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# Epidemiological Insurgency: Polio Persistence on the Afghanistan-Pakistan Border

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**An Afghan man marks a child's hand** after administering the polio vaccine (Lt.j.g. Matthew Stroup/Public Domain)

# Epidemiological Insurgency:
## Polio Persistence on the Afghanistan-Pakistan Border

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Despite a profound global impact over the first half of the twentieth century, polio is largely an afterthought throughout the developed world. Vaccines engineered in the late 1950s paved the way for a precipitous drop in global disease burden with the onset of the World Health Organization-led (WHO) Global Polio Eradication Initiative (GPEI) starting in 1988. Recent indicators of the program's success include a declaration of eradication in India[1] and a teeteringly low infection rate in Nigeria[2]; two of the disease's last bastions. This progress, however, has been notably stifled by the steady persistence of a wild poliovirus reservoir centered in northern Pakistan along the Afghanistan-Pakistan (Af-Pak) border.

Throughout significant portions of recorded history this region's volatility has been well-documented, including a currently sustained network for the training of terrorist fighters dating back to the period of the 1979 Afghan-Soviet War[3]. These networks serve to both attract fledgling radical jihadist recruits and supply fighters globally, markedly providing many of the transnational fighters taking part in the Syrian Civil War. Their movement in and out of the Af-Pak region has provided a major disease vector for poliovirus.

The location of a terrorist network transit hub in by far the world's largest remaining reservoir of wild poliovirus poses a major challenge for policymakers. Due to several factors, including a decline in healthcare infrastructure throughout the western world, the situation presents a legitimate epidemiological threat. However, the issue is more importantly an exemplar of the morphing nature of multidimensional threats, which are likely to become more prevalent in an era of globalization, failed states, and an inability to effectively address social issues amidst the threat of kinetic warfare.

### CRISIS DIMENSIONS

While this article's intent is an explicit focus on conflict elements of the polio question, it would be incomplete without some explanation of the epidemiological, political, and socio-ethnological dimensions.

Epidemiological dimensions, though a clear basis for the issue, have limited influence on the disease's continuation. Less than 1% of infected individuals develop symptoms, which can lead to paralysis and, if untreated, death.[4] Despite a low incidence of significant health consequences, the virus itself is extremely virulent; propagating quickly through water and sanitation systems once introduced to a population. Treatment methods are limited, with preventative measures serving as the primary prescriptive option, and vaccination proving the most effective means of halting spread. An injectable, inactivated poliovirus vaccine is favored in developed settings for its high level of overall immunity, while the oral vaccine is the preferred option in developing settings for its easier administration and lower cost, despite a necessary reliance upon larger herd immunity.

Politically, the region in which this last reservoir of wild poliovirus is centered has been mired in long standing discord that has inhibited, to varying degrees, state function. Since the sixteenth century age of the Gunpowder Empires and the military expansion of Islam, the territory that is currently Pakistan has been a gateway region to the larger Indian subcontinent. Colonial administrations strategically used dichotomies to propagate rule, and the post-Independence era brought little reprieve. The 1947 Partition of India not only divided the subcontinent, but politically empowered foreign administrators over the long-standing tribal residents of much of the territory that is present-day Pakistan. On a micro level, this dynamic contributed to political ostracism for rural residents along the border area where the polio reservoir sits. On a macro level, this discord has contributed to a continued cycle of political gridlock in Pakistan, which has served as a rationale for the military's intervention and often subsequent ruling authority. More bluntly, in the nearly seven decades since Pakistan's founding, the military has forcibly held control roughly half of the time.

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Socio-ethnological factors have played a significant role in creating the current situation, and are intrinsically tied to these political concepts. While this reservoir straddles the border between Afghanistan and Pakistan, the border itself is a colonial vestige. Despite the map's lines, the global polio epicenter is ethnically homogenous, with the Pashtun ethnic group dominating the region. Beyond their political ostracism, the Pashtuns have shown a seeming susceptibility to religious-based recruitment methodologies. They were fundamental to a Western funded mujahedeen strategy for combating the Soviets during the Afghan-Soviet War of the 1980s, and subsequently bore the brunt of the war's social consequences, including the proliferation of madrassas which addressed the need for orphan services in the aftermath, and the eventual abuse of those systems as terrorist recruitment mechanisms. These movements indirectly led to the formation of the Afghan Taliban as a governing authority in Afghanistan, and later the Tehrik-i-Taliban Pakistan (TTP) as a terrorist organization aimed at the Pakistani state.

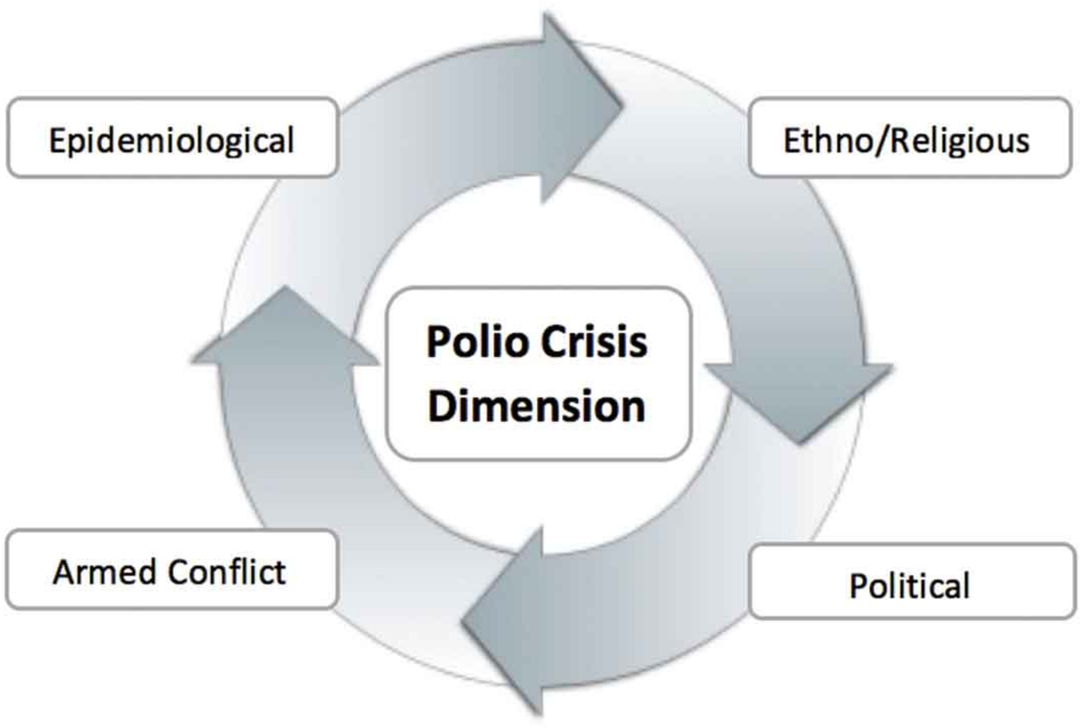


Figure 1 – Polio Crisis Dimensions
A Framework for the Polio Question

## MULTI-THREAT MANAGEMENT

The literature has previously established not only the strong correlation between disease burden and intrastate conflict,[5] but also that conflict is a major contributor to that burden.[6] In Pakistan, there is consensus that the technical capacity to address polio is present,[7] that violent conflict and political turmoil are the major remaining obstacles, and that increased militancy is currently threatening the possibility of eradication.[9] The reality of the polio problem in Pakistan is that, beyond any conversation of underlying social and political tension, there are two distinct threats: one posed by terrorism, the other by the endemic itself. Further exacerbating the issue, the Pakistani state is not a single responder; the military and the civilian government operate as distinct entities, and are frequently at odds with one another. The inability for the two to cooperate allows the TTP room to move both tactically and politically.

In the broadest possible terms, the military's perspective is framed by maintaining and advancing state security objectives, and then leveraging successes in those areas to maintain a high social standing. This has been evidenced by a reluctance to normalize relations with India, and a history of significant moves against civilian government (typically coups d'état) when confronted with hints that its significant power might be curtailed.

The civilian government, for its part, has typically been inundated with threats on so many fronts that its ability to think strategically is handicapped. Political rivalries, terrorism, the challenges inherent in ruling a developing country ranking 146 out of 187 on the human development index, and a hovering military capable of exerting control in myriad ways are all major obstacles.[10] The sword of Damocles swings just above the head of the Prime Minister of Pakistan, regardless of who may hold that title. Amidst the chaos between the military and civilian government, results for addressing the terrorism and polio threats have been middling.

## INTERSECTION OF TERRORIST AND POLIO THREATS: THE BIN LADEN RAID, TARGETING OF HEALTH WORKERS, AND OPERATION ZARB-E-AZB

The operation to eliminate Usama bin Laden (UBL) provided a politically convenient retaliatory option for the TTP as they began employing an assassination campaign against community health workers (CHWs) running immunization programs.[11, 12] In 2011, UBL was killed following an operation by a covert unit of US sol-

diers at a compound in Abbottabad, a city in the mountains of northern Pakistan roughly 100 kilometers from the capital of Islamabad. In the aftermath, it was widely reported his location was deduced by the American intelligence services through the recruitment of a Pakistani doctor who was administering a hepatitis B vaccination program.[13] Dr. Shakil Afridi allegedly orchestrated the guise of immunization to gain access to the UBL compound and procure DNA samples from children while they were being inoculated.[14, 15] Those samples would then be genetically compared to known relatives of the terrorist leader and green light the mission.

**Widespread news of an actual vaccination program participating in a secret plot validated these beliefs, touching off a paralysis in polio vaccination**

While religious edicts against vaccination in the region date back to at least 2006,[16] the events spurred a renewed call for action.[17] CHWs tasked with traveling door-to-door to deliver oral polio vaccine, police officers providing their security, and doctors at clinics were all targeted for assassination by the TTP as a result.[18] In a period of months starting at the end of 2012, roughly 30 CHWs were killed while administering vaccine in the community.[19] Within 18 months that number would climb to roughly 60, as attacks began to display an increasing level of scale and sophistication with coordination across geography.[20]

The reaction was so dramatic that the CIA issued a statement via the White House vowing to never again use a vaccination campaign in their operations, a rare move for the clandestine agency.[21] The events were more than a rallying cry for the TTP. With conspiracy theories being something of a national pastime in Pakistan, the narrative of nefarious western plots via vaccination was previously commonplace.[22] Widespread news of an actual vaccination program participating in a secret plot validated these beliefs, touching off a paralysis in polio vaccination.

The Pakistani military proved slow to counter the kinetic threat. While perhaps not a significant initial priority, the logistical challenge of securing some 90,000 soft target CHWs was certainly daunting.[23] The reluctance of the Pakistani military to engage in ground operations has been cited as impetus for major US drone operations in the region, which further contributed to regional destabilization amidst some 300 strikes and thousands of reported casualties.[24] In light of the mild resistance and specter of drone warfare, the TTP gradually expanded operations to larger population centers. The anti-polio campaign proved the ability to strike outside their traditional strongholds in northwest Pakistan.[25] Embold ened, the TTP struck the international airport in Karachi in June 2014, and a private school for the children of military personnel in Peshawar in December of the same year.[26]

This represented a significant operational escalation for the TTP. With overwhelming public support, the Pakistani military responded by launching a massive ground offensive in northwest Pakistan.[27] Dubbed Zarb-e-Azb, the operation resulted in an estimated one million displaced people throughout the already ambiguous borderland, and the military claiming 2,000 terrorist casualties.[28] The TTP's campaigns to undermine the health infrastructure of the region had at this point resulted in a spike of polio incidence.[29] The military's response, though tactically considered a success, stirred this last remaining reservoir of poliovirus and ultimately spread the disease further. Subsequent detection picked up cases in Syria, brought by the movement of fighters and refugees across the region.[30, 31] The same movement of people has also been linked to recent cases in Egypt, Israel, Palestine,[32] and across the wider Middle East region.[33]

As the terrorist threat bleeds into the epidemiological one, it is worth considering the reinforcing nature of combating the threat to CHWs with a stronger security posture. The CHWs were previously not regarded with any more attention than anyone who conducted business in public spaces throughout Khyber Pakhtunkhwa Province and the Federally Administered Tribal Areas.[34] While this did not necessitate zero attention, they were certainly not apparent regular military targets. The exploitation of CHWs in public spaces for military goals resulted in a weaponization of those workers in the eyes of the TTP. Attaching security details to vaccination teams has only increased the target threat, as tangible military targets are then proximate to civilian ones.

In observing epidemiological threat management, it is obvious that conflict has acted as a barrier to eradica-

tion.[35] Beyond exacerbating the crisis via destruction of infrastructure and disruption of services, armed conflict soaks up governmental resources and focus, both civilian and military, which could otherwise be used to address the issue.[36] What initiative the civilian government can demonstrate toward polio, typically via the Ministry of Health, focuses almost exclusively on vaccination in these endemic areas. Unfortunately, that effort too has come to naught, as local populations have been disillusioned by a "polio only" policy that provides little visible effect to beneficiaries in a war zone, and all other health and medical services that might provide observable benefit atrophy under such exclusive focus.[37]

## THE PATH FORWARD

Solutions to a multidimensional issue will require approaches that simultaneously address varied needs. While the best solution could involve any number of facets, any practicable one will account for at least three main areas beyond vaccine procurement: achieving some sense of local buy in; implementing a logistical plan capable of adapting to the security environment; and undermining the TTP's rhetoric.

Addressing local buy in will require a sober assessment of the growing gap in primary services, and an effort to understand the priorities of local populations.[38] This was made abundantly clear when local tribal leaders recently threatened to boycott further support of vaccine initiatives until basic electricity services were extended to underserved villages.[39] Some form of incentive would drastically increase the persuasiveness of these leaders when addressing their populations, and it is worth noting that any proverbial carrot need not necessarily be tied to larger healthcare infrastructure extension. Financing would have to come from Pakistan's federal government, as the current polio budget is largely derived from GPEI funds whose mandate does not include provision for such local incentives.[40] However, the federal government has increasingly begun shouldering some principal burden for implementation via Islamic Development Bank loans, presenting a feasible funding mechanism for such incentives.[41, 42]

Implementation of a resilient logistical plan capable of adapting to the security environment is also critical. Using CHWs for door-to-door service delivery was, at least in part, a response to limited infrastructure. As they have been sidelined and permanent health structures destroyed, TTP controlled territory has often proven unreachable. One solution, previously deployed in both Nigeria and Pakistan, has been the use of roadside immunization stations for refugees and IDPs.[43, 44] This approach is especially effective given the limitations of road networks in northwest Pakistan's mountainous terrain, and an expanded strategy should be encouraged before any subsequent movements of people.

Countering the TTP's messaging on the issue is also vital. The Afghan Taliban has proven a capable partner on the vaccination issue, and their support should be leveraged for this cause.[45] Moderate religious leaders should likewise be solicited to provide endorsement.[46] Such messages need not be jarring, but some measure of dissonance is necessary to counter the anti-polio narrative.

This approach walks a fine line, and successful implementation may prove problematic. It fails to address the population's need for broader government services, but in so doing remains flexible enough to dodge the philosophical tensions that exist between health, violent conflict, and national security imperatives.[47] There are larger social questions for a nation with one of the world's largest modernized militaries facing off against internal regions which have historically been variably ignored and exploited. They will need to be addressed by the next generation of Pakistanis, while any outside observers should be pleased with the prospect of them doing so polio-free.

The polio crisis in the Af-Pak region has remained an overlooked issue on global and regional stages for the past several years. Epidemiologically, Ebola has overshadowed it, while the Syrian Civil War has been the dominant security theme. And yet, Ebola has been contained, and polio is now integrated in to the Syrian conflict. Environmental disease surveillance has detected the presence of polio in sanitation systems in Egypt, Israel, Gaza, the West Bank, Syria, Iraq, and France.[48, 49] All instances have been traced back to the strain in the Af-Pak reservoir, confirming that foreign fighters trained along the Af-Pak border have transported the disease along war's supply lines, and produced the infected refugee populations whose presence is currently straining the fabric of the European Union.[50] If unresolved in the short-term an estimated 12 million unvaccinated Europeans under 30 would be at risk of infec-

infection,[51] with a reasonable worst-case scenario of paralytic symptoms in perhaps the tens of thousands.[52] In the long term, the international community will have failed to address a multidimensional threat emblematic of an increasingly globalized world. That inability to manage and address such threats moving forward is orders of magnitude more dangerous.

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