," May 13, 2011, https://www.cdc.gov/flu/fluvaxview/coverage_0910estimates.htm.

[32] Burger et al, "The Influence of Hispanic Ethnicity and Nativity Status on 2009 H1N1 Pandemic Vaccination Uptake in the United States," Journal of Immigrant and Minority Health 20, no. 3, (May 2017): 564.

“antigenic change and antiviral resistance” of the virus, but variability and abundance of incoming data delayed U.S. systems’ capacity to compute and communicate information to public health leaders. But despite the U.S.’s internationally-coordinated surveillance system, Mexico’s lack thereof left the U.S. uninformed of the emergence and spread of the virus in its neighboring country. Also, the U.S. was able to flood the media with advice on transmission prevention and information to minimize public concern, but it was not effective in reaching its minority populations, especially its immigrant communities. Designated vaccination outreach programs to immigrant communities mainly relied on translated materials and media programs to disseminate information without consideration of social inequities or cultural perceptions.

Although the U.S. subsidized the 2009 H1N1 influenza vaccine to optimize its vaccination efforts, social disparities especially deterred immigrants from receiving the vaccine. A study of the National Health Interview Survey revealed that the vaccination uptake between non-Hispanic whites, US-born Hispanics, and foreign-born Hispanics were not too disparate, with 20.7%, 17.9% and 15.3% respectively.[33] However, after controlling sociodemographic differences to exhibit the effect of nativity status, it was determined that foreign-born Hispanics reported a 23% lower vaccination odds than non-Hispanic whites.[34] And as 34% of immigrants were uninsured in 2010, in contrast to the 13% of uninsured US-born citizens,[35] healthcare coverage also posed as a barrier as it functions as a source of information and encouragement to receive the vaccine.[36] Evidently, in the foreign-born Hispanic subgroup, the odds of H1N1 vaccination were increased by 53% for those with health insurance.[37] A Johns Hopkins University qualitative study also highlights the effect of health coverage as uninsured Latino immigrants tend to avoid health facilities “due to long waits, high costs, and sometimes rude service,” [38] while insured immigrants reported more positive healthcare experiences. The Latino population in general was a harder group for vaccination campaigns to reach as despite them only comprising 15% of the U.S. population, they endured 30% of H1N1 cases.[39] The study revealed that although most members within Latino communities paid attention to the U.S.’ pandemic awareness efforts, discontinuities between U.S. media reports and oral stories from families in native countries deterred them from getting vaccinated.[40]

In an evaluation of the efficacy of H1N1 outreach to various ethnic and immigrant communities, 68% were aware a vaccine was available, but only 36% tried to get the

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[33] Ibid., 563.

[34] Ibid.

[35] Jeanne Batalova, Mary Hanna, and Christopher Levesque. “Frequently Requested Statistics on Immigrants and Immigration in the United States,” Migration Policy Institute, February 11, 2021, https://www.migrationpolicy.org/article/frequently-requested-statistics-immigrants-and-immigration-united-states-2020.

[36] Burger et al., 567.

[37] Ibid.., 566.

[38] Cassady et al., “Pandemics and Vaccine: Perceptions, reactions, and lessons learned From Hard-to-Reach Latinos and the H1N1 Campaign,” *Journal of Health Care for the Poor and Undeserved* 23, no. 3 (August 2012), 1107.

[39] Cassady et al., 1107.

[40] Ibid., 1111.

vaccine.[41] Interviews of members of each community revealed that not only do different cultural communities have different responses to outreach methods but also different subgroups within those cultural communities. For example, most immigrant Ethiopian men were aware of the severity of the pandemic, but some reported that their culture leads them to believe in traditional remedies, rather than a vaccine, or that they are strong enough to endure the virus.[42] In contrast, of the immigrant Ethiopian women that were interviewed, all of them agreed on the severity of the virus, and that getting vaccinated would be effective.[43] The immigrant Ethiopian men also favored receiving news about the pandemic through community media outlets in their language, while immigrant Russian Ukranian elders favored information from health professionals.[44] Factors influencing pandemic and vaccine perceptions expose how a feminist perspective reveals cultural gender dynamics that ultimately affect vaccine uptake. Within the Latino community, men interviewed prefer media messages that appealed to their role as head of household.[45] Meanwhile, a study of vaccine decision making within Chinese immigrant households revealed that the mothers vaccinated their children depending on if their husbands approved vaccinations.[46]

Beyond the barriers that already prevent immigrant and ethnic populations from accessing health resources, the U.S.'s vaccination strategies for these groups did not consider cultural perspectives that affected vaccine uptake. Although the U.S. dispersed translated health materials to reach these communities, different stigmas within subgroups of cultures obscured public health messages.

H1N1 in the United States (1976)

On February 4th, 1976, nineteen-year-old Private David Lewis collapsed and died during basic training at New Jersey's Fort Dix. The investigation into his premature death identified the long dormant Swine Flu (H1N1) as the cause. With Swine Flu expected to resurface later that fall, U.S. Secretary of Health, Education and Welfare F. David Matthews projected one million Americans would die in the 1976 flu season unless action was taken.[47] Therefore, the DHEW Secretary supported an aggressive response when presented with an action memo summarizing the problem and four

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[41] Center for MultiCultural Health, "Evaluation and Assessment of H1N1 Outreach in the African, African American, American Indian/Alaska Native and Russian/Ukrainian Communities: A Report to Public Health-- Seattle & King County*,"* (July, 2010), 25, https://kingcounty.gov/depts/health/emergency-preparedness/partnerships/Community-Resilience-Equity-Program/~/media/depts/health/emergency-preparedness/documents/final-report-h1n1.ashx

[42] Center for MultiCultural Health, 29.

[43] Ibid., 30.

[44] Ibid., 36.

[45] Cassady et al., 1119.

[46] Linda Wang *et al*, "Chinese Immigrant Parents' Vaccination Decision Making for Children: A Qualitative Analysis," *BMC Public Health* 14, no. 1 (February 7, 2014): 9.

[47] Christopher Klein,"When the US Government Tried to Fast-Track a Flu Vaccine," September 2, 2020, https://www.history.com/news/swine-flu-rush-vaccine-election-year-1976.

alternative courses of action on March 13th. By mid-April, emergency legislation for the "National Swine Flu Immunization Program" had been signed into effect.[48]

Unprecedented in intended timing and in scope among American immunization efforts, the National Swine Flu Immunization Program, the official title for this venture, aimed at inoculating everyone in the United States before December 1976. The program intended to mass vaccinate the entire U.S. population as the 1976 H1N1 strain was estimated to be as lethal as the 1918 flu strain. Funded through a $135 million appropriation, the program was conducted through state health departments and with coordination from HEW health agencies.[49] The first inoculations began in October 1976 but were delayed by questions over children's doses and other liabilities.

On December 16th, 1976, just two and a half months into the proposed year-long program, the venture was permanently halted after post-vaccination cases of a rare neurological disorder, Guillain-Barre Syndrome (GBS), were recorded in ten states. By this time, almost 25% of the U.S. population had been vaccinated against the predicted epidemic that failed to emerge.[50]
In the end, one journalist at *The New York Times* went so far as to call the episode a "fiasco." Another journalist, Rebecca Kreston for *Discover*, further described how "some of the American public's hesitance to embrace vaccines — the flu vaccine in particular — can be attributed to the long-lasting effects of this failed 1976 campaign to mass-vaccinate the public [...] This government-led campaign was widely viewed as a debacle and put an irreparable dent in future public health initiatives, as well as negatively influenced the public's perception of both the flu and the flu shot in this country."[51]

Given the estimated effects of the outbreak on vaccine hesitancy among some groups, many valuable lessons about vaccine equity can be gleaned from this case study. The timeline leading up to the public health decision to mass vaccinate the American public and the eventual program shutdown presents an interesting evaluation of the intersection between politics, media, and science. The shortcomings visible within this case study can provide significant lessons for those involved in future public health decisions.

Before exploring the specific lessons learned from the 1976 fiasco, it is essential to understand why there was such a heightened sense of fear surrounding the disease. In early February, the New Jersey State Health Department sent the CDC in Atlanta isolates of virus from the Fort Dix recruits who had been experiencing influenza-like respiratory illnesses. Most isolates were identified as A/Victoria/75 (H3N2), the

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[48] Kat Eschner, "The Long Shadow of the 1976 Swine Flu Vaccine 'Fiasco'," Smithsonian Magazine, February 6, 2017, https://www.smithsonianmag.com/smart-news/long-shadow-1976-swine-flu-vaccine-fiasco-180961994

[49] Richard E. Neustadt and Harvey V. Fineberg, *The Swine Flu Affair: Decision-Making on a Slippery Disease* (Honolulu: University Press of the Pacific, 2005), 1-3.

[50] Rebecca Kreston, "The Public Health Legacy of the 1976 Swine Flu Outbreak," Discover Magazine, May 4, 2020, https://www.discovermagazine.com/health/the-public-health-legacy-of-the-1976-swine-flu-outbreak.

[51] Eschner, "The Long Shadow."

contemporary epidemic strain dominant since 1968. However, two of the isolates came back atypical from the laboratory, including a novel virus then named A/New Jersey/76 (Hsw1N1).[52] Autopsy reports from the one patient who died revealed no pre-existing bacteria or disease infection and showed hemorrhage and mononuclear infiltrates in the lungs, consistent with viral pneumonia.[53]

According to the published government account of the outbreak, *The Swine Flu Affair,* there were a number of reasons for concern. First, not since the 1920s had there been any recorded case of this type of flu without swine contact, which according to reports from infected recruits, there was not. Next, if this flu had confined itself to just swines since World War II, then no one under the age of 50 would have built up specific antibodies. Third, no resistance would carry over from exposure to other current viruses at the time due an antigenic shift, or difference in both its surface proteins, in the new Fort Dix strain. Lastly, the most virulent virus known at the time was the 1918 Spanish Influenza that killed 20 million worldwide (with able-bodied young adults hit the hardest). Coincidently, the first publicized case of the Spanish flu came from Fort Dix as well. On February 12th, CDC laboratory chief, Dr. Walter Dowdle reported his findings to CDC Director David Sencer, who despite having little information confirmed at the time, held a press conference—one that precipitated a mass response on the part of the media, who linked the outbreak to the 1918 flu.

In mid-March, the Advisory Committee on Immunization Practices (ACIP) met to review recent findings and make vaccine recommendations to manufacturers ahead of the flu season. The consensus of the March 10th meeting included the possibility of a pandemic, yet its severity still remained unknown. Plans at the time included a combined approach for mass vaccine distribution between the government and the private sector. Its estimated cost was $134 million, and it envisaged federal vaccine purchase, production through the private sector, field trials through the National Institute of Allergy and Infectious Diseases (NIAID), and ongoing CDC surveillance. Politics certainly played a role in the mid-April emergency legislation signing of the mass immunization plan as President Ford's re-election plans loomed. In the fall, images of the President rolling up his sleeve for the vaccine surfaced nationwide in hopes of raising public awareness and support for the unprecedented vaccine campaign.

However, support dwindled and fears elevated when news of adverse reactions became available through the media. With no known swine flu cases outside the February Fort Dix outbreak and dozens of vaccine recipients developing Guillain-Barré syndrome, a rare neurological disorder, the $135 million mass immunization program halted. In their reflections decades later, Sencer and J. Donald Miller, who spearheaded the CDC efforts, noted their mass immunization plan unintentionally plagued future vaccine initiatives and "ensured that every coincidental health event that occurred in the wake of the swine flu shot would be scrutinized and attributed to the vaccine."[54] However, their

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[52] Neustadt and Fineberg, 6-7.

[53] J. C. Gaydos, F. H. Top, R. A. Hoder, and P. K Russell, "Swine Influenza A Outbreak, Fort Dix, New Jersey, 1976," *Emerging Infectious Diseases*, vol. *12*, num. 1 (2006): 23-28.

[54] Sencer and Millar, "Reflections."

reflection also concludes erring on the side of overreaction versus underreaction and taking risks for the wellbeing of the public requires courage and understanding.

Revisiting and reflecting on the legacies of the 1976 Swine Flu case study reveals very important questions that our high-ranking policy officials and health experts face when tasked with making informed, robust public health decisions. Unfortunately, scientific findings and recommendations outlined by politicians often lead to skepticism, not trust. Yet it is essential for policies relating to contemporary viruses to address highly technical scientific matters and build faith in the public. President of the Institute of Medicine, Dr. Harvey Fineberg, commenting on the difficult link between scientific evidence and policy at the time, noted that the “the challenge of communication between technical experts and policymakers is as relevant today as it was in the ’70s. Policymakers and experts cannot rely exclusively on such semiquantitative qualifiers as ‘usually,’ ‘occasionally’ and ‘possibly.’”[55]

Thus, the case study illustrates the need for clear communication about scientific data between public health and policy officials as well the need to properly inform the media of ongoing plans. The discourse of vaccines represented by the media heavily influences public perception of science and politics, making it an incredibly important component in any vaccine campaign. When used effectively, the media’s representation of public health initiatives can draw enthusiasm, rally support, and inspire confidence through transparency.

Key Themes to Organize Policy

Media Communication and Cultural Competency

Cultural competency is a pervasive obstacle to public health outreach campaigns, as translated public health literature and media alone are ineffective in engaging targeted demographics. Rather than passively communicating data and advice, an audience-centered approach ensures that the delivery of information caters to a particular audience’s “health literacy, culture, and diversity.”[56] Hence, pandemic preparedness and vaccine deployment campaigns must identify and mitigate the factors that obscure public health communication efforts.

To navigate future public health campaigns, public health organizations must conduct ongoing research to monitor the historical, cultural, and sociopolitical factors that contribute to different demographics’ responsiveness to communication tactics and receptiveness of misinformation. Such an expansive approach in identifying potential obstacles to future health outreach programs also considers the fact the no single audience is a monolith. Thus, although translated health information can facilitate

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[55] WHO, “Swine Flu of 1976: Lessons from the Past,” *Bulletin of the World Health Organization,* vol. 87, num. 6, (January 2009): 414-415.

[56] Jay M. Bernhardt, “Communication at the Core of Effective Public Health.” *American Journal of Public Health* 94, no. 12 (December 1, 2004): 2051–53.

understanding for speakers of a language, there are diverse subgroups within speakers of that language that have different attitudes to health messages.

During the COVID-19 pandemic in particular, campaigns promoting pandemic and vaccination conspiracies exploited first-generation Vietnamese American immigrants' memory of their home country's contentious history with China and communist governments.[57] In contrast, younger Vietnamese-Americans in these demographics (without the historical distrust of such governments) are combating these misinformation campaigns. A feminist perspective can also lend itself to an understanding of cultural gender dynamics to reinforce public health messages.

Once public health leaders can identify cultural, sociopolitical, and historical sources of medical mistrust and misinformation, public health campaigns must collaborate with local leaders and media outlets to ensure accurate dissemination of information that addresses cultural concerns. The Center for Multicultural Health's survey determined that 46% learned about the COVID-19 outbreak from community groups and social service organizations, 15% from religious institutions, and 14% from schools, affirming that immigrant and ethnic groups favor local sources of information regarding public health.[58] A top-down approach to communicating public health information that can coordinate with such social institutions is necessary to overcome communication access and comprehension disparities.

Vaccine Prioritization

We cannot discuss vaccine access without answering the crucial the question of "who goes first." Vaccine campaigns must prioritize the groups that are at the greatest risk of illness and/or complications, and this was the approach taken for COVID-19. Children and adolescents were not prioritized for the COVID-19 vaccine because they were not viewed as being disproportionately impacted, even though young people are being impacted more frequently as the pandemic continues.

In contrast, H1N1 vaccine campaigns prioritized younger people and pregnant people because they were the main demographics impacted, and in turn adults over 65, first responders, and critical infrastructure personnel were not prioritized. However, the rationale for this was not clear to those who had been prioritized in other vaccine campaigns; in the United States, some older adults felt alienated by their exclusion, and among Indigenous populations the exclusion of elders may have led fewer people to get vaccinated.[59] An estimated 32.7 to 37.4% of people classified as American Indian and/or Alaska Native received the monovalent H1N1 vaccine between October 2009 and May 2010, according to the CDC. Uptake was low among all ethnic groups, but this group had the largest margin of error (+- 2.6) and smallest sample size (6531).[60] This

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[57] Terry Nguyen, "The Challenge of Combating Fake News in Asian-American Communities," *Vox*, November 27, 2020. https://www.vox.com/identities/21579752/asian-american-misinformation-after-2020.
[58] Center for MultiCultural Health, 24.
[59] National Academies of Science, Engineering and Medicine, "Lessons Learned," 61.
[60] CDC, "2009-10 Flu Season," January 21, 2021, https://www.cdc.gov/flu/fluvaxview/0910season.htm.

highlights a need to take cultural norms into account when determining which groups to prioritize for vaccination, as well as a need to clearly communicate campaign goals. The National Academies of Science, Engineering and Medicine assert that frameworks for vaccine campaigns should not only be equitable but also perceived as equitable.[61]

Additionally, vaccine campaigns should take into account what may be necessary for prioritized groups to receive the vaccine. Pregnant people may need an inactivated vaccine; participants in trials may need housing and/or economic support; essential workers may need time off from work; people who do not use social media may need to be reached in another way; immigrant populations may use different methods of communication from those born in the same location; incarcerated individuals may need the vaccine brought to them. Ensuring that the adequate supports are in place for prioritized groups will ensure that more people get covered.

Infrastructure for Testing, Surveillance, and Distribution

Lack of infrastructure impedes pandemic response despite a country's ability to adequately treat patients and access to cutting edge resources. For example, with the H1N1 pandemic in Mexico, the overall lack of preparedness for identification of cases and surveillance of cases hindered the country's pandemic response. The lack of Mexico's formal data keeping during the H1N1 pandemic, combined with the United States ambitious surveillance plans (which lacked specificity in communication), led to an unchecked spread due to the proximity of the countries. Additionally, both countries struggled in reaching target populations for a variety of reasons, not limited to differences in cultural beliefs on healing, language barriers, as well as the exacerbation of pre-existing barriers that hindered access to health care.

Consideration of the unique needs and experiences of a target population is a key step in building appropriate infrastructure to contain the spread of infectious disease. Lack of this consideration leads to poor outcomes, as seen in the case study of HIV/AIDS in Durham, North Carolina. Despite the proximity of a top-tier research institution and the efforts of the DHVI, there was no increase in health care equity or improved overall health outcomes in a sustainable manner.

Additionally, the ability to readily adapt and restructure infrastructure to meet testing, surveillance and vaccine distribution/treatment is a crucial concern in vaccine policy. South Korea was able to restructure their public health infrastructure, which allowed the country to bolster its pandemic response following the MERS-CoV endemic prior to the current COVID-19 pandemic. In the case of HIV/AIDS in South Africa, the identification of higher risk groups was not enough to increase access to treatment without the appropriate implementation. In fact, the inability to implement and bridge the gap between treatment and deployment of resources and the knowledge of at-risk groups contributed to the proliferation of the South African HIV/AIDS endemic.

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[61] National Academies of Science, Engineering and Medicine, "A Framework for Equitable Allocation of COVID-19 Vaccine," in *Framework for Equitable Allocation of COVID-19 Vaccine*, ed. Helene Gayle *et al*. (Washington, DC: National Academies Press, 2020), 91.

Short Term Policy Recommendations

1. Vaccine campaigns should translate educational materials into the languages most spoken in the served areas.

2. Vaccine campaign literature should actively disprove common misconceptions within different demographics.

3. Vaccine campaigns should implement a system to track changes in metrics after implementing changes centered on increasing rates of vaccination.

Long Term Policy Recommendations

Collaboration with Local Leaders

Vaccination campaigns should go beyond simple translation of materials and should work with local organizations to address cultural concerns in specific subgroups within a country. Since minority groups often learn about public health from community organizations and leaders, vaccination campaigns should work with these organizations and leaders to disseminate information about vaccines. Working with local groups will help identify possible concerns within their specific demographic as well as ways to address these concerns. Translation of materials alone will not consider the way information should be framed to ensure an inviting message that will encourage vaccine uptake in specific groups.

Collaboration with Community Centers

In addition to establishing trust and developing cultural competency through local leaders, community centers, such as religious institutions and cultural organizations, should be equipped to deliver vaccine campaigns directly to targeted demographics. As minority populations tend to be more comfortable receiving care from places and people they are familiar with, equipping community centers with the means to facilitate health communication and care mitigates potential distrust and fear of health institutions. Aside from the comfort associated with community centers, converting these locations into vaccination sites helps people living in sparse regions with limited access to health facilities, as community centers can be physically reached more easily.

Collaboration with Social Media

Vaccination campaigns should also work to develop relationships with sources of information (and at times misinformation) so that the public can access important and accurate information regarding a vaccination campaign.

Support structures for Vulnerable Groups

Campaigns, in tandem with local organizations and local government, should establish a support structure for vulnerable groups that need the vaccine but may not have the means to access it such as mobility, financial stability, or transportation.

Disaggregate the Data

In order to inform equitable vaccine distribution, it is crucial to disaggregate data by population, including race, ethnicity, gender, income, age, and disability. Data collection that breaks down aggregated data into subgroups reveals patterns and inequities that otherwise go overlooked by the public health system. Disaggregation allows for more targeted and nuanced allocation of resources and policymaking. The case studies presented above demonstrate the importance of community-based interventions that respond to the disparate needs of a particular group, especially marginalized communities. In order to understand the disparate health needs within a population, policymakers must employ data that disaggregates experiences, backgrounds, and histories across subgroups. Disaggregated data is crucial to establishing intentional and accessible vaccine policy.

Conclusion

Health agencies and governments around the world have come to rely on COVID-19 vaccines to mitigate and eventually end this global crisis. Though unprecedented in scale, historical vaccine campaigns have much to teach us about which strategies work and which values need to be prioritized in organizing and deploying vaccine policy. As the case studies here analyzed make clear, epidemic disease is a feminist issue, and states must implement feminist policy if they are to improve health conditions within marginalized communities—an essential task in curtailing further virus variants and ending the pandemic. Moreover, a feminist response to vaccine distribution is an opportunity to rethink how global health operates and to envision long-term action that will address the underlying historic roots of inequality (globally and within local communities) to better prepare for future health crises.