Public Health Ethics: Establishing “Durable Solutions” Within the Global Polio Eradication Initiative in Nigeria

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Introduction

Discussions on public health ethics often appeal to the same codes of conduct established in the field of bioethics. Principles of bioethics contribute to the morality of the study of public health—proposing an optimal code of conduct in the medical care and human research aspects of the field. For example, public health researchers are aware of their obligations to consider informed consent, confidentiality, and the equal distribution of risks and benefits in the implementation of their studies and interventions. However, public health practice extends far beyond medical care and human research. Thus, it is inappropriate to assume that codes established by bioethics adequately address all of the issues associated with public health. Several authors have identified the incongruity in applying bioethics principles to the practice of public health without establishing a separate public health ethics; but, few have attempted to define public health ethics as a subject independent of bioethics. My paper is an original piece of scholarship, as it aims to address this gap in public health literature.

Public health ethics is unique because, unlike bioethics, there is no “Hippocratic Oath” or universal code for properly executing an intervention. Aside from evidence-based knowledge, public health interventions rely upon ingenuity and flexibility. Interventions, and the circumstances and environments under which they are implemented, are often multivariable. In this paper, I argue that public health ethics should focus on the responsibilities that international, national, and sub-national communities have in improving health outcomes. I assert that health policies should rely on diagonal approaches—combining the disease-specific tactics of vertical interventions
with horizontal approaches to improve health systems based on applied knowledge and awareness of the broader social determinants of health within a country. Thus, public health ethics resides in the goals of an intervention, the roles of the parties involved, and how those policies are implemented. I explore this public health ethic in the context of the Global Polio Eradication Initiative’s (GPEI) efforts in Nigeria.

Nigeria is a nation with complex political, social, economical, and epidemiological contexts. The Nigerian President struggles for unity as State governors amend the Nigerian Constitution, threatening rights to freedom of religion. Tensions between Nigeria’s two dominant religions, Christianity and Islam, result in social exclusion, educational, and health disparities among the groups. The Nigerian health system is fragile and inadequate, as evidenced by its near-last-place status in the WHO ranking of national health systems. With poor infrastructure and low retention rates among human health resources, the country is poorly positioned to sustain, or build upon the benefits of vertical interventions like the GPEI. Under its current circumstances, the Nigerian health system is ill-equipped to address its weak health system through vertical interventions alone. Thus, a diagonal approach must be taken in which both vertical and horizontal approaches to health are taken, and social aspects of communities are considered as well. A “culture of cohesiveness” is necessary and must be nurtured in an effort to build accountability and reliability throughout all aspects of the health system. In addition, the Nigerian government must emphasize, and firmly advocate for the separation between religion and state, and the importance of freedom of religion. Ultimately, through my research, I find that political commitment is not an empty suggestion mentioned in WHO policy recommendations, but it is an absolutely
imperative component. Political commitment and accountability begins at international and national levels, but it must resonate on community and grass-root levels as well.

**Methodology**

In 1988, the World Health Assembly launched the Global Polio Eradication Initiative (GPEI). The GPEI is sponsored and supported by national governments and international organizations like the World Health Organization (WHO), Rotary International, and the United Nations Children’s Fund (UNICEF). This partnership between international organizations and governments marks the single-largest public health project the world has ever seen. The GPEI asserts that, since its inception, more than two billion children around the world have been immunized against polio, and nearly 200 countries have participated in the effort. The main objectives of the initiative are to interrupt the transmission of wild poliovirus, achieve certification of the global polio eradication, and contribute to health systems development and strengthen routine immunization and surveillance for communicable diseases.¹ The WHO reports that the GPEI has reduced polio incidence by nearly 99%. Only four polio endemic countries remain—Afghanistan, India, Nigeria, and Pakistan.

Although the GPEI is focused in all four of these polio endemic countries, Nigeria is a particularly interesting country because of recent difficulties with implementing the initiative and sustaining its progress. The 2003 Northern Nigerian boycott of the vaccine was a major setback—causing poliovirus to be reintroduced into previously polio-free areas, as well as neighboring countries. The boycott revealed Nigerian perspectives on the initiative and weaknesses within the Nigerian health system. Many articles cite these
weaknesses as potential threats to the social and pragmatic success of the GPEI in Nigeria.

In the research leading up to my independent study project, I explored the different perspectives of the individuals involved in the GPEI. My literature review compared Nigerian perspectives of the GPEI with those of the international community, as represented through WHO documents and other media releases. In this review, I illustrated that there were disconnects between the concerns of the GPEI-affected Nigerian populations and the interventions proposed by the international community. Nigerians felt as if they were an isolated population that was forced to respond to the whims of an invasive, paternalistic, top-down society; and, as a result, in the case of the 2003 Nigerian polio vaccine boycott, they were not receptive to international health intervention. The studies mentioned in my literature review demonstrated how different perspectives on the GPEI program can be revealed through political strategies of both international organizations, and individuals in countries where polio is endemic. In my interviews, I found that there are significant constraints on the degree to which WHO-mandated programs like the GPEI can accommodate different health concerns of Nigerians. This friction between what is requested by a country and what can be provided by a global health intervention sparked my interest in exploring the concept of public health ethics. Ultimately, my identification of issues with transparency, accountability, and communication within the GPEI and Nigerian government provided the general basis for my independent research project. Thus, my independent research paper takes these foundational recommendations and expands upon and develops them into more detailed,
specific recommendations to the international community, the GPEI program, and the
Nigerian government.

My project utilizes journal articles, studies, and interactive research through
interviews to address the topic of public health ethics and provide recommendations for
improving the health system of Nigeria through the Global Polio Eradication Initiative
(GPEI). Oliver Rosenbauer, Press Secretary for the GPEI, and Joseph Schaefer, Press
Secretary for the WHO Health Services and Systems Department, were major
contributors to the information referenced this paper. Oliver Rosenbauer was a
particularly helpful resource; his interviews provided me with insight on the permissions
and constraints within the GPEI mandate. His perspective was also imperative in my
comparison between GPEI staff and Nigerian citizens’ opinions on eradication and its
effectiveness in Nigeria. In addition, Mr. Rosenbauer referred me to other literature and
human resources that would also contribute to my paper. One human resource was Joseph
Schaefer. I was able to use his expertise in health services and systems to develop
appropriate recommendations for aligning GPEI initiatives in an effort to strengthen
Nigerian health systems. As my topic is rather specific, and somewhat unique, most of
my relevant field study comes from interactions with the abovementioned individuals,
and reading WHO documents, articles on bioethics and public health ethics, and case
studies. The main WHO documents referenced in this paper are the WHO 2008 Health
Report, and special documents and bulletins that report the progress of the GPEI. The
case studies serve as illustrations and evidence for the recommendations that I propose at
the end of the paper.
I begin with an explanation of the roles that each level of the initiative—international, programmatic, and national—plays in eradicating polio, and the issues that arise in each sector. I examine the extent to which goals are being fulfilled, and the ethical concerns that arise in considering the roles of each level in eradicating polio and strengthening the Nigerian health system. I conclude with several recommendations and learning statements.

**Identifying International, Programmatic, and National Roles: The Intergovernmental Community**

The World Health Organization collects and publishes information on the status of polio eradication around the world. In addition, it is responsible for encouraging and strengthening partnerships between organizations in an effort to eradicate the disease, and foster health security. As the authority in coordinating international health interventions, the Organization publishes country- and disease- specific statistics, information on health trends, and evidence-based policy options throughout the world. Policy recommendations made by the WHO are often supported by strong communication and evidence-based networks. The extensive database of the WHO provides objective information that is confidently referenced and referred to in international and national policy papers.

Although the WHO is internationally recognized, it lacks enforcement power. Oliver Rosenbauer, Press Secretary for the Global Polio Eradication Initiative, marks this as a major obstacle in the operation of the GPEI in Nigeria. Unlike organizations like Médecins Sans Frontières, the WHO must respect the sovereignty of states, and cannot implement programs without country approval. Rosenbauer explains, “This becomes a major roadblock to eradication initiatives when governments are unresponsive to
suggestions and recommendations by the WHO and the GPEI.”

As the GPEI is only an “invited guest” sent by the WHO to assist countries in the strengthening of their health systems, a significant weight remains on the shoulders of governments and national health systems.

The United Nations Children’s Fund (UNICEF) is responsible for establishing public awareness and support for international health interventions. With the help of local leaders and members, UNICEF conducts community surveys and consultations in an effort to identify key concerns, potential hurdles, and opportunities within the GPEI. UNICEF firmly believes that reception of the vaccine resides in establishing trust through local relationships and transparent conversation. Thus, it works to attain support from all sectors of the community—social, traditional, and religious. UNICEF conducts surveys on local perception of the GPEI every six months. These surveys also note community knowledge of local diseases and their treatment. This information is a good indicator of the effectiveness of training materials, and whether health care workers are sharing pertinent information with children and their parents. UNICEF has survey material on all polio endemic countries, but Nigeria. This provokes concern about the lack of perception reporting in Nigeria.

The GPEI is funded by United Nations Member States, donor countries, and private organizations like The Bill and Melinda Gates Foundation. These donors offer human and financial resources to the GPEI. The World Health Organization estimates that nearly 20 million volunteers have assisted in the effort to eradicate polio.\(^5\)

**Identifying International, Programmatic, and National Roles: The Global Polio Eradication Initiative**
The Global Polio Eradication Initiative has over 4300 trained staff—3400 are based in Africa and Asia, and the remaining 900 are in the WHO Africa Department. Nearly 400 staff members are placed in Nigeria. The staff is responsible for transportation, supply, and communication logistics. In addition, GPEI staff creates district-level maps that feature populations previously perceived inaccessible or simply unidentified by governments. District-level maps are also influential in case-based surveillance, which allows the Initiative to attain demographic and vaccination information on each child that is vaccinated. With this information, GPEI staff can look for patterns in vaccination participation and target children that are not being reached. Oliver Rosenbauer states, “For example, in India, we found that children under two years old and migrant populations were not being targeted. Migrants were missing the vaccinations because they were continually traveling and thus, were not consistent participants.” In addition, GPEI presence in Nigeria has increased its surveillance capacities, allowing epidemiologists to detect and contain diseases before outbreak occurs. For example, early detection of avian flu prevented its spread throughout Nigeria.

The GPEI has also been responsive to the other health needs of Nigerians. Following the 2003 Nigerian polio vaccine boycott, the Initiative began to implement the Immunization Plus Program. This program offers vaccinations for measles and yellow fever, malaria nets, soap, and other supplies. One of the most significant Immunization Plus initiatives performed concurrently with polio vaccination is the delivery of Vitamin A supplements. Vitamin A Deficiency (VAD) is highly prevalent in Africa and Southeast Asia. It is estimated that VAD is a public health issue in nearly 118 countries. The
supplementation of polio vaccinations with vitamin A is not only important because it is imperative for the strengthening of child immune systems, (reducing mortality from all causes by 23%, that of measles by 50%, and that of diarrhoeal disease by 33%)\(^{12}\) but it also serves as a strong incentive for attendance during National Immunization Days.

Although vitamins can be easily distributed with polio vaccines, other health interventions may be difficult to administer. Many have different schedules and target populations. In addition, Rosenbauer explains, “The GPEI is mandated to target diseases in a vertical way. We take an opportunistic approach to addressing other health concerns.”\(^{13}\) This means that materials and services beyond polio vaccination are offered when infrastructure and resources are provided by the government or local NGOs.\(^{14}\) In addition, polio vaccinators are volunteers who lack the skill sets to properly administer injection vaccines. Many are also unaware of sterilization and sanitation techniques necessary for injection vaccination. Rosenbauer explains, “For example, some will inject an individual, and mistakenly poke themselves, or cap the needle and inject another individual with the same needle or using the same caps.”\(^{15}\) Volunteers are paid USD $1 daily, and retention among these volunteers is low.\(^{16}\) Low retention rates mean that more money has to be spent retraining new volunteers and few become experts in polio vaccination duties. This makes the idea of incorporating other vaccinations parallel with polio vaccines—especially injection vaccines—nearly improbable.

Risk communication is also limited. Volunteers are not well-trained to answer the questions of parents and they lack interpersonal communication skills.\(^{17}\) They are only responsible for completing a “tally sheet” on which they record the number of children under five in the household, and their acceptance or refusal of the vaccination. This form
of “documentation” is not very helpful as it does not give supervisors, GPEI staff, or other authorities any information or ideas about how to approach these individuals in the future. Rosenbauer provided an example using India, “In India, this is not a problem. The vaccination team is properly trained, and their supervisors are as well. They can tell parents about the risks of receiving and rejecting the vaccine and are prepared for questions.”

According to Rosenbauer, nearly 75 percent of GPEI staff time is spent on health concerns other than polio. The staff works to maintain and suppress outbreaks of polio, meningitis, and measles. He further asserts, “In Nigeria, you go to the health post and there is not even a person sitting there. There is a sign and maybe several posters on how to handle certain health situations.” Ultimately, the GPEI staff is an integral part of the health system in Nigeria. The GPEI has increased routine immunization levels significantly since 1996 when GPEI staff was not in Nigeria. However, the problems of neither the Nigerian health care system, nor the GPEI in Nigeria, can be solved solely by GPEI staff. There must be a better solution.

One possible solution is the diagonal approach. The effectiveness of the GPEI depends on the strength of the Nigerian health system and its ability to balance and sustain the improvements of the GPEI. At the same time, the Nigerian health system can only be strengthened by vertical interventions that incorporate and enhance aspects of the national health system. In essence, the GPEI staff should be a complementary, not substitutive, resource in Nigerian health systems. Furthermore, social aspects of healthcare must be considered so that health staff can understand why some interventions seem successful theoretically, but are not directly applicable in the field. The diagonal
approach is an attempt to provide such a relationship between vertical interventions, horizontal interventions, and background social contexts. It utilizes the disease-specific tactics of vertical interventions and focuses on improving general health systems through horizontal intervention, while maintaining awareness of the broader social determinants of health within a country.

Identifying International, Programmatic, and National Roles: Nigerian Health System Structure

In 2000, the World Health Organization ranked Nigeria 187th of 191 member nations in its report on health systems performance. A separate paper can be written about the many flaws of the Nigerian health system. However, this section only focuses on the aspects of the system that contribute to, or detract from the effectiveness of the Global Polio Eradication Initiative (GPEI). Nigeria’s health care system is organized in three tiers—federal, state and local government levels. According to the Nigerian Constitution, each government level has an individual responsibility to focus on tertiary, secondary, and primary health care, respectively. Although they hold responsibility for only one level of the system each, governments can exceed obligatory levels and provide services from the other two levels of care as well. This “fluid system” augments social and infrastructural problems facing the nation, as tertiary care is a more lucrative health field. Consequently, all levels of government tend to place greater emphasis on tertiary care to the disadvantage of the other levels of care. This is an important impediment to the GPEI because the initiative cannot “build upon or strengthen health systems” when rudimentary infrastructure is not maintained or simply does not exist. When Sally Hargreaves, a former volunteer for Médecins Sans Frontières, visited Nigeria in 2001, she found that many primary health clinics in Southern Nigeria were “dilapidated, poorly
staffed, and frequently short on drug supplies.”24 She remarks, “The building was falling apart and missing windows, the electricity supply came from a donated generator, and the pharmacy contained only a few tins of medicines—many of which were long past their expiry date.”25 Such weak primary health care infrastructures cannot adequately support the functions of the GPEI. Nigerians are aware of this lack of accountability within health care systems, and “have lost faith in government-run services, and instead are opting for a burgeoning, but largely unregulated private health-care sector.”26

Nigeria has one of the largest stocks of health human resources in Africa.27 The WHO Regional Office for Africa (AFRO) reports that, “in 2005, there were about 39,210 doctors and 124,629 nurses registered in the country, which translates into about 39 doctors and 124 nurses per 100,000 populations as compared to the sub-Saharan African average of 15 doctors and 72 nurses per 100,000 populations.”28 At the same time, health workers are disproportionately spread across Nigeria. While they are in abundance in the southern parts of the country, there is a shortage of workers in the northern areas—where GPEI is mainly focused. Many health workers are not attracted to the northern part of Nigeria for geographical and socioeconomic reasons. The majority of these states are rural, and some do not offer pensions to workers from other parts of the country, which further decreases the likelihood that non-indigenes would seek employment in these areas.29

The WHO AFRO states that community health workers are well distributed in rural areas.30 However, in many parts of Nigeria, motivation to become a community health worker is discouraged by unreliable pay by local governments. Inconsistent and incongruent pay schedules of health workers have become a major issue in basic service
delivery. In addition, relative differences in pay and income across states in Nigeria encourage low retention and consistent job seeking among health workers. One Nigerian survey found that nearly 45% of health workers needed to supplement their incomes privately. Another survey reports, “There is often a lack of clarity, and lack of ownership in local governments, and in efforts that require coordination between all three tiers of government.” This lack of coordination between levels of governments is represented in the fact that similarly qualified and experienced nurses often earn different pay just because they work in different local governments or levels of government. In general, local government community health workers have the lowest salaries, and federal government workers earn the most. This is problematic for the GPEI because lack of accountability of local governments and disparities in community health worker pay decreases the likelihood of attaining consistent health staff, and threatens the primary health system—placing more human resource restraints on the Initiative.

Examining Public Health Ethics: International Communities

Establishing Goals and Expected Outcomes

Eradication is a sustainable solution to disease, but there is debate about whether or not vertical interventions like the Global Polio Eradication Initiative (GPEI) can improve and strengthen health systems. As one of the objectives of the GPEI is “to contribute to health systems development, and strengthen routine immunization and surveillance for communicable disease,” it has an ethical obligation to deliver on these promises. Carl E. Taylor, Felicity Cutts, and Mary E. Taylor question the ethics of pursuing eradication, as it “does not equate automatically with developing the sustainable health systems implied in the World Health Assembly resolution.” According to Taylor
et al., the GPEI further weakens the health systems of least developed countries by redirecting resources from other health activities to immunization programs. These concerns are relevant as even the WHO recognizes that polio is not one of the largest causes of mortality in Nigeria. In the Nigerian Immunization Profile, polio falls behind diphtheria, Japanese encephalitis, measles, mumps, and whooping cough.\textsuperscript{37} Taylor et al. goes on to argue, “Even in Southeast Asia and sub-Saharan Africa, where polio incidence remains highest, polio is responsible for less than 2\% of years lived with disability.”\textsuperscript{38} This means that although eradicating polio decreases mortality and morbidity, it has marginal benefits in Nigeria; thus one must consider the ethical applicability of the program. This data raises the question, “How should international goals and national priorities be balanced, and what are the ethical implications of current program choices?”

R.W. Sutter and S.L. Cochi from the National Immunization Program of the Centers for Disease Control and Prevention respond to the allegations made by Taylor et al. asserting that, “eradication activities can be and are used by many developing countries as a spring-board to address other health priorities.”\textsuperscript{39} They argue that eradication programs not only improve health system surveillance and coordination, but, in some areas, they establish peace and “suspend internal strife and civil wars in order to facilitate immunization and other health activities.”\textsuperscript{40} Conversely, in her article, \textit{An Ethics Framework for Public Health}, Nancy E. Kass remarks, “Public health programs, interventions, or studies must be designed with an awareness of the relationship between this program and an ultimate reduction in morbidity or mortality. Of course, other types of benefits, generally social benefits, can accrue from public health programs; however, these benefits are incidental or intermediary outcomes of public health programs’ final
According to Kass, public health ethics resides in establishing a public health goal and attaining health outcomes to realize that goal. Subsidiary outcomes should be just that—additional bonuses to an achieved objective.

**Strengthening Health Systems**

Many articles cite the success of the Americas at eradicating polio, but fail to realize that, unlike in Nigeria, strong health and sanitation systems already existed in these areas. Such inaccurate comparisons distort perceptions of feasibility and eradication time frames. In addition, polio is not among the greatest contributors to the Nigerian disease burden, but its weak health system structures could benefit from GPEI intervention. Thus, the international community should make deliberate efforts to utilize the GPEI to strengthen the Nigerian health system. This is not an unreasonable suggestion, as the WHO mandates that the GPEI strengthens health systems through its objectives.

The international community has an ethical responsibility to ensure that GPEI activities are in the best interest of the Nigerian health system. However, this assurance can only come from adequately defining how the GPEI should accomplish this objective. Until protocols are explicitly outlined, reports like the 2008 World Health Report will continually reveal that vertical programs like the GPEI are inefficient and ineffective when it comes to strengthening health systems. The Report states, “Many have hoped that single-disease control initiatives would maximize return on investment and somehow strengthen health systems. Often the opposite is proved true.” This quote reveals two ethical issues with regard to the GPEI and strengthening Nigerian health systems: (1) the fact that vertical interventions like the GPEI are pursued because of their proposed “cost-
efficiency”, and (2) although “strengthening health systems” is a supposed objective of many of these vertical initiatives, it is oft considered as simply an added benefit.

When considerations of cost-effectiveness are made, it is important to inquire, “Cost-effective to whom?” In a country like Nigeria where polio is not the most prevalent disease, intentional efforts must be made to ensure that countries benefit more than marginally from their human and financial investments in the global polio campaign. The WHO recognizes that eradication programs like the GPEI may be taxing on the health systems of both endemic and polio-free countries. It considers that nations must endure internal costs and expenditures, yet it also cites studies that estimate savings will be nearly US$ 62.1 million. These represent substantial gains, and participating countries like Nigeria should reap these benefits as well.

Moreover, surveillance and coordination are often cited as the main benefits of eradication programs. However, the effect of eradication programs on other critical components of successful health systems like improved sanitation, and sustainable human and financial resources remains ambiguous. In its report, Overcoming health-systems constraints to achieve the Millennium Development Goals, the WHO explains that vertical programs “utilize planning, staffing, management, and financing separate from other services, whereas horizontal approaches work through existing health-system structures.” As a vertical program, if the GPEI is utilizing its own human and financial resources, this means that it is not interacting with, and thus, not integrated into Nigeria’s larger health infrastructure. It is hard to imagine how a program that remains separate from others within a country can function efficiently without duplicating or detracting from Nigerian health systems. Thus, this implies that the realization of “strengthened


health systems” through the GPEI is unrealistic, as disjointed vertical programs will either neutrally or negatively affect Nigerian health systems. For the international community, surveillance and coordination are significant, yet for Nigerians suffering from preventable diseases like measles, yellow fever, malaria, meningitis and mumps, this is a minor accomplishment. The GPEI can be considered an ethical public health intervention when it is adequately incorporated into Nigerian infrastructure; thus, fulfilling international goals and addressing national health priorities.

Public health ethics within the GPEI depends upon the program’s sustainability. This means that Nigerian health systems should be permanently strengthened by international intervention through the GPEI. Long after polio is eradicated and the GPEI is no longer in Nigeria, health systems should be able to continue epidemiological and surveillance research. Coordination between different aspects of the health system should also be sustained. Health workers or volunteers should not vanish into the shadows of the system, but they should become a renewed human resource—still viable in the Nigerian health workforce. In my interview with Oliver Rosenbauer, he explained that sustainability is a current concern when considering post-eradication strategies in Nigeria. He referenced that the smallpox eradication infrastructure was not maintained in many countries, and this resulted in the collapse of many countries’ health systems. He further remarked, “Ninety percent of health staff in Nigeria is polio staff. Once polio is eradicated, meningitis and measles outbreaks will go unaddressed.”45 In essence, the international health interventions must have the foresight to reflect on questions like, “What should be done to sustain GPEI-established networks, and how can they be integrated into current and future health systems?”
Networking and coordinating various programs within Nigeria could possibly be a way to balance an international goal of polio eradication without compromising local priorities such as safe motherhood, common childhood infections, tuberculosis, sexually transmitted disease and family planning or reproductive health. Ultimately, transitory gains of coordination and surveillance, and lack of human and material resources to act on knowledge gained through new epidemiological and statistical information, will leave Nigerian health systems more weakened and disorganized than before.

Examining Public Health Ethics: Nigerian Government

At the national level, public health ethics means understanding and acknowledging the different social and cultural identities within one’s country, and considering those in the framework of public health interventions. As with any country, Nigeria has a conglomeration of people of various cultural and ethical backgrounds. Nigeria has nearly 250 ethnic groups. Of these groups, the Hausa-Fulani, Yoruba, and Igbo (Ibo) are the most prevalent and politically influential. The Hausa-Fulani live in the north, and are majority Muslim. Both the Yorubas and Igbos reside in the south and are majority Christian. Overall, Nigeria has a population in which 50 percent are Muslim, 40 percent are Christian, and 10 percent practice indigenous religions.

Although Nigeria’s Constitution promotes freedom of religion, a history of power struggles exists between Islam and Christianity. Difference in religious ethics often turns political and is interjected into state and local policies. For example, in 2000, the governor of Zamfara State, Ahmed Sani Yerima, introduced the Sharia Penal Code in Zamfara State, one of the 36 states of Nigeria. This changed the legal ethics of the state, and instituted laws that not only affected citizens’ social lives, but some laws like, “a
Muslim girl cannot marry a Christian boy, and a Muslim cannot convert to another religion without incurring apostasy,” only intensified the divide between the two religions. The President of Nigeria, in an effort to avoid another civil war, accepted Zamfara’s amended Constitution. After his acceptance, eleven other states in the Muslim North installed the Sharia in their constitutions.48

Christians have contributed to this religious segregation, and they often utilize national and political resources to gain power and influence population ethics as well. In his article, Religion and State in Nigeria, Dr. Eze Enyeribe Onuoha, leader of the Humanist Movement and traditional elected head of the Umuchieze people, explains, “Christians infiltrate government institutions, public mass media, schools and hospitals employing them corruptly as means of evangelization…In some States, at 12:00 noon everyday, the Angelus is recited triumphantly on State radio.” 49 Such rigid requirements set by Nigerian States automatically establish ethical codes that are distinct—and often self-segregating—from that of the national government. Ultimately, these religious divides translate into disparities in health outcomes and opinions on health delivery systems.

In theory, neither Christians, nor Muslim Holy Books have laws against immunization.50 However, the sociopolitical factors surrounding immunization have caused differences in vaccine reception. For example, “myths and rumors play a significant role in hindering the uptake of immunization particularly in Northern states, where there is widespread belief that enemy foreign agents promote immunization with a hidden agenda.”51 Thus, for many, religion serves as an instrument with which citizens can be politically influenced and mobilized. Dr. Eze Enyeribe Onuoha explains that both
religions attempt to exploit the religious through politicians who “double as religious leaders.” The 2003 Northern Nigerian boycott of the polio vaccination is just one illustration of the political power of religion in the country. The boycott was incited by combinations of opposition by Islamic religious leaders, and misinformation about the risks and benefits of the polio vaccine. This boycott lasted nearly 16 months, and resulted in increased incidence of poliovirus in rural areas, as well as countries sharing borders with Northern Nigeria.

Since 2003, numerous studies have been conducted in an effort to collect information on social factors that influence the uptake of childhood immunization in Nigeria. Two significant findings in the studies were that: (1) Northern states had lower immunization rates than Southern states, and (2) immunization rates were consistently higher among Christians compared to Muslims. These findings can be combined to create the general statement that Northern, majority Muslim states are less likely to receive immunization than Southern, majority Christian states. Studies comparing the infant mortality rates of children born to mothers of different religious affiliations conclude that, “significantly higher proportions of non-immunized children were observed among mothers who were Muslim, rural, had no education and poor. In contrast, full immunization was observed at a significantly higher level among mothers who were Christian, and those with secondary or higher education.” Another study conducted in 2008, *Faith and Child Survival: The Role of Religion in Childhood Immunization in Nigeria*, provides a connection between religion and education, stating, “In addition, with Muslim women being generally discriminated against in their access to
education for social and religious (Sharia law) reasons, the associated decrease in women’s empowerment results in increased risks of children not being immunized.\textsuperscript{55}

The abovementioned studies offer significant insight because they demonstrate the broad influence of religious ethics on social practices. In Nigeria, religious ethics challenge national statutes in ways that often cause contradictions whose consequences manifest in education and health statuses. This is a significant finding, as education is an essential, and often preliminary, component of public health campaigns. In addition, conclusions from these studies reveal why promptly addressing misinformation and rumors about health interventions like the GPEI—especially in Northern Nigeria—is absolutely imperative.

It would be unreasonable to assume that all differences between Christians and Muslims can be reconciled through national diplomacy, but Nigeria’s current solution of evasion and oblivion is inappropriate. Nigerian governments may not be able to change religious opinion, but it can ensure a “culture of cohesiveness” through its management of other potential social stressors, like its health delivery system. This is an issue of public health ethics because it aims to confront a social determinant of health (in this case, religion), using a public health approach. It has been explained that religious differences between Christians and Muslims have resulted in self segregation that interrupts the spread of knowledge, resulting in an information divide. This information divide, coupled with Nigerian dissatisfaction, discontent, and distrust in the health system, further incapacitates global and national health interventions.

Another study affirms, “For many Africans today, religion provides a significant identity resource and pathway to meaningful social existence, especially in the period of
rapid change and significant distortions to economic, social and political lifestyle.”

Thus, the first key to addressing the apparent inverse relationship between being Muslim and reception of vaccination is establishing accountability and stability within the Nigerian health system. The Nigerian government has an ethical responsibility to acknowledge the diversity of its citizens, and create an environment where health systems are trusted such that political and religious differences do not disrupt or destroy the effectiveness of health initiatives. In addition, the Nigerian government must realize that trust relies on fulfilled promises. In an already-weakened health system, accountability is not just recommended, it is required. The current lack of accountability by local and national authorities resonates, and augments the number of conspiracy theories that are created against government and government initiatives, as well as citizens. This lack of accountability translates into a lack of solidarity, as the citizens are not unified by a strong or even well-respected government. Thus, like any other country in which the people are not united on common strong foundations, the people turn on one another and use political and religious differences to explain contemporary distrust in a government that is seemingly unresponsive and unreliable.

**Recommendations: Solutions to Pragmatic Policy and Ethical Issues**

**Pragmatic Policies**

International communities have a responsibility to identify the applicability of global health interventions to host communities. In addition, they must work to ensure that promises to strengthen health systems are fulfilled through comprehensive health approaches. Health systems are complex; consequently, strengthening health systems requires a multifaceted approach that combines both vertical and horizontal solutions.
The WHO explains that health systems are “the sum total of all the organizations, institutions and resources whose primary purpose is to improve health.” It continues, “A health system needs staff, funds, information, supplies, transport, communications and overall guidance and direction.” Obviously, no mandate from the WHO to the Global Polio Eradication Initiative (GPEI) could encompass all of these demands. Thus, a diagonal approach to strengthening health systems is necessary.

**Surveillance and Coordination**

The diagonal approach utilizes the disease-specific tactics of vertical interventions and focuses on improving general health systems through horizontal intervention, while maintaining awareness of the broader social determinants of health within a country. Vertical programs like the GPEI can be used to strengthen health systems through a steady scale-up process. Sustainable scale-up begins with the development of comprehensive surveillance and coordination systems established through networks of national, state, and local information systems. Information sharing should extend from laboratory research to supervisor and community health worker records of health service delivery encounters. In essence, surveillance and coordination should not only focus on disease-specific incidence in Nigeria, but it should also include greater documentation of health interactions with Nigerian citizens and vaccinated families. This means that health workers should be required to provide more detailed accounts of the demographics of children vaccinated, and incidences in which the vaccine is not well received. Such detailed documentation provides information about vaccination coverage, as well as social and environmental factors that play a decisive role in health outcomes. Incorporating the social aspects of health delivery allows one to distinguish between
estimated and actual effectiveness of an intervention. For example, the WHO found that. “delays in diagnosis, low rates of treatment compliance due to inadequate supervision or lack of education, high user costs and many other factors all reduce the actual effectiveness of health treatments to a mere 20% among the poorest. This compares to 80% effectiveness among the least poor.”

Including community health workers in surveillance, coordination, and communication efforts also allows for community ownership and input in health initiatives. When community health workers are trained and expected to “ask further,” they gain interpersonal and communication skills, and have a greater sense of responsibility, and relationship with Nigerian citizens. In UNICEF’s Oscar-nominated film, The Final Inch, Munzareen Fatima, a health worker in India explains, “When I first started doing this job, I thought that the polio mobilizer just has to give the medicine and that’s all. During training, I learned that you have to make the people understand, but in order to make them understand, you have to listen to them.” Fatima takes viewers with her in her discussions with families reluctant to administer the vaccine to their children. Her discussions demonstrate how effective participation only comes with the negotiation, compromise, and proper acknowledgment of citizen concerns. The effectiveness of this policy is proven, as UNICEF reports, “Five years ago, nearly 80 percent of all the Indian children who contracted polio were from Muslim families, while followers of that faith represented just 17 percent of the population. Once this community was identified, UNICEF mobilized 5,000 trainers to knock on 2 million doors every month. Today, the immunization gap for the Muslim communities of Uttar Pradesh, India’s most populous state, has been reversed. Only a quarter of new cases there are among Muslim
children.\textsuperscript{62} With the proper interpersonal skills training, and retention incentives, Nigerian health workers have the capacity to open just as many doors—touching and saving the lives of thousands of children.

**Retention**

Effective interpersonal communication depends on the relationships built between health workers and the communities in which they work. These relationships can only be developed and nurtured through the retention of community health workers. Primarily, job opportunities must be extended to a diverse demographic of Nigerians. Health service delivery is so multifaceted that the task of promoting good health and reception of health services can be assigned to a diverse group of individuals. In addition to religious and academic leaders, youth groups, midlife women, elders, and men should be targeted and utilized. This is a plausible goal because many GPEI staff members and volunteers are not doctors\textsuperscript{63} and are performing tasks that could be handled by competent Nigerians. It is important that each group is assigned tasks appropriate to its training and learning capacities. However, each demographic has the capability of contributing to the efforts of the GPEI. Students are an important resource, as their creativity can be channeled in various ways to promote health awareness. In addition, as health campaigns involve younger individuals, they are more likely to immunize their children in the future—creating a sustainable culture of healthcare and immunization reception. Incorporating midlife women and men provides a significant health advantage as well. As men in particular are targeted for such positions in health interventions, gender imbalances in healthcare delivery can be reduced. This not only increases the number of people eligible for participation in health interventions, but, “moreover, in employment context by
women, in societies where such gender imbalances suggest low status, opening up opportunities to men might also increase the status of the profession.”

Seniors, religious leaders, and traditional community elders have a rapport with communities that international GPEI staff do not. These individuals provide legitimacy to health programs. In addition, community elders are also more likely to remain in Nigeria.

Transferring job opportunity to Nigerians of all age and social groups creates a “hierarchy of opportunity,” such that youth have careers to look forward to in the future, or at least can begin to view health as a viable employment option. This also transfers ownership of the global initiative to the community—mobilizing and increasing enthusiasm for health and health services delivery. Expanding the opportunities for interaction between the GPEI and community opens a job market in which all demographics can participate and become familiar with health intervention.

UNICEF recommends that workers receive a “support package that utilizes motivation possibilities like allowance, transport, and equipment” to encourage retention. Support packages should be determined based on community needs, as citizens in some Nigerian states may value financial incentives over non-financial, while other, Muslim communities, may value or consider social status or gender roles as obstacles to participation. A discussion paper published by the Regional Network for Equity in Health in East and Southern Africa (EQUINET) explains, “Health information management systems should be used to track the flows of health workers and inform the planning and distribution of health workers. Health records are necessary to be able to monitor implementation and assess the impact of specific initiatives.” Generally, incentives should focus on providing health workers with adequate resources and infrastructure to
properly perform their duties: training and supervision, good living conditions, communication services, and health care and education opportunities for themselves, and their families.\textsuperscript{67} HIV and AIDS prevention services and treatment would also be a viable incentive for health workers. Ultimately, conversations between health workers, national and intergovernmental agencies must occur to determine the proper package of incentives for health workers, as different demographics will also require and value different support packages.

When considering financial incentives, programs like the GPEI must be aware of the implications of their payment practices. A diagonal approach to introducing financial incentives includes assurance that vertical programs consider the salary contexts of similar health workers participating in other community health programs. Equitable pay of health workers is essential in establishing stability in health service delivery. The 2008 World Health Report affirms this when it states, “The discrepancy in salaries between regular public sector jobs and better-funded programs and projects has exacerbated the human resource crisis in fragile health systems.”\textsuperscript{68} The last thing that an international intervention hoping to work with the Nigerian health system needs to do is create situations in which certain health workers are resented because of their payment advantage, or other workers flee socially important health service positions in an effort to attain vertical intervention positions. Such situations have occurred in Ethiopia and Malawi. In Ethiopia, contract staff hired by intervention programs were paid three times more than regular government employees. In Malawi, in an 18-month period, 88 nurses left one hospital for better paid nongovernmental organization (NGO) programs.\textsuperscript{69}
Considering local pay schemes is a significant component in transforming vertical intervention into a more sustainable, diagonal approach.

**Accountability: Establishing Health Worker Responsibility**

As health workers should expect resources and benefits for participating in improving the health status of their communities, more should be expected of them as well. Establishing a system of responsible, reliable community health workers requires accountability and greater expectations of health workers. As Nigeria becomes more serious about the delivery of health services to its citizens, improved infrastructure and increased health supplies should be accompanied by accountability systems intended to inform communities of the responsibilities of their health workers. Health workers should also be well-informed of their duties. Contracts and job descriptions are one way to establish such a system. Currently, many health positions in Nigeria lack concrete, written job descriptions. Without these, there is no document to reference and compare health worker performance with expectations. Aside from general tasks assigned by the Nigerian Health Ministry, intricate details of job descriptions should depend on the health demands of the community.

Job descriptions should be published and shared with the community so that everyone is aware of what the community health worker should, and should not be doing. This is particularly important because some health workers have been known to sell private, unregulated medicines alongside the administration of approved health interventions. Such individuals must be targeted and dismissed, as their identification with a legitimate health program may jeopardize efforts of the program should their unregulated medicine cause adverse health effects within the community. That being
said, one responsibility of community health workers should be to inform citizens of the potential danger of unregulated medicine. There should also be adequate supervision and evaluation of health worker performance by both the community and local health leaders.\textsuperscript{71} This has yet to be formalized in Nigeria. As community members become aware of community health worker expectations, “they will be further empowered to hold them accountable for the delivery of basic health services.”\textsuperscript{72}

With a stronger, more reliable workforce, the GPEI can utilize health workers to provide health services that extend beyond polio vaccination or vertical intervention treatments. Immunization Plus Programs have demonstrated the potential influence that comprehensive health services have on increasing vaccine reception, and informing citizens about other health issues. This potential should be sustained, such that supplies are available during every Nigerian National Immunization Day and at every polio vaccine administration site. When Vitamin A was introduced alongside polio vaccinations, communities gained awareness of vitamin A deficiency and micronutrients. As incorporating micronutrients has been a success, greater discussion has centered on providing other sustainable health outreach initiatives. These should focus on delivering health services and resources appropriate to receiving communities. For example, in Nigeria insecticide-treated bednets, anti-worm medicines, and diarrhea pills could be distributed. In addition, booklets and brochures could serve as adequate forms of risk communication for the services provided, as well as preventing other illnesses not necessarily addressed by the GPEI campaign.\textsuperscript{73}

\textbf{Risk Communication}
Risk communication should be present in all aspects of society. Community health workers and written information are significant components, but all aspects of media should be pursued. One impressive form of risk communication is the UNICEF “Pakistan: Polio True Stories” initiative. The “Polio True Stories” initiative is a series on Pakistani broadcast television that provides citizens with personal stories of people living with polio. Episodes air during primetime slots, and through these stories, viewers are acclimated with the disease, and how it has changed the lives of those who have contracted it. Youth volunteers can be extremely influential, as international organizations like UNICEF can partner with Nigerian broadcast programs in an effort to air plays or soap operas in which polio vaccination, or immunization in general is introduced in an accurate, informative way. Creative forms of risk communication can attract those interested in film, and illustrate the multidisciplinary field of public health. Enhanced risk communication is imperative as many under- and over-estimate the efficiency of vaccination and immunization. For example, “Many parents think that immunization can prevent all childhood disease. When this fails, parents lose faith in immunization.” Others are aware of the significance of immunization, but are misinformed about the number of vaccines necessary for immunity. Risk communication is particularly important and relevant in Northern Nigeria, where people tend to be less informed, and less likely to believe GPEI staff alone.

Ethical Considerations in Health Policy: Sharing Risks and Benefits

Although part of establishing accountability resides in Nigeria reorganizing and reallocating funds to build up its health systems, the international community can do much more. Developing accountability and health awareness through a competent and
reliable workforce is an ambitious and achievable goal, yet such a comprehensive system requires extra financial resources. These costs cannot be borne by the Nigerian health system alone. International communities must work harder to redirect funds allocated solely to vertical interventions, and acquire financial support for more horizontal health system approaches. These are the most sustainable and will bring more substantial, long-term health and financial returns. In addition, surveillance and coordination improvement is not enough. International communities have the responsibility of transferring returns from cost-effective interventions like the GPEI to the Nigerian health system. These returns should not be structured like “structural adjustment programs,” but Nigeria should be obligated to use a certain percentage of its projected returns on the strengthening of its health system. For example, community centers and health workers should be entitled to some of these financial returns.

The infusion of polio eradication benefits into the Nigerian health system represents an ethical solution because it answers the question, “what do donor countries owe to the communities in which they implement health interventions?” International communities should be required to share both the risks and benefits of the GPEI. Currently, Nigerian participation in the GPEI may be a distraction from other health priorities in some instances. However, this is a risk of the program that could be justified when the country and its communities are reimbursed through actual financial remuneration by international donors. Ethical Dilemmas in Current Planning for Polio Eradication notes, “Donors exert great influence on health systems in poor countries: for example, they contribute, on average, 19.5% of health expenditures in sub-Saharan Africa, as compared with an average of less than 2% in the rest of the world.”76 It is
inappropriate, “short-sighted,” and ultimately, unethical for donors to use their considerable influence to promote polio eradication, then divert long-term investments away from poor countries’ health systems. Therefore, “it would be a good bargain for rich countries to use projected benefits from polio eradication to help build sustainable health systems in poor countries.”

Current “Big Brother” attitudes of implementing programs in weak systems like Nigeria without establishing a contract of financial remuneration will perpetuate the destabilization of Nigerian health systems, and discourage Nigerian participation in subsequent health interventions. It is expected that the Nigerian government will be more receptive to WHO policy recommendations when the international community proves its dependability through the equitable distribution of risk and benefit with regard to vertical health interventions.

The Nigerian government, in turn, must be directly accountable to its citizens. This means that “sharing risks and benefits” should also be present in the national-state-local relationships. One ethical way in which citizens can gain confidence in international health interventions, is through “insurance policies” in which the Nigerian government agrees to compensate, or provide treatment facilities for families that are infected by vaccine-derived poliovirus (VDPV). Such insurance is necessary because it allows families to understand that risks are being shared, and their participation in a community initiative will solicit a community response in the event that their children are adversely affected. This works as a risk communication tool, and it encourages Nigeria to be accountable for the safety and efficiency of its vaccines. Compensating for VDPV requires adequate use of international donor returns and documentation of cases.
Nigerian has an even greater responsibility to unite its people under common Nigerian patriotism, and pride in its newfound accountability. This task is more difficult, as the animosity between Christianity and Islam within the country requires more than just a paragraph or page-long solution. The differences in ethics and belief between these two religions may not be directly solved by the Nigerian government, but it is imperative that the President begins to recognize his authority and responsibility to ensure that the principles of the Nigerian Constitution are known and respected. Nigeria is a country where freedom of religion is promised, but earlier examples in this paper have shown that this freedom is very limited or nonexistent in some Nigerian states. This is unethical, and unacceptable. In addition, the Nigerian government must emphasize the fact that there is a separation between church and state. This separation is imperative because a possible “siding” with one particular religion will incite future boycotts of health system efforts. I propose a strategy in which Nigeria focuses on establishing a “culture of cohesiveness,” built around introducing the national government as a neutral authority well respected for its reliability and impartiality. When communities begin to view the government in this way, and the Nigerian government learns to properly intercede on the behalf of its citizens, disagreements between the two religions will remain, but this will not be coupled with disparities in the reception of health interventions. There should be more exploration on the role that government can play in ameliorating or assuaging religious tension and how this can be done through health system interventions.

Conclusion

Strengthening health systems is a complex task. However, the multidisciplinary nature of public health allows for creative solutions to even the most complicated health
issues. Public health policy has the unique advantage of incorporating both grass-root support from community members and sophisticated and highly technical expertise from the world’s greatest medical and epidemiological experts. Knowing this, attempting to address multifaceted health issues in Nigeria through just one intervention is never an adequate response. The diagonal approach is effective for both practical and ethical reasons. As ethics are a significant component of the social web of society, the diagonal approach allows us to consider public health ethics in interventions and bring a personal side to seemingly strictly-technical health interventions. It also allows governments to recognize the reality of the interconnectedness of social perception and health outcomes. In this realization, disease-specific interventions can be used to strengthen health systems, and address social, political, and economical issues through improved health outcomes. Of course, the diagonal approach is more “messy” and requires more time, communication, accountability, political commitment, and overall effort, but it also generates more positive results. Nigerians have the capacity to become united on a front to improve living conditions and health status, and attain greater control over their healthcare and health outcomes. In addition, as they are more informed, they can demand a higher standard of care from their government. Nigeria can utilize the vertical intervention of the GPEI to ensure that a “culture of cohesiveness” comes from establishing an accountability that is mutually reinforcing; citizens should require improvements in health outcomes through stable infrastructure and responsible and responsive staff, and the government should expect compliance and contributions from Nigerian families and community members. When such a diagonal approach is built, an emphasis on the relationships between intergovernmental organizations, national
governments, and local communities will be visible and projects will inevitably become more sustainable, and benefits more long-lasting.

An ethics framework taps into the belief systems of the citizenry and contributes to the diagonal approach because it recognizes that what may seem “pragmatic” could be relatively unethical. For example, structuring interventions around cost-effectiveness is pragmatic, but using that as the sole criterion by which one determines whether or not to implement a program is not always the proper response. This is clear as vertical interventions were initially proposed in an effort to contain costs; however, research is continually showing that shortcuts will not alleviate the strain placed on weak health systems. In *An Ethics Framework for Public Health*, the author writes, “An ethics analysis must always be conducted because bringing truth, fairness, and respect to our work is right in itself…Engaging in the steps of an ethics analysis makes us meticulous in our reasoning, requiring us to advocate interventions on the basis of facts, not merely hypothesis.”

She continues, “Further, an ethics analysis holds us to high standards not only for scientific method, but also for how respectfully we communicate with and involve constituent communities.”

Another article, *Public Health Mapping the Terrain*, explains, “the WHO objective, ‘to assure the conditions in which people can be healthy,’ suggests a far-reaching agenda for public health that focuses attention not only on the medical needs of individuals, but on fundamental social conditions that affect population levels of morbidity and mortality.”

The results of my independent research project provided me with several learning outcomes. I found that effective policymaking requires a combination of literature reviews, verified and complemented with interactive field studies. Field studies and
interviews allowed me to indirectly interact with the literature, and establish a conversation between my literature and interviewees. The techniques used in my independent study provided learning outcomes particular to my project that would not have been realized if I were at my university simply working with books and articles.

My research has shown me that strengthening health systems is not the sole responsibility of any one level of government. When intergovernmental and national governments are in sync, yet communities are unaware and unreceptive to intervention, policies and programs fail. Communication and accountability are essential to the effectiveness of any policy. The Global Polio Eradication Initiative is but one avenue through which the diagonal approach can be applied. A world of opportunity exists to coordinate and align vertical interventions with horizontal and social contexts in an effort to strengthen health systems. However, exploration of such opportunities requires a foresight that extends beyond financial returns and into the social and ethical implications of health programs and initiatives.

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