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Coercion and polio eradication efforts in Moradabad

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We introduce the problem of vaccine coercion as reported in Moradabad, India. We offer commentary and critical analysis on ethical complexities at the intersection of global public health and regional political strife and relate them to broader vaccine goals. We draw upon a historical example from malaria vaccine efforts, focusing specifically on ethical and health justice issues expressed through the use of coercion in vaccine administration. We suggest how coercion is indicative of failed leadership in public health and consider community-based collaborations as models for cultivating local investment and trust in vaccination campaigns and for success in global public health initiatives.

Introduction

The bioethicist Arthur Caplan has suggested that polio *eradication* is an ethically questionable goal because of a lack of surveillance capacity for disease recurrence, persistence of burden of other diseases, and ecological challenges that seem to warrant attention and resource allocation at least equal to those paid to polio.[1] Yash Paul and Angus Dawson have also argued that lack of a system-wide plan in the Global Polio Eradication Initiative (GPEI) to compensate sufferers of harms—such as vaccine-associated paralytic polio or vaccine-derived paralytic polio—caused by the Oral Polio Vaccine (OPV) could undermine public trust in the GPEI and other global public health efforts.[2] We suggest other critical intersections of empirical and ethical dimensions of public health work deserve consideration too: distributions of health risks and benefits, definitions of evidentiary criteria used to justify public health interventions, and definitions of terms in which programs' goals, successes, and failures are assessed and monitored.[3] The following analysis and commentary seek to augment these lines of ethics and health justice inquiry by also considering ways in which coercion is indicative of failed leadership in public health.

Eradication?

Overzealous adherence to the goal of polio eradication is one possible source of the coercive nature of this program's implementation in Moradabad, India. Whether eradication is a reasonable goal is the focus of much literature elsewhere, so we seek to take up the different theme of leadership related to the GPEI and other global public health campaigns. Consider one experience of a public health worker in Moradabad, a highly endemic district in Uttar Pradesh, India:

While examining social determinants of GPEI program implementation in 2006, one district-level public health worker in Moradabad reported:

> *We don't want to administer like this. They start a fight with us. The administration comes; tries to explain, they try to scare too. Give a false scare that the baby will be*

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thrown before the vehicle. Have put [people] behind bars just to scare. It was threatened that BPL [Below Poverty Line] Cards will be stopped . . .[4]

Moradabad is an area noted for widespread resistance to polio eradication campaign efforts, and this report appears to confirm that coercive strategies have been adopted to implement uptake of oral polio vaccine (OPV) during pulse rounds of the program. Furthermore, a December 2013 issue of *The Indian Express*[5] reports escalation in the use of vaccine campaigns as a political and social "bargaining chip" among factions in the Moradabad region. As India prepares for certification of polio eradication, the stakes are high. The District Administration, for example, actually threatened to invoke the stringent National Security Act to counter threats of boycott of the National Immunization Day round of vaccination over local developmental issues.[6] In addition to political consequences, unresolved social and political strife places public health in the crossfire, since immunity gaps and infection importation remain significant risks.

Regional Strife and Global Public Health Leadership

One feature of good public health leadership relevant to the GPEI incorporates the need for GPEI leaders to collaborate with leaders in communities of religious and ethnic minorities and with national-level leaders, who have different priorities. Caplan rightly illuminates several priorities that compete with OPV administration, and Paul's and Dawson's other points including surveillance capacity and compensation are equally valid operational issues that need to be addressed from the "ground up," beginning at the local level, rather than from the "top down," from a global administrative level. Additionally, public health leadership requires the ability to forge collaboration from the common goal of minimizing illness and suffering in regions like Moradabad.

A collaborative approach could maximize community-based uptake of a public health program if "grass-roots" participation is a leadership priority. It can also enhance trust among community members who might be suspicious that programs are not responsive to their actual needs and vulnerabilities. Health service systems driven by one vertical program with uniform demands and requirements, such as the GPEI, can generate *health services asymmetry*, surfeits and deficits of services that are monolithic and can be unresponsive to community-based needs for those services. For example, malaria eradication efforts in the 1970s were marked by technical problems, resistance to dichlorodiphenyltrichloroethane (DDT), social opposition, but also by the rigid leadership strategy of a group of program leaders whose approach was focused on global implementation of a single strategy unresponsive to actual "on the ground" needs of some local communities' members.[7] Program goals of family planning initiatives during 1970s and HIV/AIDS initiatives a few decades later[8] also expressed a hyper-focus on technological innovation,[9] also resulting in significant health service system asymmetry.

Public health leadership at the global level without adequate and well-integrated collaborative leadership at the community level has a well-trodden history of failure by unduly punitive enforcement structures. It seems that push does come to a shove finally in many vertical programs, and we see evidence of coercion pervasively across several of them: malaria and smallpox,[10] family planning,[11] and even vaccinating health care workers for influenza.[12] While smallpox eradication historians have argued that collaborative leadership between international and national levels is far easier than between national and local levels,[13] it seems reasonable, based on the history of failures of programs led by "top down" models, to posit that insistence upon alternatives to using force to generate compliance, particularly in politically complex regions of the world, is another hallmark of good public health leadership.

With Polio, Local is Global

Community-based participation in the leadership and planning of public health programs is critical for avoiding health services asymmetry. Public health initiatives in countries with weak health service systems have poor health services delivery "on ground." Such systemic weaknesses easily generate cynicism and mistrust, particularly in marginalized communities and particularly when there are efforts to "compensate" individual citizens for their participation in global public health programs despite the glaring lack of basic health services. For example, following an increase in incidence in 2004, the National Polio Surveillance Program in India considered introducing financial and other incentives to increase vaccine acceptance. Groups and community leaders at several study sites, including in Moradabad, rejected such incentives targeted at individuals and argued strongly for effective and responsive primary healthcare services that would benefit the entire community.[14] So, yet another lesson for public health leadership from recent public health history, most succinctly stated by the historian Paul Greenough, is the value of good faith, collaborative efforts to meet overwhelming demand for reliable, responsive general health service delivery programs:

I began my research by demonstrating that international organizations occasionally used coercion against the public to eradicate smallpox in South Asia in the 1970s, and for several months I was sure that I would organize my work around the theme of popular resistance to public health coercion. As my focus shifted from smallpox eradication in the 1970s to the WHO Expanded Program on Immunization (EPI) in the 1980s and 1990s, however, it became evident that the most significant problem to explain was not subaltern resistance to immunization but to public demand for the disease protection that immunization brings.[15]

Evidence also suggests that Latin American success with polio elimination has much to do with the recent development and maturation of their health service systems.[16]

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Recent history of public health efforts suggests that the Moradabad case is a common expression of a familiar trend among campaigns that are more global than local. Public health ethicists have illuminated some of the important concerns related to the goal of polio eradication and here we have considered ways in which collaborative public health leadership can generate more community-based benefits in health services delivery than might be envisioned or executed from an exclusively global perspective.

Lessons for the GPEI from the History of Malaria Eradication Efforts

The absence of attention to concerns like those articulated by the public health worker in Moradabad has hampered previous disease eradication efforts. The example of past and present malaria eradication is particularly illuminating. The World Health Organization's Global Programme for Malaria Eradication was launched in 1955. The campaign centered on the use of the pesticide DDT. It was believed at that time that systematic house spraying throughout a country would reduce the anopheles mosquito population such that disease transmission would cease. Once this was achieved, remaining cases of malaria would be identified and treated, and this would lead to country-wide eradication. This campaign was successful in some countries; however, in others, it stalled and failed. One major reason was the absence of program directors' effort to either enlist the cooperation of local populations or invest in local health services.

Little attempt was made to educate local populations or gain their cooperation in controlling malaria. Teams of sprayers would arrive unannounced or with little warning. Residents were made to empty their houses and allow sprayers to enter and treat their walls with a foul-smelling substance. Initial results of spraying were positively received—because it eliminated all insects, not just anopheles mosquitoes. But, as the campaign continued and houses had to be re-sprayed every 6 to 12 months, the value of spraying decreased when houseflies and other insects developed resistance. Householders were not consulted or educated about the purposes of the campaign, and came to resent the repeated disruption it caused. Some resisted by locking their doors and leaving their villages when they heard the spray teams were coming. Others white washed the walls of their homes after spraying to eliminate odor of the paraffin based spray. The overall effect of this kind of resistance was to prevent total area coverage, which slowed and undermined eradication efforts.

Lack of investment in health services in campaign areas also resulted in breakdown of efforts in countries that came close to achieving eradication success. Once spraying had achieved its goals, the campaign depended on local health services to identify and treat remaining cases. Where health services were limited or non-existent, as was the case in rural areas of South and Southeast Asia, cases went unidentified and became a source of infection to the remaining anopheles mosquitoes. This led to a renewal of transmission, requiring return to the initial spraying phase. This added cost and extended the length of eradication campaigns.

These lessons seem to have not been well learned by Current Roll Back Malaria control efforts, which are based on use of insecticide-treated bed nets and rapid identification and treatment of children with fevers. In the rush to meet program goals, nets were distributed with little communication about their proposer use. Surveys repeatedly revealed significant gaps between net ownership and usage. The absence of effective health services, particularly in rural Africa, has prevented children with fever from being promptly seen and effectively treated by trained medical personnel. Both problems are likely to prevent malaria eradication in the foreseeable future.

Mandate Justifiability and Drivers of Vaccine Acceptance

Vaccination programs provide a lens through which to consider ethical principles of health justice and equitable distribution of health risks and benefits for public health interventions. Vaccines are one of the most important and cost-effective public health achievements in history resulting in significant decreases in the prevalence of many childhood diseases. Their impact has been so striking, it can be difficult to understand why any individual, community or health system would not prioritize vaccination. Thankfully, vaccine acceptance is now acknowledged as a critical component of a sustainable immunization program.[17] This focus necessitates collaborative leadership.

The decision to vaccinate a child is based upon a balance between the perceived risks and benefits of vaccination. This risk-benefit assessment is greatly influenced by socio-cultural and political contexts that drive health beliefs and priorities.[18-20] As the prevalence of vaccine-preventable diseases has decreased as a result of successful immunization programs, caregivers may now be more concerned about vaccine safety. Caregivers can also be affected by misperceptions about vaccines, inconsistent vaccine availability, or lack of trust in the health system.[21-24] Immunization providers and program managers also have opinions regarding vaccine safety, efficacy, and perceived need for a vaccine.[25] Finally, public health programs may not be able to invest the resources necessary to ensure reliable vaccine availability due to competing priorities. These complexities have made it difficult to identify and incorporate the key drivers of vaccine acceptance into immunization programs. Collaborative public health leadership is needed to effectively understand and address the complexity of individual, community and political perspectives that impact implementation of immunization policies.

A collaborative approach can mitigate the need for coercive immunization policies, but recognition of the drivers of vaccine acceptance is a crucial component of a successful immunization program. An individual is asked to receive a vaccine to achieve a community benefit, and a threshold of community participation is required for optimal vaccine effectiveness. So, is a degree of coercion justifiable?

Broad acceptance of mandatory vaccine requirements before school entry in the US suggests that this approach is not ethically problematic. For example, the

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constitutionality of these mandates has been upheld on the premise that a state can compel immunization "to protect itself against an epidemic of disease which threatens the safety of its members."[26]

But the US Supreme Court's endorsement of vaccine requirements differs substantially from the Moradabad case. The critical ethical dilemma regarding polio eradication, at this stage of the endgame, is whether polio vaccination ought to be mandated by law. There are Dangerous Diseases Acts in state and local legislatures in India, which can be applied during threats of infectious diseases, but they have not generally yet been linked to immunization campaigns. Experts worry about legislative expressions of *medical nationalism*,[27] however. This concept problematizes the confluence of citizenship with participation in immunization campaigns and illuminates the ethical problem of consent to vaccination potentially being undermined by one's very status as a citizen.

Ideally, compulsory programs would not be necessary to ensure adequate immunization rates. Individuals would value the benefits of vaccination and no one would disproportionately bear the costs of program implementation. However, there are continued disparities in immunization uptake worldwide and a growing incidence of vaccine hesitancy. Addressing this reality will require a policy approach that emphasizes the importance of immunization as a public health priority and ensures equitable investment of resources in forging community collaboration and consensus. Such policies must be based upon trust and a comprehensive understanding of the values and health needs within a community.

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No potential conflicts of interest were disclosed.

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