

**CONFLICT AND DISEASE**  
**AN ANALYSIS OF ENDEMIC POLIO IN NORTHERN PAKISTAN**

Master of Arts in Law and Diplomacy Capstone Project

**Submitted by Randall Quinn**

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**THE FLETCHER SCHOOL**

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# Conflict and Disease

An Analysis of Endemic Polio in Northern Pakistan

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# Abstract

Polio is a disease that held a profound impact on much of the world's population for the first half of the 20<sup>th</sup> Century. Today it is barely an afterthought throughout the developed world, as vaccines invented in the 1950's greatly reduced the disease burden, gradually at first and then precipitously with the onset of the Global Polio Eradication Initiative in 1988. Despite great progress, there is one remaining reservoir of wild poliovirus that remains in the world today and prevents any declaration of victory against the disease. The reservoir is centered in northern Pakistan and frequently infects populations on both sides of the Afghanistan-Pakistan border. A number of factors have contributed to this being the last global holdout. This paper aims to explore those factors and project potential policy solutions. Given the highly infectious nature of the disease and the frequent movement of people in and through this region, all of the elements are there for a global resurgence, highlighting the importance of resolving the issue as quickly and efficiently as possible.

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# Acronyms

|        |  |
|--------|--|
| AFR    | Africa Region – WHO Designation                |
| CHW    | Community Health Worker                        |
| CIA    | U.S. Central Intelligence Agency               |
| cVDPV2 | Circulating Vaccine Derived Poliovirus 2       |
| EMR    | Eastern Mediterranean Region – WHO Designation |
| EPI    | Expanded Programme on Immunization             |
| FATA   | Federally Administered Tribal Areas            |
| GOP    | Government of Pakistan                         |
| GPEI   | Global Polio Eradication Initiative            |
| GWOT   | Global War on Terror                           |
| IDP    | Internally Displaced Person                    |
| IPV    | Inactivated Poliomyelitis Vaccine              |
| INGO   | International Non-Governmental Organization    |
| ISI    | Pakistani Inter-Services Intelligence          |
| KPK    | Khyber Pakhtunkhwa Province                    |
| LHW    | Lady Health Worker                             |
| MOH    | Ministry of Health - Pakistan                  |
| NATO   | North Atlantic Treaty Organization             |
| NEAP   | National Emergency Action Plan 2011            |
| NGO    | Non-Governmental Organization                  |
| OIC    | Organization of Islamic Cooperation            |
| OPV    | Oral Polio Vaccine                             |
| PPP    | Pakistan People’s Party                        |
| SIA    | Supplementary Immunization Activities          |
| TTP    | Tehrik-i-Taliban                               |
| UAV    | Unmanned Aerial Vehicle                        |
| UBL    | Osama (Usama) bin Laden                        |
| UN     | United Nations                                 |
| VAPP   | Vaccine-Associated Paralytic Poliomyelitis     |
| VDPV   | Vaccine Derived Polio Virus                    |
| WHO    | World Health Organization                      |
| WPV    | Wild Poliovirus                                |
| WPV1   | Wild Poliovirus Type 1                         |
| WPV3   | Wild Poliovirus Type 3                         |

# Introduction

Since the introduction of Jonas Salk's vaccine in 1957, global incidence of polio virus has dropped; at first precipitously in the industrialized world, and then steadily throughout the developing world. So effective was the vaccine's introduction that the disease and its devastating effects have largely left the collective consciousness of the industrialized world, with several generations having little to no contextual knowledge of the epidemiological threat.

*Figure 1 – Polio Summary*

| Est. Number of Cases |  | Peak   | ~500,000/year | Today  | ~350/year |
|----------------------|--|--|---------------|--|-----------|
| Transmission Routes  | Fecal-Oral   | fecal particles of host introduced to oral cavity of new host; most common                                       |               |  |           |
|                      | Oral-Oral  | oral particles of host introduced to oral cavity of new host; extremely rare                                     |               |  |           |
|                      | Vaccine Derived  | fecal particles of recently OPV vaccinated person introduced to oral cavity of new host; exceedingly more common |               |  |           |
| Treatment            | Inactivated Polio Vaccine (IPV)  |  |               | Oral Polio Vaccine (OPV)   |           |
|                      | <ul style="list-style-type: none"> <li>developed by Dr. Jonas Salk</li> <li>employs dead polio virus</li> <li>efficient at immunizing individuals</li> <li>expensive</li> <li>no vaccine derived infections</li> </ul> |  |               | <ul style="list-style-type: none"> <li>developed by Dr. Albert Sabin</li> <li>employs weakened polio virus</li> <li>efficient at immunizing communities</li> <li>inexpensive</li> <li>possible vaccine derived infections</li> </ul> |           |

\* from Global Polio Eradication Initiative website, [www.polioeradication.org](http://www.polioeradication.org)

And yet, wild poliovirus has not been eliminated globally. Despite remarkable progress following the inception of the Global Polio Eradication Initiative in 1988, and the recent declaration of polio elimination in Nigeria in September 2015, a major reservoir still exists along the Afghanistan/Pakistan border.<sup>12</sup> The region is noted for the enduring presence of both

<sup>1</sup> Bhatnagar, Nidhi, Manoj Grover, Smita Sinha, and Ravneet Kaur. "Poliomyelitis Eradication: Rhetoric or Reality." *Asian Pacific Journal of Tropical Disease* 3.3 (2013): 240-41.

<sup>2</sup> Walsh, Fergus. "Nigeria Reaches Polio 'milestone'" *Health*. BBC News, 25 Sept. 2015.

ethno/religious and armed conflict, as highlighted by visibly active terrorist networks conducting frequent attacks.<sup>3</sup> The justification for such acts has deep political roots, with a cycle of exclusion and insurrection, which has contributed to already resource low environments.

The endemic is geographically centered in northern Pakistan along the mountainous Afghanistan/Pakistan border. This base has acted as a reservoir, facilitating spillover infections across the border in Afghanistan and throughout the rest of Pakistan, including population centers in the Indus River Valley. Displaced people fleeing violence in the region are repeatedly bringing the virus with them as they move across the ethnically uniform Pashtun region, or towards urban centers.<sup>45</sup> A majority of cases have occurred in the province of Khyber-Pakhtunkhwa and the Federally Administered Tribal Area (FATA), with a concentration in Waziristan, a cross-border region dominating the southern half of FATA and parts of Khost and Paktia provinces in Afghanistan.<sup>6</sup>

Beyond the epidemiological aspect, the region suffers from a number of threats, each adding a dimension (*figure 2*). The cross-border region has foremost suffered from a number of ethno/religious and social tensions, as evidenced by its significant role in the onset of modern radical Islamic terrorism *vis-a-vis* the formation and external funding of the Mujahedeen and the subsequent Afghan Civil War. Further, the western provinces of Pakistan have historically been prone to political ostracism by the federal government, the roots of which lie in the residual effects of the 1947 partition with India, and the Pakistani militaries' cycle of dominating the political sphere. Continued armed conflict throughout the region, following the NATO-led

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<sup>3</sup> Riaz, Fatima, and Yasir Waheed. "Islam and Polio." *The Lancet Infectious Diseases* 14.9 (2014): 791-92.

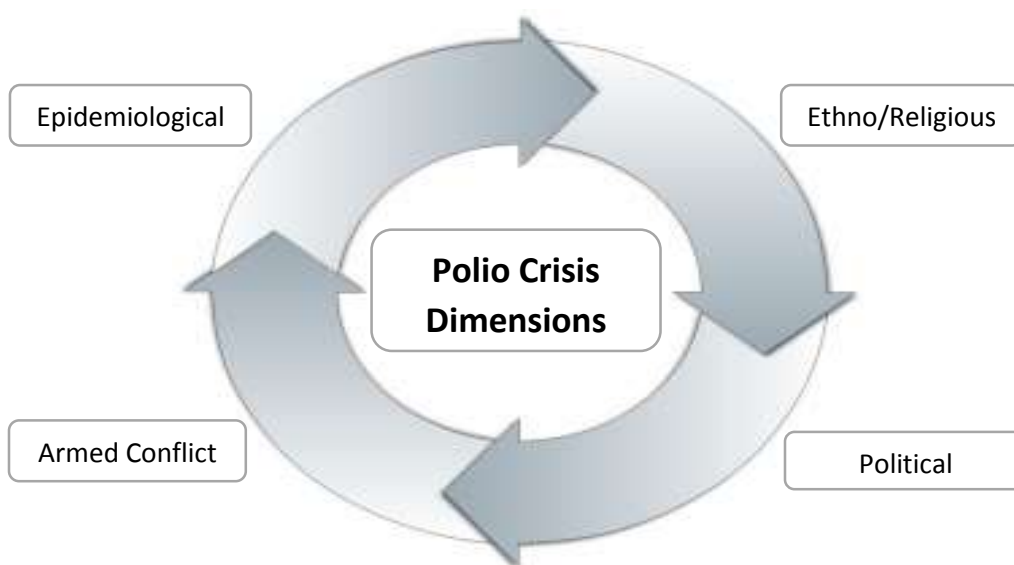
<sup>4</sup> Hadi, Yousaf Bashir, and Abdul Malik Amir Hamza Sohail. "Pakistan: The Nidus for Global Polio Re-emergence?" *Journal of Infection and Public Health* 8.2 (2015): 214-15.

<sup>5</sup> Nasir, H. "Polio and Politics in Pakistan." *Archives of Disease in Childhood* 98.5 (2013): 392-93.

<sup>6</sup> Hagan, Jose E., Steven G.F. Wassilak, Allen S. Craig, Rudolf H. Tangermann, Ousmane M. Diop, Cara C. Burns, and Arshad Quddus. "Progress Toward Polio Eradication - Worldwide, 2014-2015." *Centers for Disease Control and Prevention Morbidity and Mortality Weekly Report* 64.19 (2015): 527-31.



invasion of Afghanistan in 2002 and the subsequent uptick of drone strikes during the Obama administration, has added another dimension. Combined, these factors have precipitated a pervasive state of mistrust. When interjected with the epidemiological dimension the result has been a self-reinforcing loop resulting in calls for vaccine boycotts and the targeted killings of health workers. Polio case incidence has subsequently risen. A body of evidence suggests that resource low environments are prone to such boycotts given the presence of “political and religious motives, [and] a history of perceived betrayal by the federal government”.<sup>7</sup>



*Figure 2 – Polio Crisis Dimensions*

Despite the evident and growing threat, polio in Pakistan has been largely ignored by governments, media and a number of large-scale International Non-Governmental Organizations (INGOs). Though oft discussed in niche academic journals and regularly condemned by the World Health Organization (WHO), the polio situation has seen little attention beyond mainstream media’s occasional gaze in moments of shock when health workers laboring to

<sup>7</sup> Jegede, Ayodele Samuel. "What Led to the Nigerian Boycott of the Polio Vaccination Campaign?" *PLoS Medicine* 4.3 (2007): 0417-0422. Web.

eradicate the disease are assassinated.<sup>8</sup> In large part, this is due to eradication successes in prior decades throughout the rest of the world. Recent trends show a noted decrease in total global cases through the first half of 2015 (*figure 2*), and while the likelihood for continued cases and regional resurgence is high, a return to global pandemic seems unlikely. However, a distinct threat still remains. The movement of fighters across the Middle East has presented a vector as fighting rages attached to the Syria Civil War and the continued destabilization of Iraq. Recent outbreaks have been detected in Egypt, Israel, Gaza, the West Bank, Syria, Iraq and France.<sup>910</sup> These strains have been traced to the same Afghanistan/Pakistan virus reservoir.<sup>11</sup> The European Union is currently bracing for infections as refugees spill across their borders, and their own estimates place some 12 million unvaccinated citizens under the age of 30 within a Eurozone that largely has no disease surveillance measures currently in place.<sup>12</sup> While not yet widely considered a large-scale threat, all of the pieces for continued spread are in place.

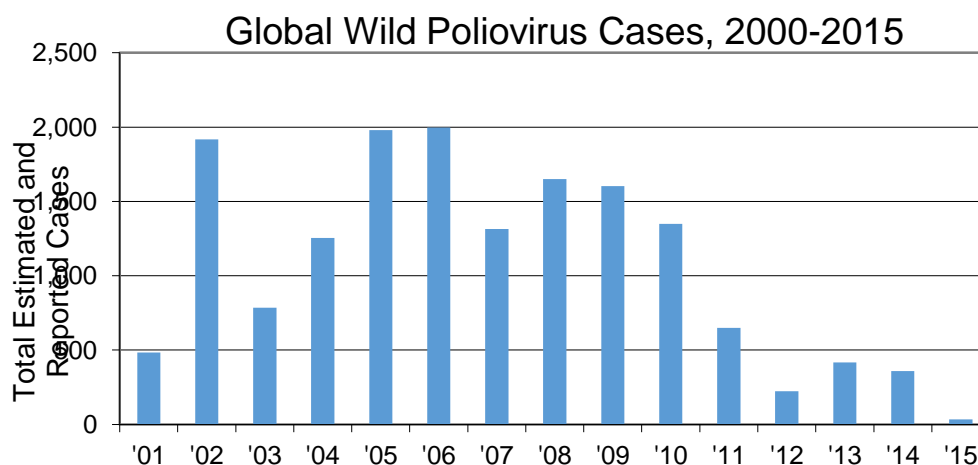


Figure 3 – Source: GPEI

<sup>8</sup> "Pakistan Killings near Peshawar Disrupt Polio Campaign." *BBC News*. BBC, 19 Dec. 2012. Web. 15 June 2015.

<sup>9</sup> Eichner, Martin, and Stefan O. Brockmann. "Polio Emergence in Syria and Israel Endangers Europe." *The Lancet* 382.9907 (2013): 1777.

<sup>10</sup> Bhutta, Zulfiqar A. "Conflict and Polio." *JAMA* 310.9 (2013): 905.

<sup>11</sup> Celentano, Lucia Pastore, Pier Luigi Lopalco, Emma Huitric, Denis Coulombier, and Johan Giesecke. "Polio and the Risk for the European Union." *The Lancet* 383.9913 (2014): 216-17.

<sup>12</sup> Ibid

Beyond the debate of polio's threat level in the classical global crisis sense, it also provides an interesting and unparalleled case study in crisis management. In the post-Cold War era the nature of the global threat map has undoubtedly shifted. A largely bipolar alignment has fractured to a multipolar equilibrium threatening to tilt on any number of axes. Threats have become increasingly multi-dimensional, and are only likely to increase in complexity. Few other cases exemplify the acute combination of threat dimensions found in the polio endemic along the Afghanistan/Pakistan border. There is great value in developing strategies to address humanitarian crises amidst socially, politically and militarily dynamic environments.

This paper seeks to analyze the history and aspects of the continued existence of the last reservoir of wild poliovirus, and use this crisis as springboard to a deeper discussion on the nature of regional and global security. Considerable attention will be paid to political triggers for armed conflict, and the role of ethno, religious and social tensions. Previous and current strategies for addressing the outbreak will be critiqued, and coupled with proposals for the design of new policy solutions. The paper will conclude by synthesizing the necessary capabilities for dealing with multi-dimensional 21st century threats.

# Part I: Poliovirus

## *Symptoms and Modern History*

Poliomyelitis was first identified as a condition by the German physician Jakob Heine in 1840.<sup>13</sup> The enterovirus infection is noted for causing damage to the digestive tract and central nervous system, in some cases leading to acute paralysis, typically on one side of the body, and visibly stunted growth of one or more limbs.<sup>14</sup> Advanced cases lead to death, but more commonly the result is a crippling life-long morbidity and deterioration of health.<sup>15</sup> The virus itself was isolated and identified in 1908 by Austrian physicians Karl Landsteiner and Erwin Popper, who noted its sole existence in humans and inability to cross infect with other species.<sup>16</sup>

The disease spreads through the oral-fecal route, making transmission particularly rapid in environments with low levels of sanitation. Polio propagates when fecal matter is ingested via contaminated food or water<sup>17</sup>, with the most common pathway involving a hand-to-hand-to-mouth route.<sup>18</sup> Three variations of the virus have been isolated, with type 1 infections accounting for nearly 80% of all paralytic cases.<sup>19</sup> And yet while highly contagious, an overwhelming majority of infections are asymptomatic, with 4 – 8% resulting in minor nonspecific symptoms (e.g. sore throat, fever, headache, vomiting, etc.) and paralysis occurring

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<sup>13</sup> Shah et al.: Resistance of polio to its eradication in Pakistan. *Virology Journal* 2011 8:457.

<sup>14</sup> Ganapathiraju, Pavan V., Christiaan B. Morssink, and James Plumb. "Endgame for Polio Eradication? Options for Overcoming Social and Political Factors in the Progress to Eradicating Polio." *Global Public Health* 10.4 (2015): 463-73.

<sup>15</sup> Ibid.

<sup>16</sup> Shah et al.: Resistance of polio to its eradication in Pakistan. *Virology Journal* 2011 8:457.

<sup>17</sup> Groce, Nora Ellen, Lena Morgon Banks, and Michael Ashley Stein. "Surviving Polio in a Post-polio World." *Social Science & Medicine* 107 (2014): 171-78.

<sup>18</sup> Nathanson, N., and O. M. Kew. "From Emergence to Eradication: The Epidemiology of Poliomyelitis Deconstructed." *American Journal of Epidemiology* 172.11 (2010): 1213-229.

<sup>19</sup> Ibid.

in roughly .5% of all cases.<sup>20</sup> This profile makes tracking and surveillance a particular challenge, as most of the infected population are merely carriers.

Historical record of the disease is largely incomplete, but there is convincing archaeological evidence that dates occurrence of polio-induced paralysis as far back as 1580 BCE.<sup>21</sup> This lack of millennia-old records is indicative of the disease's relative scarcity throughout antiquity. While documented cases certainly did occur, polio's apparent and distinct physical manifestations would suggest a volume of evidence given a ubiquitous presence. As it stands, polio has been a relative rarity throughout human existence.

That would all change in the late 19<sup>th</sup> century. Around 1880 several European countries and the United States began reporting cases of infantile paralysis.<sup>22</sup> Strikingly, the outbreaks occurred almost simultaneously in these disparate regions, with none reported throughout the rest of the world.<sup>23</sup> Nathanson and Kew suggest the reasoning for the outbreaks' geographic dispersion lie in the age of poliovirus infection. Poliovirus was so common in the pre-endemic era that infection would occur in most infants while they were still nursing, resulting in the presence of circulating antibodies passively granted through their mother's milk. While this immunity was not enough to prevent infection, it did afford a level of protection that prevented the invasion of the central nervous system, and thus the possibility of paralysis. As public sanitation levels improved, infection was delayed in some infants until after they had been weened, and the typically preexisting barrier had been removed.<sup>24</sup> The movement into an era of

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<sup>20</sup> Groce, Nora Ellen, Lena Morgon Banks, and Michael Ashley Stein. "Surviving Polio in a Post-polio World." *Social Science & Medicine* 107 (2014): 171-78.

<sup>21</sup> Ibid.

<sup>22</sup> Shah et al.: Resistance of polio to its eradication in Pakistan. *Virology Journal* 2011 8:457.

<sup>23</sup> Nathanson, N., and O. M. Kew. "From Emergence to Eradication: The Epidemiology of Poliomyelitis Deconstructed." *American Journal of Epidemiology* 172.11 (2010): 1213-229.

<sup>24</sup> Ibid.

global endemic polio was precipitated by rising levels of sanitation. Perhaps confirming this, as public health improved worldwide the infection spread, while the disease's age distribution also gradually increased; what had started as an affliction prone to infants had transitioned to the population's entire age spectrum.<sup>25</sup>

This trend would continue to build over the next seventy years, reaching a crescendo by 1954 when polio paralyzed or killed an estimated 500,000 people annually.<sup>26</sup> With a global population of roughly 2.8 billion at the time, polio directly touched the lives of some 18% of the world.<sup>27</sup> Considering that modern infections are symptomatic in less than 1% of cases<sup>28</sup>, before 1955 the entire world was statistically infected and the disease had reached pandemic proportions. Outbreaks followed an annual trend based on relative humidity. In the United States this was manifested in the summer season, when the humidity on average rose above 40% and the virus was able to survive for longer periods of time outside of human hosts.<sup>29</sup>

However, large-scale public organization via the March of Dimes and Rotary International would lead to an effective and safe injectable vaccine (IPV) produced by American physician Jonas Salk in 1955<sup>30</sup>, the rollout of which resulted in a precipitous drop in cases; from roughly 20,000 in 1955 in the United States to about 1,000 less than 10 years later.<sup>31</sup> Polish-born

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<sup>25</sup> Ibid.

<sup>26</sup> Ganapathiraju, Pavan V., Christiaan B. Morssink, and James Plumb. "Endgame for Polio Eradication? Options for Overcoming Social and Political Factors in the Progress to Eradicating Polio." *Global Public Health* 10.4 (2015): 463-73.

<sup>27</sup> "50 Facts: Global Health Situation and Trends 1955-2025." *World Health Report*. WHO, n.d. Web. 02 Jul. 2015.

<sup>28</sup> Groce, Nora Ellen, Lena Morgon Banks, and Michael Ashley Stein. "Surviving Polio in a Post-polio World." *Social Science & Medicine* 107 (2014): 171-78.

<sup>29</sup> Nathanson, N., and O. M. Kew. "From Emergence to Eradication: The Epidemiology of Poliomyelitis Deconstructed." *American Journal of Epidemiology* 172.11 (2010): 1213-229.

<sup>30</sup> Carapetis, Jonathan R. "The Cutter Incident: How America's First Polio Vaccine Led to the Growing Vaccine Crisis." *BMJ* 332.7543 (2006): 733. Web.

<sup>31</sup> Ganapathiraju, Pavan V., Christiaan B. Morssink, and James Plumb. "Endgame for Polio Eradication? Options for Overcoming Social and Political Factors in the Progress to Eradicating Polio." *Global Public Health* 10.4 (2015): 463-73.

American physician Albert Sabin would develop an oral vaccine (OPV) in 1963, which offered several advantages over the IPV and would become the weapon of choice in mass polio vaccination campaigns, due in large part to its ease of administration.<sup>32</sup>

Global cases would proceed to drop exponentially. Distribution started in the United States, with the goal of reducing paralytic cases.<sup>33</sup> The initial goal was reduction in paralytic cases, as previous immunization campaigns had shown significant difficulty in vaccinating beyond 80-90% of the population.<sup>34</sup> While slightly exceeding expectation, surveys conducted throughout the 1960's indicated a total coverage of only 90-95%, leading experts to believe poliovirus would circulate indefinitely.<sup>35</sup> However, a combination of herd immunity, and strategic planning of vaccination campaigns before and during the high transmission summer periods, led to the last case of wild poliovirus occurring in 1972, and complete eradication declared by 1979.<sup>36</sup>

Coordinated efforts by the Pan American Health Organization would lead to subsequent eradication in the Americas, as swaths of Europe elicited similar results.<sup>37</sup> The rousing success of these campaigns demonstrated the potential for global elimination of the disease, and inspired a call for large-scale coordination, leading eventually to the Global Polio Eradication Initiative (GPEI).<sup>38</sup>

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<sup>32</sup> Ibid.

<sup>33</sup> Nathanson, N., and O. M. Kew. "From Emergence to Eradication: The Epidemiology of Poliomyelitis Deconstructed." *American Journal of Epidemiology* 172.11 (2010): 1213-229.

<sup>34</sup> Ibid.

<sup>35</sup> Ibid.

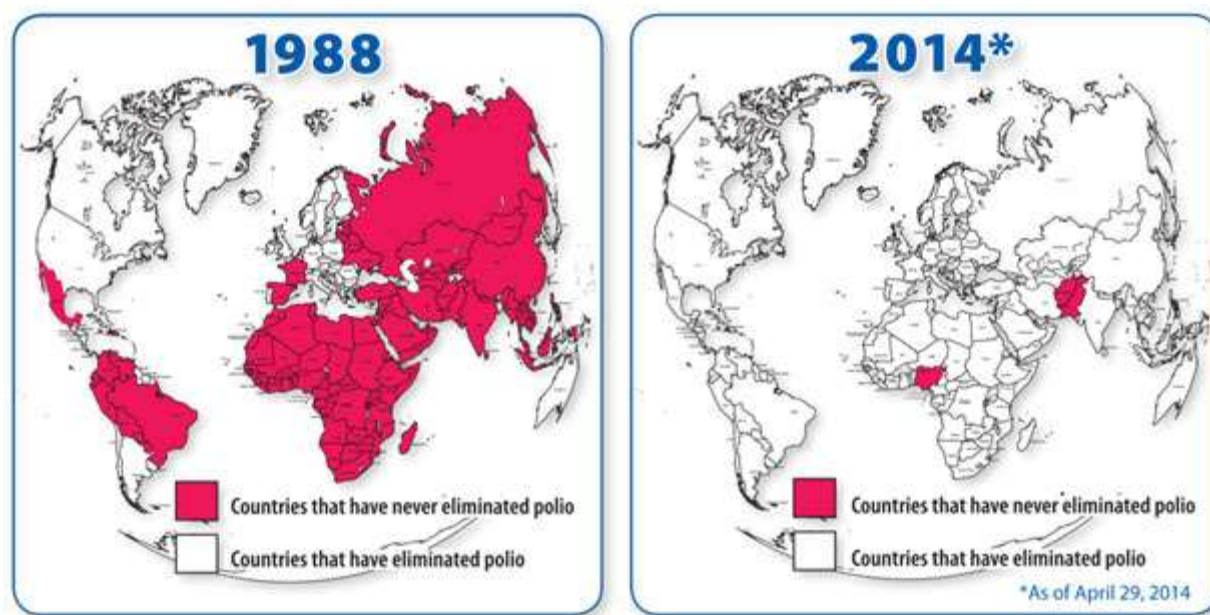
<sup>36</sup> Ganapathiraju, Pavan V., Christiaan B. Morssink, and James Plumb. "Endgame for Polio Eradication? Options for Overcoming Social and Political Factors in the Progress to Eradicating Polio." *Global Public Health* 10.4 (2015): 463-73.

<sup>37</sup> Nathanson, N., and O. M. Kew. "From Emergence to Eradication: The Epidemiology of Poliomyelitis Deconstructed." *American Journal of Epidemiology* 172.11 (2010): 1213-229.

<sup>38</sup> Ibid.

### *Global Polio Eradication Initiative*

The World Health Assembly, forum for the World Health Organization (WHO), met in May 1988 to ratify an agreement with the goal of ending polio by the year 2000.<sup>39</sup> Despite significant progress in much of the industrialized world, at the time there were an estimated 350,000 annual cases globally.<sup>40</sup> Though the target was not met, this innovative public-private partnership proved extremely effective<sup>41</sup>; reducing total cases by over 99% to less than 1,000 at the deadline.<sup>42</sup> (*figure 4*)



*Figure 4 – GPEI Progress, Source: CDC*

<sup>39</sup> Larson, Heidi J., and Zulfiqar A. Bhutta. "Security, Insecurity, and Health Workers." *JAMA Internal Medicine* 173.15 (2013): 1393.

<sup>40</sup> Ganapathiraju, Pavan V., Christiaan B. Morssink, and James Plumb. "Endgame for Polio Eradication? Options for Overcoming Social and Political Factors in the Progress to Eradicating Polio." *Global Public Health* 10.4 (2015): 463-73.

<sup>41</sup> Abimbola, Seye, Asmat Ullah Malik, and Ghulam Farooq Mansoor. "The Final Push for Polio Eradication: Addressing the Challenge of Violence in Afghanistan, Pakistan, and Nigeria." *PLoS Med PLoS Medicine* 10.10 2013.

<sup>42</sup> Nathanson, N., and O. M. Kew. "From Emergence to Eradication: The Epidemiology of Poliomyelitis Deconstructed." *American Journal of Epidemiology* 172.11 (2010): 1213-229.



Plans would be re-drawn, with the enactment of an initial five-year extension and subsequent follow-on plans.<sup>43</sup> By 2012 there were a reported 223 cases worldwide, marking the lowest number ever recorded.<sup>44</sup> Yet getting to zero has continued to present a problem. With confirmed eradication in India in 2012<sup>45</sup>, three endemic countries remained: Afghanistan, Nigeria and Pakistan.<sup>46</sup>

### *Current Infections*

Endemic countries are not the only ones where infections occur, rather they are those that have never interrupted the circulation and transmission of wild poliovirus.<sup>47</sup> In 2014, cases were reported in Cameroon, Equatorial Guinea, Ethiopia, Iraq and Syria.<sup>48</sup> Similarly, surveillance of sewage systems has detected the virus in Egypt, Israel and France.<sup>49</sup> It is important to note that the issue is increasingly global, and not merely a problem in endemic countries.

These small, one-off infections are reliant upon the larger endemic outbreaks that act as reservoirs for the virus, and each infection holds the potential for driving a disease resurgence in both resource-poor environments, as well as affluent regions that have begun to lapse in their immunization efforts. Cross-border importations have become of such concern that the Director-

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<sup>43</sup> Ganapathiraju, Pavan V., Christiaan B. Morssink, and James Plumb. "Endgame for Polio Eradication? Options for Overcoming Social and Political Factors in the Progress to Eradicating Polio." *Global Public Health* 10.4 (2015): 463-73.

<sup>44</sup> Larson, Heidi J., and Zulfiqar A. Bhutta. "Security, Insecurity, and Health Workers." *JAMA Internal Medicine* 173.15 (2013): 1393.

<sup>45</sup> Chatterjee, Animesh, Sanjukta Vidyant, and Tapan N. Dhole. "Polio Eradication in India: Progress, but Environmental Surveillance and Vigilance Still Needed." *Vaccine* 31.9 (2013): 1268-275.

<sup>46</sup> Larson, Heidi J., and Zulfiqar A. Bhutta. "Security, Insecurity, and Health Workers." *JAMA Internal Medicine* 173.15 (2013): 1393.

<sup>47</sup> Kew, Olen. "Reaching the Last One per Cent: Progress and Challenges in Global Polio Eradication." *Current Opinion in Virology* 2.2 (2012): 188-98.

<sup>48</sup> Ganapathiraju, Pavan V., Christiaan B. Morssink, and James Plumb. "Endgame for Polio Eradication? Options for Overcoming Social and Political Factors in the Progress to Eradicating Polio." *Global Public Health* 10.4 (2015): 463-73.

<sup>49</sup> Bhutta, Zulfiqar A. "Conflict and Polio." *JAMA* 310.9 (2013): 905.

General of the WHO, Margaret Chan, declared the international spread of polio a public health emergency on 5 May 2014.<sup>50</sup> Current estimates project an estimated 665 exportations per year from the existing reservoirs; nearly 80% of which would come from Pakistan.<sup>51</sup>

Among endemic countries, Nigeria has recently passed the milestone for eradication.<sup>52</sup> With Afghanistan and Pakistan operating as a single epidemiological block, the world's attention has effectively turned to the region.<sup>53</sup> The two "repeatedly re-infect one another, with Afghanistan appearing to receive a higher share of the poliovirus importations".<sup>54</sup>

### *Polio in Pakistan Today*

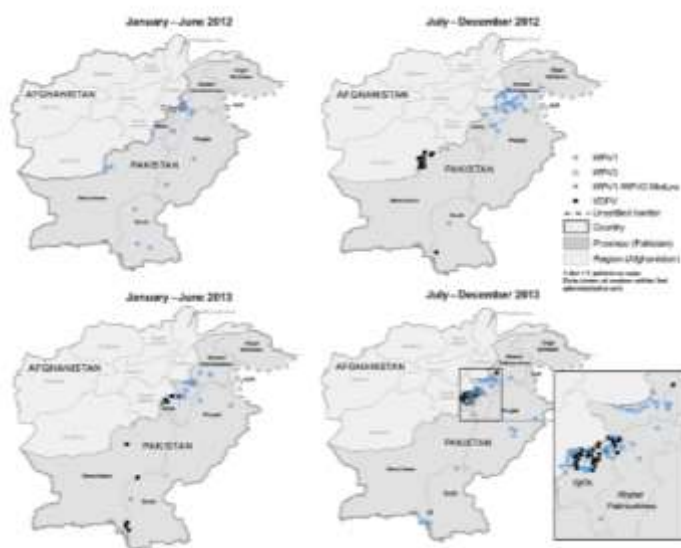


Figure 5 – Cases of wild poliovirus types 1 (WPV1), 3 (WPV3), and 1 and 3 (WPV1/WPV3), and circulating vaccine-derived poliovirus type 2 (cVDPV2) – Pakistan, 2012–2013. Data current as of 4

<sup>50</sup> Wilder-Smith, Annelies, et al. "Potential for International Spread of Wild Poliovirus via Travelers." *BMC Medicine BMC Med* 13.1 (2015). Web.

<sup>51</sup> Ibid.

<sup>52</sup> "Nigeria Marks a Year without Polio, with Hopes High for Eradication from Africa." *The Guardian*. Reuters, 24 July 2015. Web. 1 Aug. 2015.

<sup>53</sup> Angez et al.: Genetic relationships and epidemiological links between wild type 1 poliovirus isolates in Pakistan and Afghanistan. *Virology Journal* 2012 9:51.

<sup>54</sup> Larson, Heidi J., and Zulfiqar A. Bhutta. "Security, Insecurity, and Health Workers." *JAMA Internal Medicine* 173.15 (2013): 1393.

*February 2014. Each dot represents 1 poliovirus case. Dots are drawn at random within districts.  
Source: Alexander, et al.*

The size of the polio reservoir centered now on Pakistan has been greatly reduced, with a pre-GPEI spread covering Iran, the Gulf States, Malaysia, and Albania.<sup>55</sup> Yet while a majority of people in endemic countries have been vaccinated, overall control of the threat remains an issue.<sup>56</sup> While outbreaks throughout most of Afghanistan have been regularly controlled, the insecure regions along the Pakistan border to the south continue to see significant cases.<sup>57</sup> Northern Punjab province in Pakistan is regularly reseeded by KPK and FATA, with additional cases popping up in Sindh Province's capital city of Karachi, the second largest city in the world.<sup>58</sup>

Epidemiologically, there are a number of likely outcomes from this sustained threat. Continued spillover infections outside of the zone will continue. In addition to the aforementioned movement through Syria and Iraq, recent spillover infections have been detected in China in 2011 and Egypt in 2013.<sup>59</sup> The Syrian refugee crisis threatens Europe. Annually, the Muslim Hajj pilgrimage, which draws significant numbers of Pakistanis, has sparked such a fear that Saudi officials have begun implementing mandatory vaccination programs for Pakistan's pilgrims.<sup>60,61</sup>

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<sup>55</sup> Kew, Olen. "Reaching the Last One per Cent: Progress and Challenges in Global Polio Eradication." *Current Opinion in Virology* 2.2 (2012): 188-98.

<sup>56</sup> Abimbola, Seye, Asmat Ullah Malik, and Ghulam Farooq Mansoor. "The Final Push for Polio Eradication: Addressing the Challenge of Violence in Afghanistan, Pakistan, and Nigeria." *PLoS Med PLoS Medicine* 10.10 2013.

<sup>57</sup> Nathanson, N., and O. M. Kew. "From Emergence to Eradication: The Epidemiology of Poliomyelitis Deconstructed." *American Journal of Epidemiology* 172.11 (2010): 1213-229.

<sup>58</sup> Ibid.

<sup>59</sup> Nasir, H. "Polio and Politics in Pakistan." *Archives of Disease in Childhood* 98.5 (2013): 392-93.

<sup>60</sup> Ibid.

<sup>61</sup> Ahmed, Qanta A., Sania Nishtar, and Ziad A. Memish. "Poliomyelitis in Pakistan: Time for the Muslim World to Step in." *The Lancet* 381.9877 (2013): 1521-523.

The long-term continued floundering of immunization programs has multiple negative consequences. First, it contributes to feelings of disillusionment among marginalized populations via “polio fatigue”, whereby people begin to question the reality of a threat when there have been few tangible benefits are presented over the course of a sustained campaign.<sup>62</sup> Arguably more dangerous is the possibility of vaccine derived polio virus (VDPV). This condition occurs in situations with poor sanitation and intermittent local vaccine coverage, specifically when treating with OPV.<sup>63</sup> In environments with high residual levels of waterborne diarrheal disease the efficacy of the OPV method is compromised, and requires a full three doses over a period of months to ensure immunity.<sup>64</sup> The vaccine acts by replicating low levels of polio in the intestines to build resistance. During this process, virus is excreted. Live poliovirus can easily enter water systems in situations with poor sanitation in this way, leading to further infections and making an overall outbreak exponentially more difficult to track.<sup>65</sup>

Beyond the humanitarian and moral rationale for addressing the continued failures of addressing the endemic, there are very tangible reasons for doing so. Financially, maintaining the current levels of polio costs significantly more than projections for ongoing maintenance post-eradication.<sup>66</sup> The current strategic plan for eradication by the WHO has allotted US\$1.15 billion for efforts in the year 2014.<sup>67</sup> Moreover, there is significant evidence to suggest a causal

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<sup>62</sup> Bhutta, Zulfiqar A. "Conflict and Polio." *JAMA* 310.9 (2013): 905.

<sup>63</sup> Nathanson, N., and O. M. Kew. "From Emergence to Eradication: The Epidemiology of Poliomyelitis Deconstructed." *American Journal of Epidemiology* 172.11 (2010): 1213-229.

<sup>64</sup> Ibid.

<sup>65</sup> Bhatnagar, Nidhi, Manoj Grover, Smita Sinha, and Ravneet Kaur. "Poliomyelitis Eradication: Rhetoric or Reality." *Asian Pacific Journal of Tropical Disease* 3.3 (2013): 240-41.

<sup>66</sup> Nathanson, N., and O. M. Kew. "From Emergence to Eradication: The Epidemiology of Poliomyelitis Deconstructed." *American Journal of Epidemiology* 172.11 (2010): 1213-229.

<sup>67</sup> World Health Organization. Global Polio Eradication Initiative. *Financial Resource Requirements 2013-2018*. Geneva: WHO, 2013. Print.

linkage between disease burden and intrastate conflict.<sup>68</sup> Poor health outcomes breed malcontent, leading to conflict, resulting in destruction of infrastructure, which exacerbates poor health outcomes and feeds the cycle. Polio eradication within the region would significantly reduce disease burden, leading to decreased likelihood of continued armed conflict.<sup>69</sup>

And yet this problem is logistically solvable. Effective vaccines are available, at low cost, with interested parties dedicated to the issue. Previous examples exist, with nearly sixty years of experience implementing campaigns. The failure to eliminate polio is not a result of deficiencies in technology, research, or dedication. Ultimately, the failure in Pakistan is due to a confluence of reasons: cultural, religious, political, militancy and a lack of trust in anti-polio campaigns.<sup>70</sup> Each of these aspects will be discussed further in subsequent sections.

Particularly harrowing are the recent armed conflict dimensions of polio. Calculated terror campaigns and assassinations have been conducted against vaccination workers in KPK and FATA.<sup>71</sup> This shift has been attributed to the widely reported use of a fake vaccination campaign as part of the U.S. operation to kill Osama bin Laden.<sup>72</sup> Though initially directed towards workers associated with foreign organizations, attention has been turned to the Lady Health Worker (LHW) Program, an over twenty-year old initiative run by the Ministry of Health (MOH) that uses women to perform door-to-door health care delivery.<sup>73</sup> Integrating these women into the immunization program was a deliberate action of the Government of Pakistan

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<sup>68</sup> Letendre, Kenneth, Corey L. Fincher, and Randy Thornhill. "Does Infectious Disease Cause Global Variation in the Frequency of Intrastate Armed Conflict and Civil War?" *Biological Reviews* (2010): 669-83.

<sup>69</sup> Nathanson, N., and O. M. Kew. "From Emergence to Eradication: The Epidemiology of Poliomyelitis Deconstructed." *American Journal of Epidemiology* 172.11 (2010): 1213-229.

<sup>70</sup> Hadi, Yousaf Bashir, and Abdul Malik Amir Hamza Sohail. "Pakistan: The Nidus for Global Polio Re-emergence?" *Journal of Infection and Public Health* 8.2 (2015): 214-15.

<sup>71</sup> Roberts, Leslie. "Killings Force Rethinking of Pakistan's Anti-Polio Drive." *Science* 339.6117 (2013): 259-60.

<sup>72</sup> Robbins, Anthony. "The CIA's Vaccination Ruse." *Journal of Public Health Policy* 33.4 (2012): 387-89.

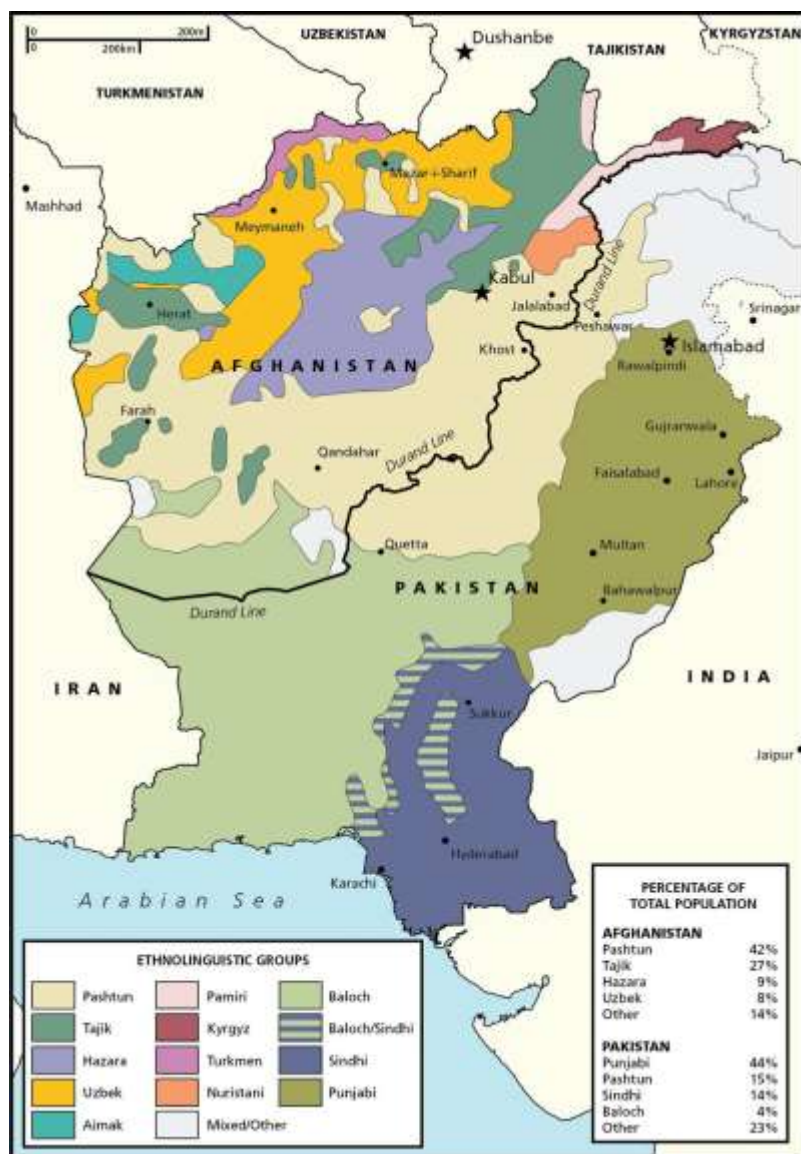
<sup>73</sup> Closser, Svea, and Rashid Jooma. "Why We Must Provide Better Support for Pakistan's Female Frontline Health Workers." *PLoS Med PLoS Medicine* 10.10 (2013).

(GOP) taken to counter the vaccination hurdles. The subsequent targeted killing of women signaled an escalation in the crisis. Subsequent retaliatory large-scale military operations by the Pakistani military are cause for further alarm, as infected internally displaced persons (IDPs) and refugees scatter before the offensive.<sup>74</sup>

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<sup>74</sup> Shah, Saeed. "Pakistan Military Offensive Poses New Perils in Country's Polio Crisis." *The Wall Street Journal*, 22 June 2014. Web. 14 June 2015.

## Part II: Ethno, Religious and Social Tension



*All the classic ingredients for strife are there. Some ten million Pathans live in a rugged and remote rectangle of perhaps 100,000 square miles which straddles the international boundary between Pakistan and Afghanistan. They are warrior tribesmen bound together by a common language and literature, an ancient and well-defined code of honor, and a superb contempt for all peoples outside their own highly developed clan system. To a man, they are orthodox and militant followers of Islam.*

- James W. Spain

*The Pathan Borderlands*  
1961

Figure 6 – Ethnic makeup of Afghanistan and Pakistan. Source: Brown University, The Choices Program

### Introduction

Social tension has been a longstanding fixture of the region upon which the last standing reservoir of WPV sits. The Durand line, which forms the border between the two countries,

divides the homeland of the Pashtuns, a linguistically-defined ethnic group living throughout the mountains (and variably known as Pathans or Pakhtuns) (*see figure 6*). The group is further divided into tribes, which among others includes: the Mohmands, Wazirs, Afridis, and Mahsuds.<sup>75</sup> Historically, these groups have largely been granted autonomy, not from any moral or governance foundation, but rather a sense of practicality. As former U.S. Ambassador to Pakistan, James W. Spain suggests, "...the neighboring governments have never been able fully to extend effective administration in their territories up to the Durand line."<sup>76</sup> While not homogenous, many of the individual tribes for their part have shown little affinity for the central governments of their respective states, and have at times profited by playing one country against the other.<sup>77</sup>

Throughout the colonial era, Afghanistan would be designated a "buffer state" between the British and Russian empires; a status it would retain into the modern era.<sup>78</sup> In 1979, the pro-Soviet Afghan regime would request the assistance of the U.S.S.R., precipitating a Soviet invasion and war.<sup>79</sup> While those events are well documented, here we will focus on the particular aspects of this modern period which bare consequence for a continued lack of social cohesion, and how they have contributed to policy divisions amongst what would otherwise be analogous groups.

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<sup>75</sup> Spain, James W. "The Pathan Borderlands." *Middle East Journal* 15.2 (1961): 165-77. Web. 01 Aug. 2015.

<sup>76</sup> Ibid.

<sup>77</sup> Ibid.

<sup>78</sup> Ibid.

<sup>79</sup> Bhutta, Z. A. "Children of War: The Real Casualties of the Afghan Conflict." *BMJ* 324.7333 (2002): 349-52.



### *Mujahedeen and the Afghan Taliban*

The Soviet invasion signaled a turning point in Afghan history. One of the largest humanitarian crises of the 20<sup>th</sup> century would see over five million refugees crossing to both Pakistan and Iran, while another two million were displaced internally.<sup>80</sup> A majority of the refugees would continue to live in camps or squatter settlements in their respective host countries for nearly another two decades. The influx of nearly a million people into Peshawar alone would completely change the social and economic fabric of the city.<sup>81</sup>

The rise of militant Islam in Afghanistan largely began in the 1980s as response to the invasion.<sup>82</sup> Proxy war was not a new concept; the Pakistani government had made use of tribal Pashtun forces in 1947 during clashes with India surrounding the partition of the Subcontinent. Decades later, they would be used as proxies again when the Pakistani Inter-Services Intelligence (ISI) and U.S. Central Intelligence Agency (CIA) conducted joint Operation Cyclone.<sup>83</sup> With an aim “to train and equip non-state actors for jihad against the Soviets”, ISI setup a network of support bases throughout the region to funnel Saudi money and U.S. money, arms and training to “jihadi-volunteer recruits from throughout the world”.<sup>84</sup> At the time, Pakistan was ruled by President Zia ul Haq, who insisted ISI act as the conduit of U.S. support to the groups that would begin to collectively be referred to as the Mujahedeen. This measure would prevent direct CIA

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<sup>80</sup> Miller LC, et al. “Afghan refugee children and mothers.” *Archives of Pediatric and Adolescent Medicine* 1994;148:704-8.

<sup>81</sup> Bhutta, Z. A. "Children of War: The Real Casualties of the Afghan Conflict." *BMJ* 324.7333 (2002): 349-52.

<sup>82</sup> Williams, Brian Glyn. "Talibanistan: History of a Transnational Terrorist Sanctuary." *Civil Wars* 10.1 (2008): 40-59.

<sup>83</sup> Ibid.

<sup>84</sup> Ibid.

control, and ensure continued, though at times strained, ties with ISI. The Americans were too happy to comply; the fight had attracted global fanatics, many of whom viewed Westerners as infidels. This physical network would continue to operate after the eventual Soviet withdrawal, changing hands several times, and only being dismantled in 2002.<sup>85</sup>

The nearly ten year war would take a massive toll on the civilian population. While significant sums of humanitarian aid flowed in, it was largely aimed at and diverted towards supporting the Mujahedeen, who for their own part also paid massive prices in death and disability.<sup>86</sup> Yet the end of the war with the Soviets would bring little reprieve, as societal breakdown over the course of the engagement unsurprisingly resulted in ensuing civil war amongst the Afghan factions. Further, ISI would continue to use the network to recruit, train and move soldiers for their purposes. Throughout the 1990's, jihadi fighters would be funneled to Kashmir, facing off against Pakistan's Indian adversaries for control of the region.<sup>87</sup>

And though recruitment of foreign fighters, through organizations like al-Qaeda, was a large piece of keeping this system running, the years of sustained warfare had introduced means of a more local recruitment.<sup>88</sup> Large refugee populations from the Soviet-Afghan War would continue to live in Pakistan, where lack of state spending on education and health further marginalized these populations.<sup>89</sup> Reductions in foreign development assistance had been

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<sup>85</sup> Ibid.

<sup>86</sup> Bhutta, Z. A. "Children of War: The Real Casualties of the Afghan Conflict." *BMJ* 324.7333 (2002): 349-52.

<sup>87</sup> Williams, Brian Glyn. "Talibanistan: History of a Transnational Terrorist Sanctuary." *Civil Wars* 10.1 (2008): 40-59.

<sup>88</sup> Ibid.

<sup>89</sup> Bhutta, Z. A. "Children of War: The Real Casualties of the Afghan Conflict." *BMJ* 324.7333 (2002): 349-52.

reduced in 1993, and by the time of Pakistan's nuclear tests in 1998 they were completely stopped, and most Western countries imposed economic sanctions.<sup>90</sup> The result was further domestic cuts on social services.

Into this void stepped the madrassahs. These local seminaries ran on private funding and offered free education, clothing and board to poor families.<sup>91</sup> By the early 1990's Afghan children and orphans were being sent to Pakistani madrassahs in the hope of a better life.<sup>92</sup> These schools would quickly become incubators for radical Islamic terrorism<sup>93</sup>, and their diaspora of graduates would span both sides of the Afghanistan/Pakistan border.<sup>94</sup> In Afghanistan, this large disaffected and radicalized population of war children would coalesce under the banner of Mullah Umar, sweeping to power in a chaotic multi-power civil war, and gaining initial widespread public support as a stabilizing force.<sup>95</sup>

Though this support would wane with the enactment of increasingly draconian policies, it is important to emphasize the root causes of the Taliban movement. Jihadism and sectarian violence throughout the region are rooted in the Afghan jihad.<sup>96</sup> The movement was fomented by the support of multiple foreign powers and movements, the ties to which are still propagated today.

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<sup>90</sup> Ibid.

<sup>91</sup> Ibid.

<sup>92</sup> Ibid.

<sup>93</sup> Williams, Brian Glyn. "Talibanistan: History of a Transnational Terrorist Sanctuary." *Civil Wars* 10.1 (2008): 40-59.

<sup>94</sup> Bhutta, Z. A. "Children of War: The Real Casualties of the Afghan Conflict." *BMJ* 324.7333 (2002): 349-52.

<sup>95</sup> Ibid.

<sup>96</sup> Shehzad, Mohammad. "The State of Islamic Radicalism in Pakistan." *Strategic Analysis* 37.2 (2013): 186-92.

### *Tehrik-i-Taliban*

With the events of 9/11 and the outset of the Global War on Terror (GWOT), a NATO-led mission would be inserted into Afghanistan with the aim of dismantling the apparatus used to plan and implement the terrorist attacks on the U.S. While those events are well documented, our aim here is to discuss the formation of Tehrik-i-Taliban (TTP), or the Pakistani Taliban, as they are responsible for systemic and widespread attacks on polio vaccination workers, the focus of this paper.

The TTP's larger history can be traced to the same previously discussed forces that lead to the rise of the Afghan Taliban, and any number of other radical Islamist groups throughout the region.<sup>97</sup> The nature of such groups throughout the region can be fluid; each with differing priorities that can lead to shifting allegiances. The TTP itself was an amalgamation of previously autonomous groups, whose membership and leadership had all deeply been involved in militant efforts against the US-NATO invasion forces that entered Afghanistan in 2002.<sup>98</sup>

While the 9/11 attacks were a watershed moment, causing shifts in a variety of arenas around the globe, one little discussed byproduct of the events was the outward realignment of Pakistani military priorities. As ISI agents and handlers continued to operate throughout the region, facilitating and providing support for the paramilitary groups it had long fostered, interacting with jihadi groups and attending war councils<sup>99</sup>, the military would begin to verbally

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<sup>97</sup> Mustafa, Daanish, Katherine E. Brown, and Matthew Tillotson. "Antipode to Terror: Spaces of Performative Politics." *Antipode* 45.5 (2013): 1110-127.

<sup>98</sup> Ibid.

<sup>99</sup> Williams, Brian Glyn. "Talibanistan: History of a Transnational Terrorist Sanctuary." *Civil Wars* 10.1 (2008): 40-59.

align with the GWOT's overarching imperatives, namely the rooting out of radical terrorist networks.<sup>100</sup> At the time they had little choice to do otherwise, but this invariably caused a schism between the Pakistani state and the paramilitary groups it had long fostered in an effort to increase their own strategic depth to the north.

Mistrust would continue to build on both sides, and by 2006 TTP pre-cursor groups had begun fomenting distrust of government initiatives via illegal FM radio transmission throughout the Swat Valley and Malakand regions.<sup>101</sup> This would coalesce the following year into the formal formation of the TTP, from thirteen autonomous militant factions.<sup>102</sup> Their stated aims revolved around governance by a "pure" form of Islam, conducting a defensive jihad, providing support to al-Qaeda and waging war against non-Muslims.<sup>103</sup> These aims would manifest into concerted militant efforts against the military and other civilian targets within Pakistan, leading to what by some definitions could be considered a civil war between the military and its paramilitary forces.<sup>104</sup>

One unique facet of the TTP movement regionally was its declaration of vaccination as anti-Islamic.<sup>105</sup> Such declarations began in earnest around 2006.<sup>106</sup> Where they emerged from is

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<sup>100</sup> Mustafa, Daanish, Katherine E. Brown, and Matthew Tillotson. "Antipode to Terror: Spaces of Performative Politics." *Antipode* 45.5 (2013): 1110-127.

<sup>101</sup> Roul, Animesh. "The Pakistani Taliban's Campaign Against Polio Vaccination." *Combating Terrorism Center Sentinel* 7.8 (2014): 17-19.

<sup>102</sup> Mustafa, Daanish, Katherine E. Brown, and Matthew Tillotson. "Antipode to Terror: Spaces of Performative Politics." *Antipode* 45.5 (2013): 1110-127.

<sup>103</sup> Ibid.

<sup>104</sup> Ibid.

<sup>105</sup> Ahmed, Qanta A., Sania Nishtar, and Ziad A. Memish. "Poliomyelitis in Pakistan: Time for the Muslim World to Step in." *The Lancet* 381.9877 (2013): 1521-523.

<sup>106</sup>

debatable, and worthy of consideration due to the fact that this represented a significant policy shift from the TTP's regional contemporaries in al-Qaeda and the Afghan Taliban. Music that was not overtly religious, dance and religious festivals, television, female education, male shaving and thereby barber shops; these activities were unanimously decried as anti-Islamic within the region by all players.<sup>107</sup><sup>108</sup> Vaccination opposition, however, became the purview of the TTP. The rationale was largely rooted in the belief that it was an attack on population numbers, with TTP spokesman Muslim Khan quoted as saying, "the TTP is against polio vaccination because it causes infertility."<sup>109</sup>

While this was a new regional concept, it was not without precedent. Opposition to vaccination had become a hallmark of radical clerics in northern Nigeria as early as 2003, resulting in widespread polio vaccine boycotts.<sup>110</sup> Nigeria presents an interesting case as it too has had recent problems in controlling polio amidst a conflict environment exacerbated by Boko Haram, a militant faction using terrorist tactics to aspire to greater levels of political autonomy and control.<sup>111</sup> The Nigerian position was based upon a twofold argument: 1) vaccines were harmful to children, and 2) their distribution was part of a nefarious Western plot.<sup>112</sup> The vaccines were variably purported to be contaminated with HIV, carcinogenic agents, and notably

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<sup>107</sup> Roul, Animesh. "The Pakistani Taliban's Campaign Against Polio Vaccination." *Combating Terrorism Center Sentinel* 7.8 (2014): 17-19.

<sup>108</sup> Mustafa, Daanish, Katherine E. Brown, and Matthew Tillotson. "Antipode to Terror: Spaces of Performative Politics." *Antipode* 45.5 (2013): 1110-127.

<sup>109</sup> Roul, Animesh. "The Pakistani Taliban's Campaign Against Polio Vaccination." *Combating Terrorism Center Sentinel* 7.8 (2014): 17-19.

<sup>110</sup> Larson, Heidi J., and Zulfiqar A. Bhutta. "Security, Insecurity, and Health Workers." *JAMA Internal Medicine* 173.15 (2013): 1393.

<sup>111</sup> Ibid.

<sup>112</sup> Jegede, Ayodele Samuel. "What Led to the Nigerian Boycott of the Polio Vaccination Campaign?" *PLoS Medicine* 4.3 (2007): 0417-0422.

anti-fertility drugs, while rumors of a Western plot were rooted in local perceptions of the Iraq War.<sup>113</sup>

While cancer and HIV do not resonate with a Pakistani audience, due to low HIV incidence rates outside Africa and shorter life expectancies throughout the Afghanistan/Pakistan border which would suggest lower levels of cancer, fertility was an issue that could resonate in this new local. The timing of these events suggests a transfer of anti-vaccine ideology from Nigeria to Pakistan, likely via the internet, a medium that has previously acted as a repository accessed by “self-radicalized sympathizers”.<sup>114</sup> Notably, TTP spokesman Muslim Khan was quoted in 2009 as saying, “the TTP is against polio vaccination because it causes infertility.”<sup>115</sup> The concept of using the internet as a

In light of this, it is interesting to note the likely origin of the Nigerian vaccination infertility rumors. Historically, the Muslim regions of Nigeria have had both lower levels of access to primary healthcare services, as well as lower levels of use, leading to inherent suspicion.<sup>116</sup> But, the real issue was one of policy timing. In 1988 Nigerian President Babangida began promoting a four child policy, whereby each woman was encouraged to have a maximum of four children.<sup>117</sup> While the motives for this were arguably politically rooted, the timing of the

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<sup>113</sup> Ibid.

<sup>114</sup> Stenersen, Anne. "The Internet: A Virtual Training Camp?" *Terrorism and Political Violence* 20.2 (2008): 215-33. Web.

<sup>115</sup> Roul, Animesh. "The Pakistani Taliban's Campaign Against Polio Vaccination." *Combating Terrorism Center Sentinel* 7.8 (2014): 17-19.

<sup>116</sup> Jegede, Ayodele Samuel. "What Led to the Nigerian Boycott of the Polio Vaccination Campaign?" *PLoS Medicine* 4.3 (2007): 0417-0422.

<sup>117</sup> Mazrui, Ali Al'Amin., and Etin Anwar. "Islamic Doctrine and the Politics of Induced Fertility Change." *The Politics of Gender and the Culture of Sexuality: Western, Islamic, and African Perspectives*. Lanham, MD: U of America, 2014. 293-306.

announcement aligned with the outset of the GPEI. Immunization programs aggressively began combing through Nigeria, moving door-to-door delivering services which was a completely foreign concept without precedent.<sup>118</sup> Within this environment, the concept of polio immunization and birth control were obfuscated, those beliefs internalized and eventually exported.

### *Policy Divisions*

While there are notable tactical and legitimacy differences between the TTP and Afghan Taliban, the two groups share significant historical origins and are composed of nearly identical ethno-religious and socio-economic constituents. The gulf of the policy divide on polio vaccination is striking given these similarities. Policy has varied for both groups over the past decade, but the Afghan Taliban has generally cooperated on vaccination while the TTP's opposition has come to define their movement.

Opposition was galvanized across the region in 2012, a result of the CIA's reported use of a Hepatitis-B vaccination campaign to confirm the location of and subsequently kill Osama bin Laden (UBL).<sup>119</sup> The shift proved an aberration, however, as the Afghan Taliban would return to a pro-vaccination stance and signal cooperation with WHO initiatives by early 2014.<sup>120</sup>

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<sup>118</sup> Jegede, Ayodele Samuel. "What Led to the Nigerian Boycott of the Polio Vaccination Campaign?" *PLoS Medicine* 4.3 (2007): 0417-0422.

<sup>119</sup> Larson, Heidi J., and Zulfiqar A. Bhutta. "Security, Insecurity, and Health Workers." *JAMA Internal Medicine* 173.15 (2013): 1393.

<sup>120</sup> Babakarkhail, Zubair, and Dean Nelson. "Taliban Renounces War on Anti-polio Workers." *The Telegraph*. N.p., 13 May 2013. Web. 05 Oct. 2014.



Relevant aspects of the operation to kill UBL will be discussed in more depth in subsequent sections, but here we will explore dimensions of this policy division.

Historically, the Afghan Taliban has been actively cooperative on vaccination, and refusal rates throughout the country have correspondingly been low.<sup>121</sup> From their rise in 1995 until the US-led invasion in 2001, the Taliban supported the GPEI, while al-Qaeda showed no interest in the issue.<sup>122</sup> The importance of social welfare initiatives is not lost on the Afghan Taliban, and ensuring that such programs are conducted has become a key focus area. Outside of Kabul, in Kapsia province, Taliban members regularly visit health facilities to ensure staff are present and attending to patients.<sup>123</sup> Without a present governing authority, the Taliban have reinserted themselves in to public life; ensuring services are delivered and acting as an adjudicating presence. UNDP workers have cited the importance of their presence and attributed much of their success to the Taliban's presence.<sup>124</sup>

While the Afghan Taliban finds ways to project legitimacy via support for health and public welfare initiatives, the TTP is deeply passionate about vaccination obstruction. Though edicts (fatwa) against the practice began as early as 2006, violence accelerated in 2012. In December of 2012 a string of attacks occurred between Peshawar and Islamabad, with the aim of disrupting a national vaccination campaign. At least nine were killed, including five volunteer

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<sup>121</sup> Chang, April. "Eradicating Polio in Afghanistan and Pakistan." CSIS Global Health Policy Center (2012): Center for Strategic and International Studies, Aug. 2012.

<sup>122</sup> Abimbola, Seye, Asmat Ullah Malik, and Ghulam Farooq Mansoor. "The Final Push for Polio Eradication: Addressing the Challenge of Violence in Afghanistan, Pakistan, and Nigeria." PLoS Med PLoS Medicine 10.10 2013.

<sup>123</sup> Ibid.

<sup>124</sup> Ibid.

LHWs.<sup>125</sup> In October 2013 a medical camp outside Peshawar was attacked; casualties included health workers and security personnel, with at least seven killed.<sup>126</sup>

Initial attacks were characterized by use of small and light firearms. In the spring of 2014, operations were escalated with a string of bombings. In January 2014, a security team supporting vaccination campaigns was targeted, resulting in seven casualties.<sup>127</sup> Five pounds of explosive were attached to a bicycle and used to destroy the police vehicle moving the personnel.<sup>128</sup> In March of 2014, two separate blasts targeted local tribal militias providing security for vaccination activities, causing 11 casualties in KPK.<sup>129</sup>

From 2012, when the TTP reiterated its vaccination ban in the aftermath of the UBL operation, to mid-2014 at least 56 people have been killed by the TTP in these attacks, with the overwhelming majority consisting of LHWs.<sup>130</sup> The attacks have become increasingly targeted; characterized initially by disrupting announced vaccination campaigns and health camps, progressing to planned bombings, and reaching the abduction, torture and killing of individual anti-polio campaigners.<sup>131</sup>

This active campaign stands in stark contrast to the Afghan Taliban. Beyond the long history of vaccine cooperation, their brief instance of solidarity following the UBL operation in

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<sup>125</sup> Roul, Animesh. "The Pakistani Taliban's Campaign Against Polio Vaccination." *Combating Terrorism Center Sentinel* 7.8 (2014): 17-19.

<sup>126</sup> Ibid.

<sup>127</sup> Ibid.

<sup>128</sup> "Blast Targets Polio Security Team in Charsadda, Seven Killed." *Pakistan Today* [Lahore] 22 Jan. 2014.

<sup>129</sup> Roul, Animesh. "The Pakistani Taliban's Campaign Against Polio Vaccination." *Combating Terrorism Center Sentinel* 7.8 (2014): 17-19.

<sup>130</sup> Ibid.

<sup>131</sup> Ibid.

2012 was in word only. No confirmed case of an attack on vaccination efforts by the Afghan Taliban has been documented. An alleged case occurred in late 2012, when a young female health worker was killed while reporting on her first day, but no extremist group ever took credit and the local police investigation deemed the killing an accident as she was caught in the crossfire of an unrelated dispute.<sup>132</sup> This is not to preclude the group from specifically targeting women, or those associated with women's health issues, as the Afghan Taliban has clearly stated opposition to women leaving their homes, but rather there is a lack of evidence to suggest they are in any way anti-vaccination, or ever have been.<sup>133</sup>

The policy difference here is striking; presenting a potentially exploitable breach. The evidence seems to suggest that external interventions are significantly more tolerable to local populations when they have a say in their administration. Though perhaps not a revolutionary finding, it is worth noting that the region's inherent political tension has largely been a barrier to allowing such an approach.

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<sup>132</sup> Zucchino, David, and Hashmat Baktash. "Slaying of Afghan Polio Program Worker Raises Questions." Los Angeles Times 06 Dec. 2012.

<sup>133</sup> Zucchino, David, and Hashmat Baktash. "Prominent Female Official in Afghanistan Assassinated." Los Angeles Times 10 Dec. 2012.

## Part III: Political Discord

### *History of Pakistan*

The political history of Pakistan is a rich interwoven tapestry whose modern story is well documented. While reiterating each of those details is not our aim, an overview of foundational events will be presented here in order to elucidate the environment in which many of the more topically relevant issues have taken place over the last few decades. The ancient roots of Pakistan, the larger Indian subcontinent, and some of its modern day divisions are often attributed to the story of the Mughal Empire.<sup>134</sup>

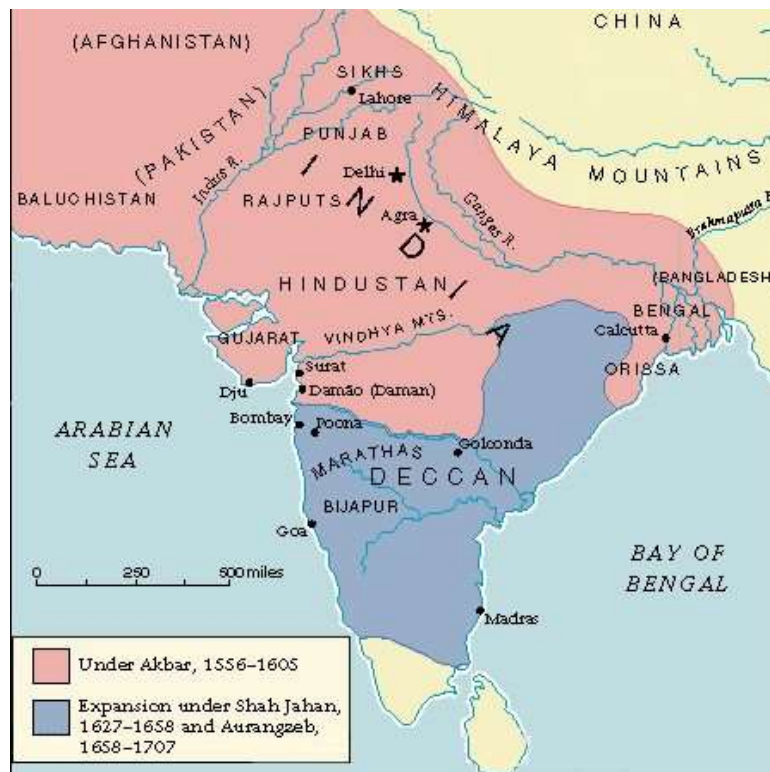


Figure 7 – Mughal Empire, <http://www.wwnorton.com/college/history/ralph/resource/mughal.htm>

<sup>134</sup> Mahmood, Safdar. *Pakistan: Political Roots and Development, 1947-1999*. Karachi: Oxford UP, 2000. Print.

By the middle of the sixteenth century the Indian subcontinent had little unified governing authority under a hodgepodge of ruling sultanates. Shifting political alignments in Central Asia pushed Babur of Ferghana to invade the region, coming from modern day Uzbekistan into Afghanistan and on to India.<sup>135</sup> His successors would continue to press into the subcontinent, eventually controlling the entire region and establishing an administrative dynasty that would rule for the next three centuries.<sup>136</sup> The Mughal Empire, as it would come to be known, notably expanded the reach of the Muslim religion, and would linguistically develop Urdu, combining elements of Persian, Arabic, Sanskrit, and other Central Asian languages.

Meanwhile, European influence would come to the subcontinent as traders searched for a means of undermining the Arab controlled overland trade along the Silk Road. Mughal officials pursued agreements with the English, French and Portuguese to allow their administration of coastal ports and facilitate European trade.<sup>137</sup> Over the next couple centuries, Mughal power would ebb while the British consolidated control of European trade and expanded their administrative power via the implementation of British law throughout growing settlements and factories built around the port cities.<sup>138</sup> Internal challenges to the Mughal increasingly grew, to which the forces of the British East India Company began to play a larger role. After a series of plots and counterplots, the British forces came to clash openly with the Mughals, eventually dealing a series of military defeats that would culminate in the 1764 Battle of Bixhar, and result

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<sup>135</sup> Blood, Peter R. *Pakistan: A Country Study*. Washington, D.C.: Federal Research Division, Library of Congress, 1995. Print.

<sup>136</sup> *Ibid.*

<sup>137</sup> *Ibid.*

<sup>138</sup> *Ibid.*

in the forced agreement by the Mughal Emperor to allow the company to serve as collector of tax and revenue, essentially ceding control of much of the Ganges Valley to the British.<sup>139</sup>

The British, for their part, pursued a two-part strategy. Where they were able to take direct military control of a region, they would do so. Not always possible given the region's expanse, they also established a system of local rulers to tend to internal affairs, reserving the management of revenue and foreign affairs. This policy created the Princely States, and established the maharaja as means of semi-autonomous local control.<sup>140</sup> By the start of the nineteenth century, much of present day Pakistan fell under the latter option, with modern day Sindh province ruled by Muslims, and modern day Punjab controlled by the Sikhs.<sup>141</sup>

Via the East India Company, the British would continue to push for further territorial expansion over the first three decades of the nineteenth century, moving militarily into the northeast and Afghanistan, as counter to Russian expansion by proxy in Central Asia.<sup>142</sup> While the entire history of this era is much more nuanced, an important distinction emerged: the British pursued an effective policy of managing all sides to their own ends. This was only possible as a result of the vast diversity of ethnic and religious groups. Contrary to modern narratives of a bipolar religious order across the subcontinent, multiple ethnic groups subscribed to multiple religions. For example, both the Jat and Rajput groups had adherents to Hinduism, Islam and Sikhism.<sup>143</sup> While power would eventually be ceded from the East India Company to the British

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<sup>139</sup> Ibid.

<sup>140</sup> Ibid.

<sup>141</sup> Ibid.

<sup>142</sup> Ibid.

<sup>143</sup> Mahmood, Safdar. *Pakistan: Political Roots and Development, 1947-1999*. Karachi: Oxford UP, 2000. Print.

Government, the strategy would prove effective and, with all due respect to the efforts of Mahatma Gandhi and his compatriots, the British were only forced to ultimately surrender control in the period after World War II when the overwhelming majority of European nations issued independence to their colonies.

While this is a gross oversimplification of a century's worth of political events, it would eventually lead to the partition of India and formation of the state of Pakistan in 1947. Historical rationale for the split varies. While it has widely been viewed as an inevitable necessity to ensure a secure Islamic homeland for the protection of the region's Muslim population<sup>144</sup>, it has also been suggested that the formation of Pakistan was the result of politician Muhammad Ali Jinnah's personal drive to unify a heterogeneous Muslim population while installing himself as "sole spokesman".<sup>145</sup> Invariably a large part of the logic of the argument was centered around linguistic and religious commonalities, as left over from the Mughal period.

Regardless of actual reason or intention, it has been observed that, "never before in South Asian history did so few divide so many..."<sup>146</sup> The partition was a humanitarian crisis of the first order. Communal rioting began after the announcement of impending partition, and massive populations shifted across a border that had yet to be concretely established.

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<sup>144</sup> Ibid.

<sup>145</sup> Jalal, Ayesha. *The Sole Spokesman: Jinnah, the Muslim League, and the Demand for Pakistan*. Cambridge: Cambridge UP, 1985. Print.

<sup>146</sup> Hasan, Mushirul. Introduction. *India's Partition: Process, Strategy, and Mobilization*. Delhi: Oxford UP, 1993. Print.

Conservative casualty estimates were placed at 250,000, while the number of refugees was placed somewhere between 12 – 24 million.<sup>147</sup>

The dominant Muslim political party at the time, The Muslim League, was ill prepared to govern. Its leaders were largely composed of urban professionals hailing from areas that had become a part of India. The area that would become modern-day Pakistan offered them little grassroots political support.<sup>148</sup> Further compounding hurdles of management and governance, the new country was initially composed of two non-adjoined regions, East and West Pakistan, which inhabit present day Bangladesh and Pakistan respectively.

The next six decades would be characterized by political turmoil, as initial failures to draft and enact a constitution in a meaningful amount of time would lead to cycles of military rule and tumultuous civilian led governments [for a truncated summary please review Exhibit 7]. Though this might be a gross simplification of the history of modern politics of Pakistan, it demonstrates an environment historically dominated by high politics, frequent military participation, and increasing use of religious overtones in an attempt to consolidated fractured constituencies.

As a “front-line” state in both the ancient and colonial worlds, unity rhetoric laid the foundation of modern Pakistan, but politically it was deeply rooted in division.<sup>149</sup> A two-nation

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<sup>147</sup> Blood, Peter R. *Pakistan: A Country Study*. Washington, D.C.: Federal Research Division, Library of Congress, 1995. Print.

<sup>148</sup> Ibid.

<sup>149</sup> Mustafa, Daanish, Katherine E. Brown, and Matthew Tillotson. "Antipode to Terror: Spaces of Performative Politics." *Antipode* 45.5 (2013): 1110-127.



theory justified partition with India, the immediate aftermath of which forced previously disparate Muslim groups to struggle to integrate. Instead of reprieve, independence brought further rioting and violence, as various minority groups would progressively be labelled “non-Muslim”. Among the first targeted, the Ahmadi Muslims would eventually have their “infidel status” decreed by constitutional amendment. Linguistic differences would subsequently precipitate the division with Bangladesh. Such foundational events would ferment a continuing sense of competitive radicalism.<sup>150</sup> The Zia regime would use these undercurrents to push for deeper levels of Islamic moral policing and foster the radicalization of groups to enforce those socio-religious tenants, all for nationalist ends.<sup>151</sup> Those groups, precursors to the TTP, would continue to declare other minority groups “infidel”, and begin using violence against them to varying degrees. Targets included the Shias, Barelvis and Bohris.<sup>152</sup> Division has been the modern Pakistani state’s unifying theme.

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<sup>150</sup> Shehzad, Mohammad. "The State of Islamic Radicalism in Pakistan." *Strategic Analysis* 37.2 (2013): 186-92.

<sup>151</sup> Mustafa, Daanish, Katherine E. Brown, and Matthew Tillotson. "Antipode to Terror: Spaces of Performative Politics." *Antipode* 45.5 (2013): 1110-127.

<sup>152</sup> Shehzad, Mohammad. "The State of Islamic Radicalism in Pakistan." *Strategic Analysis* 37.2 (2013): 186-92.

Figure 8 - Pakistani Heads of State

| <u>Period</u> | <u>Title</u>   | <u>Name</u>         | <u>Transition</u> | <u>Affiliation</u>                           | <u>Result</u>  |
|---------------|--|---------------------|-------------------|--|--|
| 1947-1948     | Governor General   | Muhammad Ali Jinnah | died in office    | Muslim League                                | no designated transition process   |
| 1948-1951     | Prime Minister   | Liaquat Ali Khan    | assassinated      | Muslim League                                | no government/constitution   |
| 1951-1955     | Governor General   | Ghulam Mohammad     | dismissed         | Civil Service                                | was in failing health; died a year later                                       |
| 1955-1958     | Major General, President                                   | Iksander Mirza      | coup d'état       | Military then Civil Service                  | exile  |
| 1958-1969     | General, President   | Ayub Khan           | coup d'état       | Pakistani Military                           | pressure to step down by civilian political opposition, led to ebbing of power |
| 1969-1971     | General  | Yahya Khan          | resigned          | Pakistani Military                           | stepped down following losing war with India over Bangladesh                   |
| 1971-1977     | President, Chief Martial Law Administrator, Prime Minister | Zulfiqar Ali Bhutto | coup d'état       | Civil Service, Pakistan People's Party (PPP) | hanged in 1979 by successor government   |
| 1977-1988     | General, President   | Muhammad Zia-ul-Haq | died in office    | Pakistani Military                           | died in an unresolved plane crash  |
| 1988-1990     | Prime Minister   | Benazir Bhutto      | dismissed         | PPP  | tension with Pres.Ghulam Ishaq Khan and corruption claims force her out        |
| 1990-1993     | Prime Minister   | Nawaz Sharif        | resigned          |  |  |

|               |                    |                     |                   | Islamic Democratic Alliance          | forced to resign following political stalemate with President Ghulam Ishaq Khan  |
|---------------|--------------------|---------------------|-------------------|--------------------------------------|--|
| <u>Period</u> | <u>Title</u>       | <u>Name</u>         | <u>Transition</u> | <u>Affiliation</u>                   | <u>Result</u>  |
| 1993-1996     | Prime Minister     | Benazir Bhutto      | dismissed         | PPP                                  | continued corruption charges led to self-exile; later assassinated at 2007 political rally   |
| 1997-1999     | Prime Minister     | Nawaz Sharif        | coup d'état       | Pakistan Muslim League Party         | sentenced to life in prison on terrorism charges, goes into exile  |
| 1999-2008     | General, President | Pervez Musharraf    | resigned          | Pakistani Military                   | facing impeachment proceedings from a unified political opposition he stepped down, went into exile, returned to stand election, and is currently under house arrest |
| 2008-2012     | Prime Minister     | Yousaf Raza Gillani | disqualified      | PPP                                  | contentious Supreme Court relations eventually led to his ouster by the Court on corruption charges  |
| 2012-2013     | Prime Minister     | Raja Pervaiz Ashraf | lost elections    | PPP                                  | caretaker  |
| 2013-present  | Prime Minister     | Nawaz Sharif        |                   | Pakistan Muslim League (Nawaz) Party |  |

\* from Peter Blood's *Pakistan: A Country Study*

\* shaded rows indicate military rule; row size represents tenure

### *Political Ostracism*

Distrust and ostracism are common byproducts of division. As groups are parsed further, invariably larger and larger swaths of the whole are sidelined, leading generally to unstable periods of shifting allegiance and ultimately deterioration of the state's overall capacity. As we have seen, the historical roots for this concept in Pakistan have been well laid. The domestic and transnational consequences, in relation to our focus on the polio problem, are best exemplified by two stories: the traditional marginalization of ethnic groups along the Afghan border (those in Baluchistan and KPK), and the rise of the madrassas.

Several previously noted factors combined to contribute to marginalization. First, the division between Afghanistan and India along the Durand Line arbitrarily split residual ethnic groups. The subsequent partition with India then displaced millions of people; pushing foreign Muslims into the space that became Pakistan, who would settle largely throughout the Indus Valley regions.

In the northwest, ethnic Pashtuns were largely left to their own devices. Not receiving any level of political participation, nor desiring it, the people of FATA and KPK continued to manage their own affairs in a quasi-fiefdom until being operationalized by the ISI and Operation Cyclone in the 1980's. In the more recent stages of the GWOT, these regions have come under significant US-led drone attack as response to the continued operation of training networks for Islamic radicals. The response has been a call for increased political power by leveraging military capabilities against a variety of soft and hard targets throughout Pakistan.<sup>153</sup>

In the southwest, the province of Baluchistan had similar experiences. Since independence, the region has recorded the lowest literacy rates, and lowest levels of representation in both government bureaucracy and the military.<sup>154</sup> Economic development in the region has been comparatively limited, and that which does exist has been largely controlled by the military, either via construction of military installations or the contracting of large-scale infrastructure projects by firms founded by retired military officers, who are not ethnically

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<sup>153</sup> Adeney, Katharine. "The Limitations of Non-consociational Federalism: The Example of Pakistan." *Ethnopolitics* 8.1 (2009): 87-106. Web.

<sup>154</sup> Ibid.

Baluchi.<sup>155</sup> Unsurprisingly, this pattern of marginalization has resulted in a number of separatist and Baluchi nationalist movements. There have been at least five insurgencies since independence, the first of which came in 1948, immediately following the partition with India, and the most recent of which is currently ongoing after a 2003 start.<sup>156</sup>

This level of political ostracism would contribute to a number of feedback mechanisms that would reinforce perceptions of economic and social inequality throughout the western regions of the country, arguably the most prominent of which would be the rise of the madrassas. A confluence of events contributed to these “religious schools largely run as seminaries and funded by private organizations” filling a vacuum in social services.<sup>157</sup>

Political power had always been highly centralized in Pakistan, and the military coup that brought General Muhammad Zia-ul-Haq to power in 1977 saw a continuation of this trend. Military rule would gradually lead to increased corruption and atrophy of the underpinnings of the economy, the effects of which were at the time largely mitigated. With the onset of the Afghan-Soviet War in the 1980’s, significant influxes of foreign developmental assistance from the West were pouring in to support the country’s central role in training and funneling resources to the mujahedeen along the borderlands with Afghanistan. The infusion disguised underlying economic problems that would become more apparent as funding levels dried up following the

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<sup>155</sup> Ibid.

<sup>156</sup> Hussain, Zahid. "The Battle for Balochistan." *Dawn* [Karachi] 25 Apr. 2013: n. pag. 25 Apr. 2013. Web. 23 June 2015.

<sup>157</sup> Bhutta, Z. A. "Children of War: The Real Casualties of the Afghan Conflict." *BMJ* 324.7333 (2002): 349-52.

end of the War, the fall of Communist Russia, and a growing anti-Western sentiment fermented by radical Islamic ideologies.<sup>158</sup>

By 1993 the United States would greatly reduce their assistance levels, as structural adjustments imposed by the IMF were further tightening the economy.<sup>159</sup> At the same time, the 1990's saw an increased push for an operational nuclear weapons program, the attainment of which had been embedded in the Pakistani consciousness for decades. In 1966 Foreign Minister and future Prime Minister Zulfikar Ali Bhutto would declare that if India obtained the bomb, then "even if Pakistanis have to eat grass, we will make the bomb."<sup>160</sup> This sentiment would be echoed by the Zia regime until his 1988 death in a plane crash and the banner subsequently taken up by Zulfikar's daughter Benazir Bhutto in her role as Prime Minister. By 1998 Pakistan would successfully test a nuclear device, and Zulfikar's claims would prove prophetic. In response to the test all remaining development assistance was halted and the country was put under crippling international economic sanctions.<sup>161</sup>

In practice these sanctions would result in drastic cuts to the health and education sectors, as the government tried to maintain defense funding. Especially hard felt in already marginalized regions, the cuts brought a boom to the madrassas. These schools were initially rare, with estimates placing their number as low as 700 at the end of the Cold War.<sup>162</sup> By 2002

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<sup>158</sup> Ibid.

<sup>159</sup> Ibid.

<sup>160</sup> Ahmed, Samina. "Pakistan's Nuclear Weapons Program: Turning Points and Nuclear Choices." *International Security* 23.4 (1999): 178-204.

<sup>161</sup> Bhutta, Z. A. "Children of War: The Real Casualties of the Afghan Conflict." *BMJ* 324.7333 (2002): 349-52.

<sup>162</sup> Williams, Brian Glyn. "Talibanistan: History of a Transnational Terrorist Sanctuary." *Civil Wars* 10.1 (2008): 40-59.

there were an estimated 39,000.<sup>163</sup> The aim of an overwhelming majority of these institutions was to service poor families by offering measured educational promise to their children. They became common destinations for the children of Afghan refugees and poor Pakistanis alike. They also became common conduits for indoctrination of more radical versions of Islam, and a small minority became fertile recruitment grounds for fighters. All of these events led to a generation of indoctrinated youth that now moves freely across the Durand line, and provided the basis for the rise of the Taliban.<sup>164</sup>

#### *Musharraf, 9/11, Devolution and the Bargaining Chip of UBL*

General Pervez Musharraf's rise to head of state, and its corresponding ripples, would have fundamental effects on civil-military relations in Pakistan, the GWOT, and the agency of the state to respond to humanitarian crises such as the ongoing polio endemic. While the events that brought him to power fit previous patterns of military coups throughout Pakistan's history, their timing in relation to the 9/11 attacks in the US would prove particularly relevant. As the US-led NATO mission pushed into Afghanistan in 2002, Musharraf's previously derided takeover would suddenly find itself legitimized in the international sphere, while his domestic position was severely compromised by a shifting allegiance away from previous paramilitary allies. The continued nearly decade long manhunt for Osama bin Laden would also play a major role in this period.

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<sup>163</sup> Bhutta, Z. A. "Children of War: The Real Casualties of the Afghan Conflict." *BMJ* 324.7333 (2002): 349-52.

<sup>164</sup> *Ibid.*

Following General Zia's 1988 death, the military, cognizant of image, allowed elections and largely took a back seat in governmental affairs.<sup>165</sup> A troika system was subsequently established, where power was shared between a popularly elected prime minister, a ruling party appointed president, and the military. The president's position was largely ceremonial, yet due to the eighth constitutional amendment, installed in 1985, the office held the power to dismiss the government and force elections. This allowed the military, as sole permanent fixture of the troika, to drive governmental action by varyingly allying against whichever office threatened to act in their disinterest. In effect, the military dismissed the first three post-Zia elected governments by colluding with the President to dismiss them.<sup>166</sup>

Nawaz Sharif's second election to the Prime Minister's office in 1997 came with an overwhelming majority of the vote, and presented an opportunity to limit the military's influence over governmental affairs. Almost immediately Sharif passed a resolution with unanimous support in the National Assembly that repealed the Eighth Amendment, reduced the presidency to solely a figurehead, thereby destroying the troika and severely undercutting the military's influence.<sup>167</sup> In response, army chief Jehangir Karamat, would advocate for the creation of a National Security Council whose role would solidify the army's position. He would be

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<sup>165</sup> Kumar, Sumita. "Sharif Vs. Musharraf: The Future of Democracy in Pakistan." *Strategic Analysis* 24.10 (2001): 1861-875.

<sup>166</sup> Talbot, Ian. "General Pervez Musharraf: Saviour or Destroyer of Pakistan's Democracy?" *Contemporary South Asia* 11.3 (2002): 311-28.

<sup>167</sup> Kumar, Sumita. "Sharif Vs. Musharraf: The Future of Democracy in Pakistan." *Strategic Analysis* 24.10 (2001): 1861-875.



summarily dismissed for doing so, with General Pervez Musharraf appointed his successor in late 1998.<sup>168</sup>

Tension would continue to build with the Musharraf appointment. The general's first order of business was the failed Kargil military conflict with India. The attempt to extend Pakistani control in the disputed region of Kashmir would prove an international embarrassment, the blame for which would be placed at Musharraf's feet by Prime Minister Sharif.<sup>169</sup> Subsequent military appointments by Sharif would be perceived as attempts to undermine Musharraf and pave the way for his dismissal.<sup>170</sup> Events would come to a head in late 1999 when Sharif pre-emptively dismissed Musharraf while the general was on a military visit to Sri Lanka.<sup>171172</sup>

This move was historically striking; the head of state, whether president or prime minister, had typically been dismissed in moments of political tension by the head of the military. This was perhaps not lost on Musharraf, as he immediately set to return to Pakistan, where Sharif ordered his incoming 198 passenger jet be diverted.<sup>173</sup> Musharraf would call the gambit by proceeding to relay messages to the garrison in Rawalpindi via the plane's cockpit, ordering the pilots to circle until there was no fuel to land elsewhere, and waiting until army

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<sup>168</sup> Ibid.

<sup>169</sup> Talbot, Ian. "General Pervez Musharraf: Saviour or Destroyer of Pakistan's Democracy?" *Contemporary South Asia* 11.3 (2002): 311-28.

<sup>170</sup> Ibid.

<sup>171</sup> Kumar, Sumita. "Sharif Vs. Musharraf: The Future of Democracy in Pakistan." *Strategic Analysis* 24.10 (2001): 1861-875.

<sup>172</sup> Cushing, Terence. "Pakistan's General Pervez Musharraf: Deceitful Dictator or Father of Democracy?" *Pennsylvania State International Law Review* 21 (2003): 621-647.

<sup>173</sup> Ibid.

troops had taken the control tower and cleared the runway for a landing. Purportedly seven minutes of fuel remained.<sup>174</sup>

Sharif was subsequently deposed and brought up on terrorism charges for the hijacking of Musharraf's plane. He was allowed to leave the country for a ten-year exile in Saudi Arabia, as the general set about taking control of the government.<sup>175</sup> Almost immediately Musharraf began calling for a return to "real democracy", without making any plans for elections or definitively laying out a governance plan that did not portray him as anything less than a bastion of order amidst chaos.<sup>176</sup> Increasing questioning and pressure arose, both domestically and abroad. The prospect of a cancelled visit by U.S. President Clinton in 2000 would precede the eventual announced schedule of local body elections within the coming year.<sup>177</sup>

The plan for addressing the democratic problems that Pakistan faced would be a move away from centralized federal power and towards grassroots local institutions. Called *devolution*, Musharraf put forth a plan that seemed to simultaneously grant the power and control of development initiatives to local constituents while demonizing his chief opponents, the national political parties.<sup>178</sup> While obviously shrewd on his part, this scheme was also widely unassailable on the surface. Musharraf's justification for seizing power post-coup was that political elites were ruining the country. This plan offered the promise of empowering local

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<sup>174</sup> Ibid.

<sup>175</sup> Ibid.

<sup>176</sup> Kumar, Sumita. "Sharif Vs. Musharraf: The Future of Democracy in Pakistan." *Strategic Analysis* 24.10 (2001): 1861-875.

<sup>177</sup> Ibid.

<sup>178</sup> Talbot, Ian. "General Pervez Musharraf: Saviour or Destroyer of Pakistan's Democracy?" *Contemporary South Asia* 11.3 (2002): 311-28.

citizenry. However, amidst all of the wide sweeping reform, one issue was omitted: land reform. While intentions might be best left to debate, without addressing representation issues tied to ownership of wide swaths of land power was in effect largely transferred to a small number of elites.<sup>179</sup><sup>180</sup> This was further compounded by the outlaw of political parties at the local and district levels of governance. In one move Musharraf assuaged international fears regarding his coup, and swapped out rival national political parties for partner landed elites.

Residual questions about his coup and subsequent international pressure would have little time to linger. *Devolution* mandated elections were conducted in rounds, the last of which was held in the summer of 2001. The events of September 11<sup>th</sup>, 2001 would leave western powers in need of a partner in the war in Afghanistan, and Musharraf was the natural candidate.<sup>181</sup> Money began to flood in from the NATO coalition and its partners, and continuing threats of terrorism were justification for further entrenching the military.<sup>182</sup>

Osama bin Laden, though previously a known figure, subsequently became global persona non grata as the leader of the al-Qaeda network. His ability to allude capture, in some ways, disallowed a potential moral victory for coalition forces in Afghanistan, and provided a rationale for the continued operations there as the GWOT spread. The established Pakistani power structure, perhaps more so than any other party, gained significantly from the situation.

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<sup>179</sup> Ibid.

<sup>180</sup> Carver, Fred. "When Tiers Clash: Devolution vs. Democracy in Pakistan." *E-International Relations* (2012). 2 Aug. 2012.

<sup>181</sup> Talbot, Ian. "General Pervez Musharraf: Saviour or Destroyer of Pakistan's Democracy?" *Contemporary South Asia* 11.3 (2002): 311-28.

<sup>182</sup> Fair, C. Christine. "The US–Pakistan Relations after a Decade of the War on Terror." *Contemporary South Asia* 20.2 (2012): 243-53.

While bin Laden's role in precipitating assassination of health workers will be discussed more in subsequent sections, it is important to note here that his evasion became an integral bargaining chip for Musharraf, allowing him to solidify domestic control with foreign support.

### *Sharif and Impasse*

Despite unprecedented levels of external funding the Musharraf era eventually ran its course. Somewhat surprisingly, the impetus for his fall would be a Supreme Court judge. Iftikhar Muhammad Chaudhry was appointed to the high court by Musharraf shortly after the 1999 coup. He arrived in a wave of judges appointed to replace the previous sitting panel that was unwilling to legally validate Musharraf's control of the state. He would repeatedly uphold legal challenges to Musharraf's actions until being elevated to chief Justice in June of 2005.<sup>183</sup> Though after assuming the position, the two would fall out of favor as Chaudhry began to increasingly, and publicly, oppose actions of the Musharraf government related to extrajudicial kidnappings and cronyism.<sup>184</sup> For Musharraf the timing was inopportune; while the GWOT and a sham election in 2002 had solidified his power, there was increasing external pressure to secure a 2007 reelection under more closely scrutinized polls. Sensing the growing rift with Chaudhry, Musharraf struck first and asked the judge to resign due to allegations of corruption. When Chaudhry refused, Musharraf issued a reference to the Supreme Court dismissing him. The action spawned a national uproar as the legal community and national media mobilized against

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<sup>183</sup> Ghias, Shoaib A. "Miscarriage of Chief Justice: Judicial Power and the Legal Complex in Pakistan under Musharraf." *Law & Social Inquiry* 35.4 (2010): 985-1022.

<sup>184</sup> Fair, C. Christine. "Pakistan on the Brink of a Democratic Transition?." *Current History* 112.753 (2013): 130-136.

Musharraf. The Court rejected the reference and restored Chaudhry with overwhelming public support.<sup>185</sup>

These events would touch off an existential political crisis in Pakistan. While the details are too intricate to fully analyze here, the domino effect is indicative of the overall precariousness of the historical political situation. The attempt by Musharraf to pave his way to reelection by continually strong-arming all facets of government precipitated a movement of lawyers that organized mass protest and defied his decree of dismissing the Chief Justice. Sensing his vulnerability, Musharraf traveled to the UAE within a week of Chaudhry's restoration to negotiate a power sharing agreement with exiled former Prime Minister Benazir Bhutto that would allow her to return and stand for elections to the office of prime minister in exchange for allowing him to retain the presidency for the subsequent term.<sup>186</sup> She would agree. In response, the Supreme Court invited Nawaz Sharif, another exiled former prime minister, to return and stand for elections, though he would immediately be deported by Musharraf.

In an already tense political environment, the situation would grow only more contentious when Bhutto was assassinated in the midst of her campaign. Her husband, Asif Zardari, would take over the party as it went on to win a plurality.<sup>187</sup> At the same time, the Supreme Court was challenging Musharraf's ability to hold the office of the presidency without resigning his military commission. The Court suspended election results while it deliberated the

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<sup>185</sup> Ghias, Shoaib A. "Miscarriage of Chief Justice: Judicial Power and the Legal Complex in Pakistan under Musharraf." *Law & Social Inquiry* 35.4 (2010): 985-1022.

<sup>186</sup> Ibid.

<sup>187</sup> Ibid.

question, and in response Musharraf suspended the constitution and declared emergency military rule.<sup>188</sup> And that was his end.

Without a majority of the electorate, Zardari had to form a coalition government. He chose to unite with the party of the exiled Sharif, and then this coalition, with support of the judiciary and overwhelming popular support, set about the impeachment of Musharraf.<sup>189</sup> Yet, as tradition seems to dictate in Pakistani politics, he instead chose to step down and go into exile. He went to live in the UK, and would subsequently return to Pakistan in an attempt to stand for the 2013 elections. Upon his return he was indicted on charges of high treason by the Supreme Court, though interestingly enough Chaudhry had since retired and was not involved in issuing the charges.<sup>190</sup>

As for the fate of Pakistan, what ensued was a tumultuous period of reform, aimed at sorting through the changes that the Musharraf regime had brought. In the wake of the 2008 elections the coalition government would appoint Yousaf Raza Gillani as Prime Minister, while Zardari, as head of the plurality winning party, became President. Sharif was allowed to return from his exile, and played a prominent role as leader of one of the parties in the coalition government. The Supreme Court would continue to push its own reform agenda, and eventually

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<sup>188</sup> Ibid.

<sup>189</sup> Ibid.

<sup>190</sup> Farwell, James P. "The Prosecution of Pervez Musharraf." *Survival* 56.4 (2014): 33-38.

remove Gillani for his refusal to order an investigation into long-standing corruption allegations against Zardari.<sup>191</sup>

The next round of elections was set for 2013. Nawaz Sharif would win an outright majority, defeating the caretaker Prime Minister Raja Pervaiz Ashraf, in what would be the first democratic transition of power in Pakistan's history. Sharif's election was immediately contentious with the Pakistani military. Notably, three of Sharif's key policy positions were an affront to the traditional role of the military. He was in support of normalization of relations with India, which reduced the immediacy of the military's necessity on one front.<sup>192</sup> Similarly, he wanted to end the terrorist threat of the TTP by opening dialogue with them, which reduced the immediacy of the military's necessity on the country's other major front.<sup>193</sup> And, he was in support of the trial of Pervez Musharraf, the former military head who was still highly regarded within the military hierarchy.<sup>194</sup>

Into this space, protests against the Sharif government would rise up in the summer of 2014. Previously fringe political elements emerged to lead a sit in that shut down the capital of Islamabad. A former Pakistani cricket player that was elected to Parliament, and a Canadian cleric of Pakistani birth would unite to lead the protest.<sup>195</sup> With the stated grievance of vote

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<sup>191</sup> Fair, C. Christine. "Pakistan on the Brink of a Democratic Transition?." *Current History* 112.753 (2013): 130-136.

<sup>192</sup> Pasricha, Anjana. "India Looks for Easier Relations Under Sharif." *VOA News*. Voice of America, 13 May 2013.

<sup>193</sup> "Peace Initiative: Govt Begins TTP Dialogue Process, Not Actual Talks." *The Express Tribune* [Karachi] 1 Nov. 2013.

<sup>194</sup> Mohsin, Saima. "Pakistani Prime Minister: Musharraf Should Stand Trial for Treason" *CNN World*. Cable News Network, 24 June 2013.

<sup>195</sup> "Pakistan's Imran Khan and Tahirul Qadri in Islamabad Rally - BBC News." *BBC News*. British Broadcasting Corporation, 16 Aug. 2014.

rigging by Sharif in the 2013 election, the two vowed to march a million supporters into Islamabad. The actual number of participants varies based on source, with notable swells during speeches by its leaders, but realistic estimates place the number around 12,000 participants.<sup>196</sup>

In previous times such a protest would arguably be a trivial thing, as security services were more than capable of maintaining order. Far from ordering a crackdown on the protestors, Sharif called upon the military to keep roads open and secure locations around the capital. Sensing the opportunity, and perhaps even have orchestrated it, the military demurred on grounds of not wanting to inhibit democracy. As a result, all government function was essentially ground to a halt.<sup>197</sup> What ensued was a negotiation, not between the government and protestors, but rather between the government and the military. In return for securing the country, Sharif ceded control of key foreign policy areas, “including relations with the U.S., Afghanistan and India.”<sup>198</sup>

Political discord in the Pakistani state has deep roots, traced back to pre-colonial times. We have seen that the cycle of military dominance of the modern Pakistani state continues to turn. The paralysis that accompanies such transitions often acts as barrier to the state’s effective response to other matters. While we can trace the events that led to the Pakistani government shutdown in the summer of 2014, what is harder to trace are the collateral effects. While the heads of the civilian government and military were struggling to assert their own dominance, the Pakistani

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<sup>196</sup> Kharal, Asad. "Numbers: Who had biggest march of them all?" *The Express Tribune* [Karachi] 20 Aug. 2014.

<sup>197</sup> "Pakistan's Imran Khan and Tahirul Qadri in Islamabad Rally - BBC News." *BBC News*. British Broadcasting Corporation, 16 Aug. 2014.

<sup>198</sup> Shah, Saeed. "Pakistani Leader Sharif Nears Pact With Military." *The Wall Street Journal* [New York], 27 Aug. 2014.



military was also running retaliatory operations in FATA and KPK, which were creating refugee populations hailing from the poliovirus reservoir. It would seem that no one had time to think about how best to prosecute such actions vis-à-vis the epidemiological threat.

# Part IV: Conflict Dimensions and Threat Management

## *Introduction*

The ultimate difficulty in parsing the polio problem into its separate dimensions is their interconnected nature and tendency to bleed together. There are no clear delineation points, rather sets of common themes. However, the endemic's persistence is in no small part due to it being located within what has been for several decades a warzone. Of particular relevance is the shifting nature of the conflict, from a largely external threat to internal terrorism via the TTP.

The literature has previously established not only the strong correlation between disease burden and intrastate conflict,<sup>199</sup> but also that conflict is a major contributor to that burden.<sup>200</sup> In Pakistan, there is consensus that the technical capacity to address polio is present,<sup>201</sup> that violent conflict and political turmoil are the major remaining obstacles,<sup>202</sup> and that increased militancy is currently threatening the possibility of eradication.<sup>203</sup>

This section will lay out and discuss several aspects of the polio problem that are related to conflict dimensions, building upon the theme of open engagement between the Pakistani

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<sup>199</sup> Letendre, Kenneth, Corey L. Fincher, and Randy Thornhill. "Does Infectious Disease Cause Global Variation in the Frequency of Intrastate Armed Conflict and Civil War?" *Biological Reviews* (2010): 669-83.

<sup>200</sup> Murray, C. J L. "Armed Conflict as a Public Health Problem." *BMJ* 324.7333 (2002): 346-49.

<sup>201</sup> Bush, Kenneth. "Polio, War, and Peace," *Bulletin of the World Health Organization* 78:3 (2000): 281-2.

<sup>202</sup> Rushton, Simon, and Maria Kett. "Polio, Conflict and Distrust: A Global Public Health Emergency." *Medicine, Conflict and Survival* 30.3 (2014): 143-45.

<sup>203</sup> Abimbola, Seye, Asmat Ullah Malik, and Ghulam Farooq Mansoor. "The Final Push for Polio Eradication: Addressing the Challenge of Violence in Afghanistan, Pakistan, and Nigeria." *PLoS Med PLoS Medicine* 10.10 2013.

military and paramilitary forces it had previously fostered, but have since united against it in the GWOT.<sup>204</sup> Topics will include the operation to eliminate Osama bin Laden and how its ramifications have led to the assassination of vaccination workers, the force options of the TTP and the Pakistani military, conflict asymmetry, the overall management of both the terrorist and epidemiological threats, and the state's inaction in protecting TTP persecuted groups and how that might feed into the concept of neglect as a weapon of war.<sup>205</sup>

### *The Specter of bin Laden*

Osama bin Laden (UBL) and his Al-Qaeda network are well known for the events on September 11<sup>th</sup> 2001, where attacks in New York City and Washington DC precipitated the onset of the GWOT. As previously discussed, UBL's fugitive status was a factor in continued US military operations aimed at addressing terrorism, and continued sponsorship of the Pakistani state to assist in those ends. Unbeknownst to him, however, he would also play a significant role in the propagation of the polio endemic.

In 2011, UBL was killed by a covert unit of US soldiers at a compound in Abbottabad, a city in the mountains of northern Pakistan roughly 100k from the capital of Islamabad. It was widely reported in the aftermath of the operation that he was located by the CIA via the recruitment of a Pakistani doctor who was running a hepatitis B vaccination campaign.<sup>206</sup> Dr. Shakil Afridi allegedly gained access to the compound where UBL was staying under the guise

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<sup>204</sup> Mustafa, Daanish, Katherine E. Brown, and Matthew Tillotson. "Antipode to Terror: Spaces of Performative Politics." *Antipode* 45.5 (2013): 1110-127.

<sup>205</sup> Shehzad, Mohammad. "The State of Islamic Radicalism in Pakistan." *Strategic Analysis* 37.2 (2013): 186-92.

<sup>206</sup> Washburn, Sam. "How the CIA's Fake Vaccination Campaign Endangers Us All." *Scientific American*. 16 Apr. 2013.

of immunization and was able to procure DNA samples from the children present there. Those samples were then analyzed to confirm the children were the progeny of UBL and subsequently green light the mission.<sup>207</sup>

It should be noted that the veracity of this official account has recently come under question by a respected investigatory journalist.<sup>208</sup> This alternative narrative offers more plausible explanations for certain aspects of the events, and among other things contests any involvement by Dr. Afridi or the use of a vaccination campaign. Though the account has been derided by a number of critics attacking the author's character, the claims are worthy of consideration.<sup>209</sup>

Regardless of the actual events, the reporting of the use of a vaccination campaign caused a massive backlash throughout the region.<sup>210</sup> Health workers, including the LHWs mainly tasked with the duty of traveling door-to-door delivering OPV, police officers, and doctors at clinics have all been targeted for assassination by the TTP as a result.<sup>211</sup> 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.<sup>212</sup> The events were more than a rallying cry for the TTP. Conspiracy theories in Pakistan are something of a national

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<sup>207</sup> Robbins, Anthony. "The CIA's Vaccination Ruse." *Journal of Public Health Policy* 33.4 (2012): 387-89.

<sup>208</sup> Hersh, Seymour M. "The Killing of Osama Bin Laden." *London Review of Books* 37.10 (2015).

<sup>209</sup> Timm, Trevor. "The Media's Reaction to Seymour Hersh's Bin Laden Scoop Has Been Disgraceful." *Columbia Journalism Review*. Columbia University, 15 May 2015.

<sup>210</sup> Mullaney, Alexander, and Syeda Amna Hassan. "He Led the CIA to Bin Laden-and Unwittingly Fueled a Vaccine Backlash." *National Geographic*. 27 Feb. 2015.

<sup>211</sup> Lenzer, Jeanne. "Fake Vaccine Campaign in Pakistan Could Threaten Plans to Eradicate Polio." *BMJ* 343.Jul19 2 (2011): D4580.

<sup>212</sup> Chappell, Bill. "CIA Says It Will No Longer Use Vaccine Programs As Cover." *NPR*. 20 May 2014.

pastime, and allegations of nefarious western plots via vaccination were commonplace prior to these allegations.<sup>213</sup> Word of the vaccination participation validated what were previously largely baseless beliefs, and touched off a paralysis in implementing polio vaccination.

### *Understanding Force Options*

The underlying tensions of conflict in Pakistan are millennia old, but the conflict has increased exponentially since the terrorist attacks of September 11<sup>th</sup>, 2001.<sup>214</sup> As the conflict dimension is integral to the epidemiological threat, it is important to understand the force options available to the TTP and the Pakistani military.

Having coalesced from previous jihadist groups, the TTP exhibits the characteristic capabilities of its forbearers. Activity is largely centered throughout KPK province and FATA, with notable activity around Peshawar, the capital of KPK province.<sup>215</sup> Despite the localization, they have exhibited capacity to strike throughout Pakistan.<sup>216</sup> Their operations are characterized by targeted and coordinated small arms attacks, employing improvised explosive devices.<sup>217</sup>

Their aims are largely to intimidate local populations, and they are justified on religious grounds by fatwa.<sup>218</sup> Attacks have become noted for being of an “increasingly dirty” nature,

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<sup>213</sup> Hashim, Asad. "Pakistan's Polio Problem and Vaccination Danger." *Al Jazeera English*. Al Jazeera, 28 Mar. 2015.

<sup>214</sup> Nizami, Asad Tamizuddin, Mowadat Hussain Rana, Tariq Mahmood Hassan, and Fareed Aslam Minhas. "Terrorism in Pakistan: A Behavioral Sciences Perspective." *Behavioral Sciences & the Law Behav. Sci. Law* 32.3 (2014): 335-46.

<sup>215</sup> Ibid.

<sup>216</sup> Hassan, Syed Raza. "Karachi Airport Attack Signals Tactical Shift by Taliban." *Reuters*. Thomson Reuters, 12 June 2014.

<sup>217</sup> Roul, Animesh. "The Pakistani Taliban's Campaign Against Polio Vaccination." *Combating Terrorism Center Sentinel* 7.8 (2014): 17-19.

<sup>218</sup> Ibid.

with increased percentages of civilian casualties, and large-scale population displacement.<sup>219220</sup>

Recent statistics place the total number of civilian deaths at roughly 37,000 since the onset of the GWOT, as compared to 7,000 casualties for military and other security sector personnel.<sup>221</sup>

The statistics suggest a two-pronged strategy. Soft targets have been prioritized in number, with year over year percentage increases in civilian killings at rallies, shrines and other public events, with a predilection for targeting and killing women.<sup>222</sup> The implication is that the TTP has highlighted the importance of controlling public spaces while attempting to exhibit regional control.

The second prong involves careful selection of high value security sector targets. While the proportion of military and police killings is markedly lower than the number of civilian ones, those attacks aimed at the security sector have exhibited a higher level of sophistication, with deliberate and careful targeting.<sup>223</sup> Rather than indiscriminately going after police stations or garrisons, the TTP has shown an affinity for selecting bomb disposal units, forensic experts and known high performing officers throughout the region, in attempts to gain tactical military advantage.<sup>224</sup> They have shown the ability to routinely conduct multi-city operations, employing a variety of explosive devices at high value targets at the same time.<sup>225</sup> Taken as a whole this

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<sup>219</sup> Bush, Kenneth. "Polio, War, and Peace," *Bulletin of the World Health Organization* 78:3 (2000): 281-2.

<sup>220</sup> Bhutta, Z. A. "The Push and Pull for Global Polio Eradication." *Transactions of the Royal Society of Tropical Medicine and Hygiene* 107.10 (2013): 601-02.

<sup>221</sup> Shehzad, Mohammad. "The State of Islamic Radicalism in Pakistan." *Strategic Analysis* 37.2 (2013): 186-92.

<sup>222</sup> Mustafa, Daanish, Katherine E. Brown, and Matthew Tillotson. "Antipode to Terror: Spaces of Performative Politics." *Antipode* 45.5 (2013): 1110-127.

<sup>223</sup> Bhutta, Zulfiqar A. "Conflict and Polio." *JAMA* 310.9 (2013): 905.

<sup>224</sup> Shehzad, Mohammad. "The State of Islamic Radicalism in Pakistan." *Strategic Analysis* 37.2 (2013): 186-92.

<sup>225</sup> Ibid.

strategy suggests a complex organization that understands the importance of catering violent messaging styles to target audiences.

Standing in some contrast, the Pakistani military itself is a formidable modern fighting force, with effective complimentary intelligence and paramilitary support mechanisms. It boasts the seventh largest number of active personnel in the world, with a highly organized command and control structure.<sup>226</sup> It possesses significant land, air and naval capabilities, including armored, mechanized and special forces divisions.<sup>227</sup> The defense budget is a healthy 3.4% of GDP, which is more than nearly any European power and on pace with the U.S.<sup>228</sup> In addition, they possess tactical nuclear weapons, placing Pakistan as one of only eight countries to do so.

Historically, the military deployed forces to face threats on its eastern border with India, however the growing TTP presence precipitated a shift in defensive posture starting around 2008.<sup>229</sup> In combating the terrorist threat they have employed a variety of tactics, chief among them the use of heavy kinetic firepower via heavy artillery and air assault.<sup>230</sup> In concert with the US, they have made substantial use of unmanned aerial vehicles (UAVs), or drones, as both a

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<sup>226</sup> Blood, Peter R. *Pakistan: A Country Study*. Washington, D.C.: Federal Research Division, Library of Congress, 1995. Print.

<sup>227</sup> "Chapter Six: Asia." *The Military Balance* 115.1 (2015): 207-302.

<sup>228</sup> World Bank. *Military expenditure (% of GDP)*. World Bank Data Catalogue. 2015.

<sup>229</sup> "Chapter Six: Asia." *The Military Balance* 115.1 (2015): 207-302.

<sup>230</sup> Mustafa, Daanish, Katherine E. Brown, and Matthew Tillotson. "Antipode to Terror: Spaces of Performative Politics." *Antipode* 45.5 (2013): 1110-127.

delivery system and intelligence gathering mechanism, especially in the period from 2008-2013.<sup>231</sup> Extrajudicial killing has also been variously employed as a tactic.<sup>232</sup>

When considering force options in this sphere, there is an obvious disparity between the two sides, as is characteristic of any insurgency taking on an established military force. As such, it is worth examining the difference in escalatory options. The work of Herman Kahn is perhaps illustrative here.<sup>233</sup> At the onset of the Cold War, Kahn began to build a framework for military options between the US and former Soviet Union. The product was an escalation ladder that provided options for a potential war between the two nuclear powers. As Pakistan has now achieved a tactical nuclear arsenal of its own, it is arguable that all of Kahn's options are available to the Pakistani military. Below please find edited versions of the original escalation ladders for both the military and the TTP, followed by explanatory notes.

*Figure 9 – Pakistani Military Escalatory Options*

| <b>Pakistani Military</b>       |   |
|---------------------------------|---|
| Civilian<br>Central Wars        | 44 Spasm or Insensate War                     |
|                                 | 43 Some Other Kinds of Controlled General War |
|                                 | 42 Civilian Devastation Attack                |
|                                 | 41 Augmented Disarming Attack                 |
|                                 | 40 Countervalue Salvo                         |
|                                 | 39 Slow Motion Countercity War                |
| <b>City Targeting Threshold</b> |   |
| Military<br>Central Wars        | 38 Unmodified Counterforce Attack             |
|                                 | 37 Counterforce-with-Avoidance Attack         |

<sup>231</sup> Roul, Animesh. "The Pakistani Taliban's Campaign Against Polio Vaccination." *Combating Terrorism Center Sentinel* 7.8 (2014): 17-19.

<sup>232</sup> Mustafa, Daanish, Katherine E. Brown, and Matthew Tillotson. "Antipode to Terror: Spaces of Performative Politics." *Antipode* 45.5 (2013): 1110-127.

<sup>233</sup> Kahn, Herman. *On Escalation: Metaphors and Scenarios*. New York: Praeger, 1965. Print.



|                                 |    |  |
|---------------------------------|----|--|
|                                 | 36 | Constrained Disarming Attack                       |
|                                 | 35 | Constrained Force-Reduction Salvo                  |
|                                 | 34 | Slow-Motion Counterforce War                       |
|                                 | 33 | Slow-Motion Counter-"Property" War                 |
|                                 | 32 | Formal Declaration of "General" War                |
|                                 |    | <b><i>Central War Threshold</i></b>                |
| Exemplary<br>Central<br>Attacks | 31 | Reciprocal Reprisals                               |
|                                 | 30 | <del>Complete Evacuation (Approx 95%)</del>        |
|                                 | 29 | Exemplary Attacks on Population                    |
|                                 | 28 | Exemplary Attacks Against Property                 |
|                                 | 27 | Exemplary Attack on Military                       |
|                                 | 26 | Demonstration Attack on Zone of Interior           |
|                                 |    | <b><i>Central Sanctuary Threshold</i></b>          |
| Bizarre<br>Crises               | 25 | <del>Evacuation (Approx 70%)</del>                 |
|                                 | 24 | Unusual, Provocative & Significant Countermeasures |
|                                 | 23 | Local Nuclear War -- Military                      |
|                                 | 22 | Declaration of Limited Nuclear War                 |
|                                 | 21 | Local Nuclear War -- Exemplary                     |
|                                 |    | <b><i>No Nuclear Use Threshold</i></b>             |
| Intense<br>Crises               | 20 | "Peaceful" World-wide Embargo or Blockade          |
|                                 | 19 | "Justifiable" Counterforce Attack                  |
|                                 | 18 | Spectacular Show or Demonstration of Force         |
|                                 | 17 | <del>Limited Evacuation (Approx 20%)</del>         |
|                                 | 16 | Nuclear "Ultimatums"                               |
|                                 | 15 | Barely Nuclear War                                 |
|                                 | 14 | Declaration of Limited Conventional War            |
|                                 | 13 | Large Compound Escalation                          |
|                                 | 12 | Large Conventional War (or Actions)                |
|                                 | 11 | Super-Ready Status                                 |
|                                 | 10 | Provocative Breaking off of Diplomatic Relations   |
|                                 |    | <b><i>Nuclear War is Unthinkable Threshold</i></b> |
| Traditional<br>Crises           | 9  | Dramatic Military Confrontations                   |
|                                 | 8  | Harassing Acts of Violence                         |
|                                 | 7  | "Legal" Harassment -- Retortions                   |
|                                 | 6  | Significant Mobilization                           |
|                                 | 5  | Show of Force                                      |
|                                 | 4  | Hardening of Positions -- Confrontation of Wills   |
|                                 |    | <b><i>Don't Rock The Boat Threshold</i></b>        |
| Subcrisis<br>Maneuvering        | 3  | Solemn and Formal Declarations                     |
|                                 | 2  | Political, Economic and Diplomatic Gestures        |
|                                 | 1  | Ostensible Crisis                                  |

Figure 10 – TTP Escalatory Options

|                                    |   |
|------------------------------------|---|
| <b>TTP</b>                         |   |
| Civilian<br>Central Wars           | 44 Spasm or Insensate War                               |
|                                    | 43 Some Other Kinds of Controlled General War           |
|                                    | 42 Civilian Devastation Attack                          |
|                                    | 41 Augmented Disarming Attack                           |
|                                    | 40 Countervalue Salvo                                   |
|                                    | <del>39 Slow Motion Countercity War</del>               |
| <b>City Targeting Threshold</b>    |   |
| Military<br>Central Wars           | 38 Unmodified Counterforce Attack                       |
|                                    | 37 Counterforce-with-Avoidance Attack                   |
|                                    | 36 Constrained Disarming Attack                         |
|                                    | 35 Constrained Force-Reduction Salvo                    |
|                                    | <del>34 Slow Motion Counterforce War</del>              |
|                                    | <del>33 Slow Motion Counter "Property" War</del>        |
|                                    | 32 Formal Declaration of "General" War                  |
| <b>Central War Threshold</b>       |   |
| Exemplary<br>Central<br>Attacks    | 31 Reciprocal Reprisals                                 |
|                                    | 30 Complete Evacuation (Approx 95%)                     |
|                                    | 29 Exemplary Attacks on Population                      |
|                                    | 28 Exemplary Attacks Against Property                   |
|                                    | 27 Exemplary Attack on Military                         |
|                                    | 26 Demonstration Attack on Zone of Interior             |
| <b>Central Sanctuary Threshold</b> |   |
| Bizarre<br>Crises                  | 25 Evacuation (Approx 70%)                              |
|                                    | 24 Unusual, Provocative & Significant Countermeasures   |
|                                    | <del>23 Local Nuclear War – Military</del>              |
|                                    | <del>22 Declaration of Limited Nuclear War</del>        |
|                                    | <del>21 Local Nuclear War – Exemplary</del>             |
| <b>No Nuclear Use Threshold</b>    |   |
| Intense<br>Crises                  | <del>20 "Peaceful" World-wide Embargo or Blockade</del> |
|                                    | 19 "Justifiable" Counterforce Attack                    |
|                                    | 18 Spectacular Show or Demonstration of Force           |
|                                    | 17 Limited Evacuation (Approx 20%)                      |
|                                    | <del>16 Nuclear "Ultimatums"</del>                      |
|                                    | <del>15 Barely Nuclear War</del>                        |

|                       |   |
|-----------------------|---|
|                       | 14 Declaration of Limited Conventional War          |
|                       | 13 Large Compound Escalation                        |
|                       | <del>12 Large Conventional War (or Actions)</del>   |
|                       | 11 Super-Ready Status                               |
|                       | 10 Provocative Breaking off of Diplomatic Relations |
|                       | <b><i>Nuclear War is Unthinkable Threshold</i></b>  |
|                       | <del>9 Dramatic Military Confrontations</del>       |
|                       | 8 Harassing Acts of Violence                        |
|                       | <del>7 "Legal" Harassment — Retortions</del>        |
|                       | 6 Significant Mobilization                          |
|                       | 5 Show of Force                                     |
|                       | 4 Hardening of Positions -- Confrontation of Wills  |
|                       | <b><i>Don't Rock The Boat Threshold</i></b>         |
|                       | 3 Solemn and Formal Declarations                    |
|                       | 2 Political, Economic and Diplomatic Gestures       |
|                       | 1 Ostensible Crisis                                 |
| Traditional Crises    |   |
| Subcrisis Maneuvering |   |

As previously noted, the Pakistani military has a full complement of options. The one thing that they can absolutely not do, however, is effectively organize evacuation on any scale. While the military has previously cleared and held territory as part of anti-terrorism measures, this has been done in relatively sparsely populated areas as a temporary measure.<sup>234</sup> Doing so on a permanent basis, or doing so in a densely populated urban area (e.g. Karachi's population is roughly 24 million<sup>235</sup>) is not currently possible. Another limit that they currently have is questionable second strike capability in the event of nuclear war.<sup>236</sup> However as their adversary in this case, the TTP, has no nuclear capability, this is of little consequence.

In terms of the TTP's capability, there is a significant comparative deficit. They have little actionable soft power. As they have no standing in the international legal sphere, they

<sup>234</sup> Mustafa, Daanish, Katherine E. Brown, and Matthew Tillotson. "Antipode to Terror: Spaces of Performative Politics." *Antipode* 45.5 (2013): 1110-127.

<sup>235</sup> "Karachi Population 2015." World Population Review, 13 Oct. 2015. Web. 13 Dec. 2015.

<sup>236</sup> "Chapter Six: Asia." *The Military Balance* 115.1 (2015): 207-302.

cannot issue formal “legal harassment”, though they have made use of religious law via fatwa.<sup>237</sup> Similarly, they have little capacity to lobby for worldwide embargoes or blockades against the Pakistani military.

Militarily, they are neither capable of conducting large-scale conventional war, nor do they possess any nuclear assets to be used tactically or as deterrent. They are also not capable of conducting “slow motion”, or deliberate, warfare of any kind, as doing so would likely reveal position and eliminate their most significant advantage.

As a result of truncated escalatory options, the TTP theoretically moves quickly up the escalation ladder, progressing from ‘Subcrisis Manuevering’ actions to ‘Civilian Central Wars’ nearly immediately. In practice we see this to certainly be the case, as recently exemplified by well publicized attacks on private elementary schools for the children of military personnel.<sup>238</sup> Without means to confront the military directly, the TTP has shown a penchant for targeting civilian populations attached to military personnel. It should also be noted that the TTP likely such measures as retaliatory in nature, due to the efficacy of previous military operations that have collaterally claimed members of their own civilian populations.

### *Multi-Threat Management*

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

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<sup>237</sup> Roul, Animesh. "The Pakistani Taliban's Campaign Against Polio Vaccination." *Combating Terrorism Center Sentinel* 7.8 (2014): 17-19.

<sup>238</sup> Ali, Zulfiqar, and Shashank Bengali. "Pakistan Raises Death Toll in Peshawar School Attack to 148." *Los Angeles Times* 17 Dec. 2014.

other by the ongoing polio endemic. Further exacerbating the issue, the Pakistani state is not a single responder; the military and the civilian government operate as two distinct entities, which are frequently at odds with one another. The inability for the two to cooperate is a major factor; allowing the TTP room to move both tactically and politically. Here we will briefly discuss the lens of these two players, before reviewing the recent timeline of the terrorist and epidemiological threats.

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 in to continued high social standing. This has been evidenced most clearly by a reluctance to normalize with India, and a history of significant moves against the civilian government (typically coup d'états) when there are hints that its significant power could be curtailed.

The civilian government, for its part, has typically been inundated with so many threats as to not be able to think strategically. Political rivals, terrorism, the challenges of ruling a developing country ranking 146 out of 187 on the human development index,<sup>239</sup> and a hovering military capable of exerting control in myriad ways are all major obstacles. The sword of Damocles swings just above the head of the Prime Minister of Pakistan, regardless of whom may hold the title. Amidst the chaos between the military and civilian government, results for addressing the terrorism and polio threats have been middling.

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<sup>239</sup> "Pakistan." *Human Development Report* (2013). UNDP.

The terrorism threat has largely been a product of unintended consequences. The Pakistani state, primarily via the ISI, has historically considered jihadists an asset, and actively supported and fostered such networks.<sup>240</sup> As previously documented, the GWOT then turned Pakistan against its previous paramilitary jihadist forces, resulting in a more recent escalation via significant use of drone warfare.<sup>241</sup>

The UBL operation then provided a politically convenient retaliatory option for the TTP as they began employing assassination against community health workers (CHWs) running immunization campaigns, especially those working under the umbrella of the Lady Health Worker (LHW) program.<sup>242</sup> The military has proven unable to counter by securing some 90,000 soft target LHWs,<sup>243</sup> and perhaps emboldened the TTP pushed the offensive by striking outside their traditional range and hitting the international airport in Karachi in June of 2014.<sup>244</sup> The Pakistani military responded by launching a significant ground offensive in northwest Pakistan, with overwhelming public support.<sup>245</sup>

The operation, dubbed Zarb-e-Azb, resulted in an estimated one million displaced people throughout the already ambiguous borderland, and a military estimate of 2,000 terrorist casualties.<sup>246</sup> At the same time the area has been suffering from a rebound in polio incidence due

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<sup>240</sup> Shehzad, Mohammad. "The State of Islamic Radicalism in Pakistan." *Strategic Analysis* 37.2 (2013): 186-92.

<sup>241</sup> Nasir, H. "Polio and Politics in Pakistan." *Archives of Disease in Childhood* 98.5 (2013): 392-93.

<sup>242</sup> Ahmed, Qanta A., Sania Nishtar, and Ziad A. Memish. "Poliomyelitis in Pakistan: Time for the Muslim World to Step in." *The Lancet* 381.9877 (2013): 1521-523.

<sup>243</sup> Malik, Asmat Ullah, Peter Stewart Hill, Anar Ulikpan, and Saima Hamid. "Polio Eradication: Getting the Basics Right." *The Lancet* 381.9875 (2013): 1359-360.

<sup>244</sup> Javaid, Umbreen. "South Asian Studies." *South Asian Studies* 30.2 (2010): 43-58.

<sup>245</sup> Ibid.

<sup>246</sup> Kakakhel, Fakhar, and Umar Farooq. "Pakistan's War and Loss of Hope for Those Displaced." *Al Jazeera English*. Al Jazeera, 15 June 2015.

to the diminishing level of immunization services being offered by accosted LHWs. Though tactically considered a success, the operation stirred the last remaining reservoir of poliovirus, spreading the disease further as evidenced by recent detection of cases in Syria, brought by the movement of fighters across the region.<sup>247</sup> The same movement of people has also been linked to recent cases in Egypt, Israel, Palestine,<sup>248</sup> and across the wider Middle East region.<sup>249</sup>

As the terrorist threat bleeds into the epidemiological one, it is worth considering the reinforcing nature of combating the threat to CHWs with an increased security posture. The CHWs were previously not regarded with any more attention than anyone who conducted business in public spaces throughout KPK and FATA.<sup>250</sup> While this did not necessitate zero attention, they were certainly not apparent regular 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 now tangible military targets are physically attached to the civilian ones.

In observing the management of the epidemiological threat directly, it is obvious that conflict has acted as a barrier to eradication.<sup>251</sup> Beyond exacerbating the crisis via destruction of infrastructure and disruption of services, armed conflict soaks up the bandwidth of governmental

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<sup>247</sup> Al-`Ubaydi, Muhammad. "Stories of Foreign Fighter Migration to Syria." *Combating Terrorism Center Sentinel* 7.8 (2014): 11-13.

<sup>248</sup> Tulchinsky, Theodore H., Asad Ramlawi, Ziad Abdeen, Itamar Grotto, and Antoine Flahault. "Polio Lessons 2013: Israel, the West Bank, and Gaza." *The Lancet* 382.9905 (2013): 1611-612.

<sup>249</sup> Arie, S. "Polio Virus Spreads from Syria to Iraq." *BMJ* 348.Apr02 3 (2014): 1-2.

<sup>250</sup> Mustafa, Daanish, Katherine E. Brown, and Matthew Tillotson. "Antipode to Terror: Spaces of Performative Politics." *Antipode* 45.5 (2013): 1110-127.

<sup>251</sup> Aylward, Bruce, and Rudolf Tangermann. "The Global Polio Eradication Initiative: Lessons Learned and Prospects for Success." *Vaccine* 29 (2011): 80-85.

resources to address the issue, regardless of whether they be military or civilian government resources.<sup>252</sup> What initiative the civilian government can demonstrate, typically via the Ministry of Health, does focus 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 the exclusive focus.<sup>253</sup>

Addressing such an issue would require looking at the growing gap in primary services, and an effort to understand the priorities of local populations.<sup>254</sup> This concept is certainly not lost on local populations, as evidenced by the recent efforts of local tribal leaders to threaten to boycott vaccine support until basic electricity services were extended to villages.<sup>255</sup> However, beyond the considerable logistical hurdles of addressing polio vaccination as part of a larger service package, doing so gets to the heart of a larger philosophical tension between health, violent conflict and national security imperatives.<sup>256</sup> Denial (resource, area or otherwise) is a central tenant of prosecuting war. Despite the asymmetry of the conflict, denial, or in this case neglect, is a weapon of war. How is the military to be convinced of the tactical worthiness of

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<sup>252</sup> Owais, Aatekah, Asif Raza Khawaja, Syed Asad Ali, and Anita K.m. Zaidi. "Pakistan's Expanded Programme on Immunization: An Overview in the Context of Polio Eradication and Strategies for Improving Coverage." *Vaccine* 31.33 (2013): 3313-319.

<sup>253</sup> Malik, Asmat Ullah, Peter Stewart Hill, Anar Ulikpan, and Saima Hamid. "Polio Eradication: Getting the Basics Right." *The Lancet* 381.9875 (2013): 1359-360.

<sup>254</sup> Rushton, Simon, and Maria Kett. "Polio, Conflict and Distrust: A Global Public Health Emergency." *Medicine, Conflict and Survival* 30.3 (2014): 143-45.

<sup>255</sup> Nasir, H. "Polio and Politics in Pakistan." *Archives of Disease in Childhood* 98.5 (2013): 392-93.

<sup>256</sup> Rushton, Simon, and Maria Kett. "Polio, Conflict and Distrust: A Global Public Health Emergency." *Medicine, Conflict and Survival* 30.3 (2014): 143-45.



extending services to populations they regularly fight against? If there were a convincing argument, who would deliver it?

# Part V: Designing Policy Solutions

## *Lynchpins and Equilibrium*

A number of socio-cultural, political, conflict and militancy dimensions have combined to cause the failure of anti-polio initiatives in Pakistan.<sup>257</sup> As we have seen, there are a number of key players involved, each of whom have some sway over the process. It has become clear that any successful plan would need to include additional support from the military, the TTP and certainly local populations. Great efforts and strides have been made by the international public health community to eliminate polio globally, with major successes in a number of locations in recent years, but Pakistan will require increased top level push to address the issue, as well as increased pull by local populations.<sup>258</sup>

In this section we will review some of the best practices and failures for addressing similar situations in other places. We will then provide a stakeholder analysis, where the relevant parties to a policy solution will be analyzed and potential coalitions and areas for cooperation highlighted. Then we will review possible policy solutions and forecast, to the best of our ability, their outcomes.

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<sup>257</sup> Hadi, Yousaf Bashir, and Abdul Malik Amir Hamza Sohail. "Pakistan: The Nidus for Global Polio Re-emergence?" *Journal of Infection and Public Health* 8.2 (2015): 214-15.

<sup>258</sup> Bhutta, Z. A. "The Push and Pull for Global Polio Eradication." *Transactions of the Royal Society of Tropical Medicine and Hygiene* 107.10 (2013): 601-02.

### *Best Practice, Best Failure*

Despite all of Pakistan's uniqueness, a look at polio eradication initiatives and techniques in other venues could prove informative when considering potential policy solutions. Briefly, aspects of efforts in Mexico, India, Sudan and the Democratic Republic of Congo will be highlighted for their innovative efforts. The results of using cash transfers for vaccinating children in and around Peshawar, essentially paying families to protect their young, will be reviewed. And finally, the engagement of the Organization of Islamic Cooperation (OIC) will be discussed. As a leading representative of Islamic thought they have a potential role to play.

Mexico reached confirmed polio eradication in 1990. Though they had in country production capacity for vaccine since shortly after its invention in the 1950's, it was not until production was prioritized that serious traction was made in control. By producing roughly 800 million doses and blanket covering the country's population the Mexican government was able to eliminate the scourge.<sup>259</sup> The driving factor was the Mexican government setting a priority in the wake of the GPEI in 1989, with its role in increased advocacy and technical assistance.

India provides another interesting case, and provides an informative example given the geographic and population density similarities that it shares with Pakistan. The country was declared free of the disease in 2012, after following a different script from Mexico's. Given the

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<sup>259</sup> Rodríguez-Álvarez, Mauricio, María Eugenia Jiménez-Corona, Rocío Cervantes-Rosales, and Samuel Ponce De León-Rosales. "Polio Eradication: How Long and How Much to the End?" *Archives of Medical Research* 44.5 (2013): 401-04.

population and relative lack of appropriate sanitation in hotspot areas, India focused heavily on surveillance.<sup>260</sup> The ability to quickly locate outbreaks allowed for a focused communication strategy to be directed towards high risk populations, especially newborns and areas with vaccine refusals.<sup>261</sup> Rather than the brute force Mexico chose, India elected a more targeted approach. Given the ability to surmount vaccine refusal, this offers real potential as a strategy for Pakistan, assuming the political will is there to increase the disease surveillance network.

While Mexico and India's examples are insightful, neither was facing the complication of ongoing military conflict when addressing their own polio endemics. Yet, such situations are not without precedent. "Vaccine ceasefires" have been used effectively in a number of countries, including Sudan and the DRC, as part of strategies to eliminate polio.<sup>262</sup> By opening dialogue between both sides, the WHO and international aid organizations have been able to broker limited peace that allowed for vaccination of civilian populations by CHWs. As example, in 1999 areas with heavy fighting in the DRC were able to achieve an estimated 91% vaccination coverage.<sup>263</sup> Most notably this tactic has been used with measured success in Afghanistan.<sup>264</sup> Though that country still faces the threat, due to spillover infections from Pakistan, this does offer a great amount of hope for such tactics in our target country.

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<sup>260</sup> Chatterjee, Animesh, Sanjukta Vidyant, and Tapan N. Dhole. "Polio Eradication in India: Progress, but Environmental Surveillance and Vigilance Still Needed." *Vaccine* 31.9 (2013): 1268-275.

<sup>261</sup> Ibid.

<sup>262</sup> Arie, S. "Polio Outbreak Leads to Calls for a "Vaccination Ceasefire" in Syria." *BMJ* 347.Nov05 6 (2013).

<sup>263</sup> Bush, Kenneth. "Polio, War, and Peace," *Bulletin of the World Health Organization* 78:3 (2000): 281-2.

<sup>264</sup> Arie, S. "Polio Outbreak Leads to Calls for a "Vaccination Ceasefire" in Syria." *BMJ* 347.Nov05 6 (2013).

Of recent interest has also been the concept of paying families to vaccinate their children. Such a program was recently undertaken in and around Peshawar, one of the largest cities in the epicenter of the polio endemic in Pakistan.<sup>265</sup> While the practice has shown significant results in a variety of other development settings,<sup>266</sup> there has been no measurable impact in Pakistan. The threat of TTP violence against families far outweighs the roughly USD10 per child payment, and though this concept should fully be explored at a later date it is currently not viable.

One final practice of consideration is an increased call to engage the rest of the Muslim world.<sup>267</sup> Saudi Arabia has recently taken steps to mandate vaccination for all visitors during the annual Hajj pilgrimage to Mecca.<sup>268</sup> They have gone so far as to have banned pilgrims from Uganda and the DRC when outbreaks occurred in those nations and their respective governments refused to enforce blanket vaccination policies. Given Saudi Arabia's status as a major influencer in the Muslim world, this sends an understated message affirming that vaccination itself is not anti-Muslim. The potential here for greater advocacy by Muslim thought leaders has led to increased calls for the OIC to adopt similar resolutions in an effort to undermine religious opposition to greater immunization.<sup>269</sup>

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<sup>265</sup> Arie, S. "Polio Virus Spreads from Syria to Iraq." *BMJ* 348.Apr02 3 (2014): 1-2.

<sup>266</sup> Rawlings, Laura B., and Gloria M. Rubio. "Evaluating the Impact of Conditional Cash Transfer Programs." *The World Bank Research Observer* 20.1 (2005): 29-55.

<sup>267</sup> Riaz, Fatima, and Yasir Waheed. "Islam and Polio." *The Lancet Infectious Diseases* 14.9 (2014): 791-92.

<sup>268</sup> Ahmed, Qanta A., Sania Nishtar, and Ziad A. Memish. "Poliomyelitis in Pakistan: Time for the Muslim World to Step in." *The Lancet* 381.9877 (2013): 1521-523.

<sup>269</sup> Hotez, Peter J. "'Vaccine Diplomacy': Historical Perspectives and Future Directions." *PLoS Neglected Tropical Diseases* 8.6 (2014): 1-7.

Each of these strategies provides insight to potential solutions. Increased government engagement will be necessary regardless of which path is pursued. Vaccine ceasefires could play an important role in reaching areas without having to wait for an end to the military conflict. Perhaps most importantly, the rest of the Muslim world could play a major advocacy role were it to embrace a leadership role on this issue, as its credibility far outpaces the other relevant international institutions which are all perceived to be western-led.

### *Stakeholder Analysis*

Below is a brief description, with background and motivation, for each relevant stakeholder in the continued polio endemic. Following is an analysis of the level of interest, influence and resources that each player brings, as well as their position and ensuing impact. While any such framework is a gross oversimplification, it does allow for patterns to emerge, and from there a useful look at potential coalitions can be deduced. An opposition/support spectrum of all stakeholders with high resources or influence concludes.

*Figure 11 – Stakeholder Background*

|       | <b>Stakeholder</b>             | <b>Bio</b>   |
|-------|--------------------------------|--|
| Power | Afghan Taliban                 | Since the NATO-led invasion of Afghanistan in 2002, the Taliban has managed to reassert itself as a legitimate governing authority in the wake of repeated failures by the installed Kabul government. It is widely assumed that any long-term workable resolution would include them, and anecdotal evidence suggests preliminary negotiations have taken place. They have been traditionally cooperative on vaccination, and are interested in maintaining and growing their legitimacy. They consider the TTP amateurish and find themselves caught between distancing themselves from this unaffiliated organization and potentially drawing their ire for not being zealous enough. |
|       | Federal Government of Pakistan | Pakistani politics have always presented a shifting landscape. Families of political elites have traditionally controlled the powerful political parties, while the military has perpetually loomed as usurper should their position be threatened. Powerful controls were installed post-Musharraf to curb the military's political ambitions, but they have not been completely relegated in the political sphere. The Sharif government has recently been paralyzed by fringe political parties, likely being used as proxy by the military.  |
|       | International Donors           | Rotary International and the Gates Foundation, among others, have prioritized the polio issue in Pakistan by assisting the GPEI. While they would protest otherwise, many of the other traditional donor agencies/countries have largely paid lip service to the cause and are more interested in addressing less complex issues with higher visibility.   |

|                    |  |   |
|--------------------|--|---|
|                    | Organization of Islamic Cooperation                  | The OIC operates as a collective pan-Islamic institution representing the interests of its members in a number of foreign policy areas. The organization can be dominated by the Gulf States, which for the purposes of this analysis are included in this stakeholder group along with the Islamic Development Bank which has displayed similar dynamics. The OIC has appeared reticent to strongly confront the positions of the TTP, instead opting for what it believes to be a more subtle approach.   |
|                    | Pakistani Military                                   | The military has always been a pervasive element of Pakistani society, employing a decision-making calculus that effects the polio issue without truly accounting for it. Traditionally they have leveraged the southern threat of India into ever increasing funding levels, which have resulted in higher standards of living for the military class. The northern security strategy hinged upon fostering deployable paramilitary jihadi groups before the onset of the Global War on Terror, after which opposing those same groups provided a financial windfall. The recent election of Nawaz Sharif's civilian government, with a platform of opening dialogue with the TTP and normalizing relations with India, poses a potential threat. When conducting large-scale offensive counterterrorism operations the military has administered vaccination programs for refugees with middling results.   |
|                    | Tehrik-i-Taliban Pakistan                            | The TTP is a loose coalition of jihadi militant groups centralized in northwestern Pakistan along the Afghan border. The region has hosted a number of pre-cursor groups, stemming from fighter training networks established during the Soviet-Afghan War. They previously coalesced in opposition to the NATO-led invasion of Afghanistan in 2002, and have more recently been galvanized by opposition to US drone operations throughout the region. They recruit from the same undercurrent of disaffected war children that gave rise to the Afghan Taliban, though they are largely viewed as illegitimate by that more organized group. They oppose the Pakistani state, both the civilian and military elements, and have conducted offensive military operations against them. Previously leery of vaccination efforts led by western institutions, allegations of CIA use of a hepatitis-B vaccination campaign in the operation that led to the death of bin Laden have precipitate a backlash that has included the targeted assassination of health workers, and a subsequent resurgence in polio cases. |
|                    | World Health Org/Global Polio Eradication Initiative | A collection of UN-rooted organizations (WHO, GPEI, UNICEF) have been the staunchest advocates for addressing polio. They view the issue as a top priority, which separates them from the other stakeholders and potentially presents barriers to forging winning coalitions with other power brokers. In addition to being perceived as instruments of the western world, their focus on technical solutions for polio projects a level of political aloofness. They are further hampered from reaching to process and recipient powerbrokers by the dynamics of the current political situation.  |
| <b>Stakeholder</b> |  | <b>Bio</b>  |
| Process            | District/Tehsil Ministry of Health                   | In an attempt to stem subsequent coups, political reform in the post-Musharraf era has been manifested in a movement of political power away from the central government towards provincial and local levels. The transition has moved in fits and starts, as atrophied management structures at the lower levels struggle to set their priorities amidst budget shortfalls.  |
|                    | Federal Ministry of Health of Pakistan               | The Federal MoH's role has shifted dramatically over the past several years. Process and implementation power has slowly transitioned towards the local level. On the federal level, the elected government has been too preoccupied with existential problems to prioritize MoH issues. The one area where the MoH continues to play a major role is in liaising with and managing international donors interested in public health programming.   |
|                    | International Non-Governmental Organizations         | The INGOs suffer from a deeper sense of non-cohesiveness than the rest of the stakeholder groups. A number of them are admirably working to find solutions to the polio problem, but many shy away from the challenge en lieu of projects that offer engaged host country governments and a higher potential for success.   |
|                    | Lady Health Workers                                  | The Lady Health Worker program was established in the mid 1990's to address community health needs. Cultural gender taboos kept women and children from leaving the home, while at the same time precluding male health workers from making home visits. Training a cadre of female health workers circumvented this issue. As opposition to vaccination grew, this group of women was used by the government to continue immunization programs. Following the allegations of vaccination program use in the operation to kill bin Laden, the situation exploded and Lady Health Workers began being targeted for assassination by the TTP.   |

|           |                         |  |
|-----------|-------------------------|--|
|           | Local Law Enforcement   | As Lady Health Workers began to be killed by the TTP, the initial response was to increase their protection by assigning them local law enforcement escorts. They have proven largely ineffective and become targets themselves, with law enforcement officers now being targeted synonymously with health workers, when working on immunization campaigns.  |
|           | Local Religious Leaders | Arguably the least homogenous of all stakeholder groups, local religious leaders are notable for their ability to galvanize local populations by lending religious legitimacy to local grievance. Some of these leaders have been the driving force behind the targeting of health workers, while others have since leant their voice to supporting vaccination. Those with the most bombastic message tend to be heard. |
|           | <b>Stakeholder</b>      | <b>Bio</b>   |
| Recipient | FATA/KPK Parents        | Parents in these areas have struggled to provide for and protect their children for generations. The efficacy of vaccination is somewhat debated, but parents are generally willing to participate if they believe it will make their children more healthy. However, the area unfortunately suffers from such a number of health risks that polio has never materialized as a singular threat.                          |
|           | FATA/KPK Residents      | General residents of these areas hold similar attitudes as parents, but with arguably less zeal. They are interested in increased access to healthcare, and less violence perpetrated by the TTP, though they generally powerless to push any movement in either area.   |

Figure 12 – Stakeholder Analysis

|       | Stakeholder                         | Involvement   | Interest                 | Influence | Resources | Position  | Impact  |
|-------|-------------------------------------|---|--------------------------|-----------|-----------|---|---|
| Power | Afghan Taliban                      | De facto control of vaccination policy on Afghan side of border | HIGH                     | MED       | LOW       | Support cooperation on vaccination as projection of governing legitimacy, but are leery of undermining revolutionary efforts of indigenous radical groups | Taliban defers to TTP and other local affiliate groups  |
|       | Federal Government of Pakistan      | Set countrywide health policy and priorities via MoH            | MED                      | MED       | MED       | Polio falls behind a torrent of competing interests   | Issue drowned out   |
|       | International Donors                | Set INGO priorities by funding initiatives                      | MED                      | LOW       | HIGH      | High priority area for some donors, while others eschew polio for more impactful interventions elsewhere due to political landscape                       | Active donors fund and provide expertise to GPEI, while largely deferring to their leadership       |
|       | Organization of Islamic Cooperation | Mandate vaccination for Hajj pilgrims                           | MED                      | MED       | HIGH      | Polio should be addressed, but optics remain the driving force  | Message of vaccination coalescing with Islamic doctrine rarely trickles down to polio endemic areas |
|       | Pakistani Military                  | Conduct operations in endemic areas                             | LOW                      | MED       | HIGH      | Maintaining a threat level while simultaneously projecting power over radical groups in the region are only relevant goals                                | Decisions made without regard for polio impact  |
|       | Tehrik-i-Taliban Pakistan           | Degrees of military and governing authority in endemic areas    | HIGH (Negative Interest) | HIGH      | LOW       | Coordinated vaccination is an intrusion and connected to nefarious undermining plots  | Health workers are targeted for assassination   |



|           |  |   |                 |                  |                  |   |  |
|-----------|--|---|-----------------|------------------|------------------|---|--|
|           | World Health Org/Global Polio Eradication Initiative | Set global polio priorities                       | HIGH            | LOW              | HIGH             | Eradication is a high priority, but navigating vacillating implementation/advocacy roles is a struggle amidst the political landscape           | Implementation is limited due to the nature of ground conditions; advocacy falls on deaf ears of most other power stakeholders |
|           | <b>Stakeholder</b>                                   | <b>Involvement</b>                                | <b>Interest</b> | <b>Influence</b> | <b>Resources</b> | <b>Position</b>   | <b>Impact</b>  |
| Process   | District/Tehsil Ministry of Health                   | Responsible for coordinating local implementation | MED             | MED              | LOW              | Polio is one of a plethora of public health priorities  | District capacity is negated when caught between devolution-motivated shift in management control and lack of actionable power |
|           | Federal Ministry of Health of Pakistan               | Manage international donor relations              | MED             | LOW              | LOW              | Polio is a middling priority  | Devolution has pushed power to Provincial and District levels while fed government dictates national priorities                |
|           | International Non-Governmental Organizations         | Implement public health initiatives               | MED             | LOW              | MED              | Priorities are divided, polio is high-hanging fruit   | Polio is overshadowed by more actionable projects with better optics   |
|           | Lady Health Workers                                  | Responsible for implementation                    | MED             | MED              | LOW              | Generally impassioned about the work, but conflicted amidst growing tangible security risks   | Most effective agent is sidelined by religiously justified violence  |
|           | Local Law Enforcement                                | Responsible for security of Lady Health Workers   | LOW             | LOW              | LOW              | Largely indifferent to the polio issue; apprehensive about the dangerous task of protecting health workers                                      | Presence of officers increases health worker visibility and thus threat, without significantly heightening security            |
|           | Local Religious Leaders                              | Arbiters of religious ideology                    | MED             | HIGH             | LOW              | Universally want the best for their constituents, with moderates espousing vaccination and radicals drowning them out with sovereignty concerns | Loudest message is most resonant   |
|           | <b>Stakeholder</b>                                   | <b>Involvement</b>                                | <b>Interest</b> | <b>Influence</b> | <b>Resources</b> | <b>Position</b>   | <b>Impact</b>  |
| Recipient | FATA/KPK Parents                                     | Struggle to protect children                      | HIGH            | LOW              | LOW              | Eradication is a higher priority than the general population  | Parents hold higher potential for mobilization than residents  |
|           | FATA/KPK Residents                                   | Bear brunt of disease                             | HIGH            | LOW              | LOW              | Eradication is a high priority amongst a litany of other pressing concerns  | Residents hold little sway with any power party  |

Figure 13 – Support/Opposition Spectrum

|                  | Support          |                                     | Neutral                        | Oppose       |      |
|------------------|------------------|-------------------------------------|--------------------------------|--------------|------|
|                  | High             | Moderate                            |                                | Moderate     | High |
| Political Sector |                  |                                     | Fed Gov Pak<br>Taliban         | Military Pak | TTP  |
| Public Sector    | WHO/GPEI/UNICEF  | District/Tehsil MoH<br>Int'l Donors | LHWs                           |              |      |
| Social Sector    | FATA/KPK Parents | FATA/KPK Residents                  | Local Religious Leaders<br>OIC |              |      |

### *Potential Policy Options*

This section will draw heavily on Eugene Bardach's *A Practical Guide for Policy Analysis*,<sup>270</sup> with the aim of exploring policy solutions that might successfully eliminate the continuing threat of the polio endemic while balancing two key elements:

- 1) Efficiency in low resource environments
- 2) A framework predicated upon the inclusion of as many stakeholders as possible

### *Characteristics of Low Resource Environments*

Public health crises are exacerbated when occurring in spheres with residually low levels of manufactured and knowledge capital. Intuitively, decrepit (or nonexistent) infrastructure in the form of roads, electricity, technology for communication and logistical coordination, and healthcare systems contributes to slow burning problems. Minimal local awareness of the value of controlling disease burden reduces both local advocacy for, and contribution towards, solutions. It is clear that any viable strategy must succeed despite these deficits, rather than merely necessitate their prior removal.

Low levels of social capital further compounds these issues. Identifiable single responsible actors are in short supply. Conflict or post-conflict areas are confronted with the added burden of social structure transitions, raising questions of who bears the responsibility for

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<sup>270</sup> Bardach, Eugene. *A Practical Guide for Policy Analysis: The Eightfold Path to More Effective Problem Solving*. 4th ed. N.p.: Sage / CQ, 2012.

addressing the needs of individuals. Do such burdens fall to the state, which may perpetuate the neglect of marginalized populations? Are such needs left to markets, which have proved adept at supplying consumer goods, but less capable of providing essential medicines? Or perhaps the local branch of a radicalized militant group is ready to step in, administering decrees in the vacuum of governance and effective state function?

### *Broad Stakeholder Inclusion*

Successful strategies will typically need to be composed of coalitions large enough to maintain momentum through periods of low morale, and they should place special emphasis on the inclusion of recipient populations. Such populations are rarely top level decision-makers, but incorporating them and their needs is important for two main reasons. First, doing so begins to build levels of social capital that will help maintain momentum. Second, the sustainability of any long-term solution is reliant upon their continued administration of any intervention. Though external finance and expertise play vital roles, large-scale humanitarian assistance programs have a tendency to end on five year cycles. Federal governments often fall prey to the attractiveness of competing budget priorities. Continuity is rooted locally.

### *Evidence*

Over 80% of global polio cases in 2014 (the last year of confirmed data) have occurred in Pakistan, with the overwhelming concentration in FATA and KPK, both situated in the northwest of the country along the Afghanistan border (see figure 13).<sup>271</sup> While traditionally

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<sup>271</sup> World Health Statistics 2014. Rep. Geneva: World Health Organization, 2014. Web. 22 Mar. 2014.

marginalized from federal governance participation and power structures, the region finds itself at the disease's global epicenter with little recourse.

Spilling over what in practice is a border in name only, the War in Afghanistan has eroded and degraded social networks, reducing community resiliency and fostering hostility towards outsiders. Yet, the outbreak is currently being addressed via military intervention through the Pakistani army.<sup>272</sup> While deeply ironic, the strategy is not without logic. With effective command and control structures and significant logistical capabilities, as of late militaries have become the tool of choice for addressing humanitarian crises.<sup>273</sup> Despite such organizing capacity, the ability to address humanitarian need effectively is still lacking. Such intervention is characterized by high costs, misdirected priorities, and the circumvention of previously existing authority structures.

Pakistan, specifically, is also beset by a number of trust issues. The Pakistani military lacks trust in a local population dominated by ethnic Pashtuns, a group often broadly painted as terrorists or terrorist sympathizers. The federal government shares such sentiment, but also does not trust the military which may currently be orchestrating a soft coup.<sup>274</sup> And the local civilian population, frankly, trusts no one.

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<sup>272</sup> Shah, Saeed. "Pakistan Military Offensive Poses New Perils in Country's Polio Crisis." *The Wall Street Journal Eastern Edition* 2014.

<sup>273</sup> De Waal, Alex. "Militarizing Global Health." *Boston Review*. Boston Review, 11 Nov. 2014. Web. 15 Nov. 2014.

<sup>274</sup> Boone, Jon. "Pakistan 'Soft Coup' Fears as Army Chief Holds Talks with Protest Leaders." *The Guardian*, 29 Aug. 2014. Web. 8 Dec. 2014.

The WHO is the UN Agency tasked with addressing global disease outbreaks. However, the institution finds itself bureaucratically hampered and increasingly politicized, with a falling budget to underscore globally ebbing faith.<sup>275</sup> As such they have largely been sidelined. Though still present, they enjoy little support from all players, especially the larger international community.

In terms of spending, several key figures emerge. The first is that global annual expenditure on fighting polio is roughly US\$1b<sup>276</sup>, of which US\$350m comes from WHO and the rest from a variety of NGO, governmental and philanthropic sources.<sup>277</sup> The other figure is vaccine cost. At US\$0.10 - \$0.14 per dose<sup>278</sup>, cost is not at surface overtly prohibitive. Given an estimated 75% vaccine coverage in Pakistan<sup>279</sup>, and the necessity for 3 – 10 doses per client depending on local standards of sanitation and hygiene, there is a projected vaccine cost of US\$13.7m - \$59.2m. Despite the estimate's range, and indeed a reasonable actual figure would be somewhere around US\$30m, note the stark difference between vaccine cost estimates and annual expenditure.

It is finally important to note the very nature of polio. Jonas Salk's vaccine was discovered in 1955 and within a generation the disease was largely eliminated throughout the

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<sup>275</sup> Bloom, Barry R. "WHO Needs Change." *Nature* 473.7346 (2011): 143-5.

<sup>276</sup> Mcneil, Donald G., Jr. "Gates Calls for a Final Push to Eradicate Polio." *The New York Times*. N.p., 31 Jan. 2011. Web. 22 Nov. 2014.

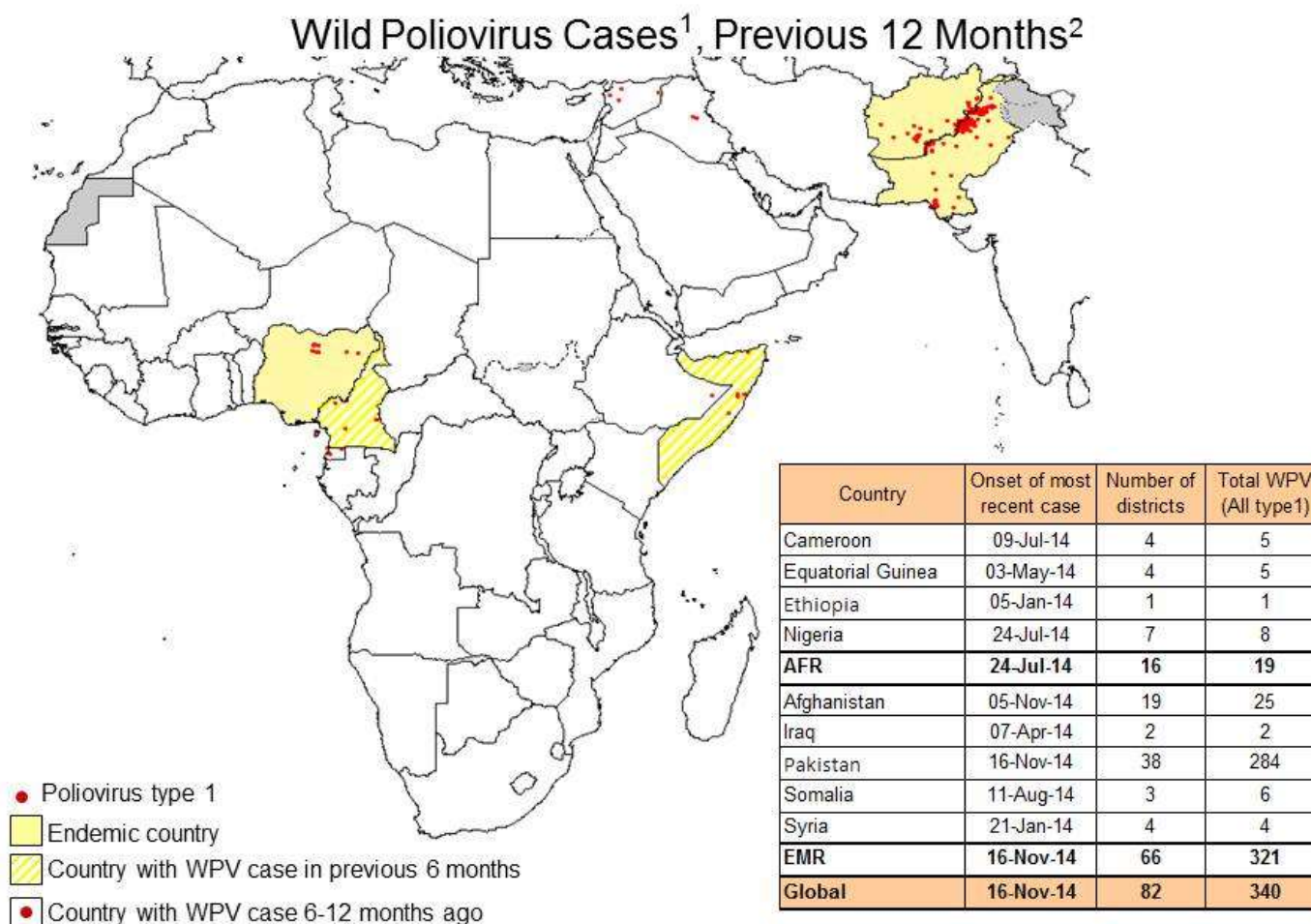
<sup>277</sup> Chan, Margaret. "Proposed Programme Budget 2014-2015." *Sixty-sixth World Health Assembly Provisional Agenda Item 12.3 A66/7* (2013): 8-10. World Health Organization, 19 Apr. 2013.

<sup>278</sup> Chhabra, Esha. "Injecting Competition." *The Economist*. *The Economist Newspaper*, 19 July 2013. Web. 9 Dec. 2014.

<sup>279</sup> "Statistics." Pakistan. UNICEF, 27 Dec. 2013. Web. 5 Dec. 2014.

industrialized world. In 1985 a collaborative effort (including WHO) was started to eradicate the disease, making substantial progress to the point of less than twenty new cases per year. The 'last mile' has proven difficult, with estimated number of new cases expected to hit over 350 in 2014. As one reporter remarked, "[it] has been like trying to squeeze Jell-O to death. As the vaccination fist closes in one country, the virus bursts out in another."<sup>276</sup>

Figure 14 – Map Wild Poliovirus Cases 2014



<sup>1</sup>Excludes cases caused by vaccine-derived polioviruses and viruses detected from environmental surveillance.

<sup>2</sup>Onset of paralysis 03 December 2013 – 02 December 2014

Data in WHO HQ as of 02 December 2014

## *Constructing Alternatives*

While every effort should be made to keep the gamut of potential solutions both collectively exhaustive and mutually exclusive, any model is a simplification and its construction threatens distortion when projecting to the real world. That is to say that the following alternatives meet the standard as best as is currently foreseeable. Each one will be briefly described here with the purpose of conceptualization, while a detailed narrative analysis is laid out in the *Projecting the Outcomes* section and a graphical representation is included in the table in figure 14.

### Status Quo / Intermittent Domestic Military Intervention

Thorough analytic policy frameworks must always consider the potential outcomes of continuing business as usual, and this endemic is no exception. The army is currently assisting in this endeavor as a result of proximate military operations. They have been mobilized in the past for public health measures, but their presence is typically short-lived. When they do pull out the role of immunization will be relegated back to a dwindling number of willing health workers who have been habitually terrorized by local militant groups.<sup>280281</sup> It should also be noted that the high standing the military holds throughout other regions of the country does not translate to FATA and KPK.

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<sup>280</sup> "Lady Health Workers Boycott Polio Campaign in Absence of Security." Dunyaneews.tv. Dunya News, 3 Oct. 2014. Web. 14 Oct. 2014.

<sup>281</sup> Kazi AM, Khalid M, Kazi AN. Failure of polio eradication from Pakistan: Threat to world health. J Pioneer Med Sci.2014; 4(1):8-9



### Foreign Military Intervention

As previously noted, the use of foreign military command and control structures to coordinate responses to humanitarian crises is a growing trend. Ready examples would include US military interventions in the aftermath of the 2010 earthquake in Haiti, as well as the current response to Ebola in West Africa, whereby the US, UK and France are currently assisting Liberia, Sierra Leone and Guinea respectively (aside: the colonial overtones are worth noting).

### Bolster WHO Efforts

The WHO is already tasked with the responsibility of addressing polio globally, but it has been hampered by increased bureaucratic and political hurdles, and decreased trust and funding. This option would call for renewing their efforts through increased funding and streamlining their decision-making process, to better confront the problem.

### Local Communities Secure Assistance from Federal Government

Whereby local communities and social networks are empowered to advocate for resources (capital, both human and manufactured) to address the endemic themselves. The organization of vaccination drives through existent socio-political mechanisms would ensure the development of health infrastructure to meet health needs. It would serve to bypass the issues of mistrust associated with authoritarian measures mandated by outsiders, whether those authorities originate in the west or from other areas of Pakistan. Administration would require a two-way dialogue, and the will of both parties to follow through on such initiatives.

### Local Communities Secure Assistance through Foreign Aid

Similar in practice to the previous alternative, with the exception of funding coming from foreign aid coffers. Logistically, this would look like a double cash transfer, where foreign governments issue funds to the Pakistani federal government, which then issues the funds to local communities. Direct aid to communities is not feasible on one hand because of mistrust of foreigners, and on the other because it raises complex legal issues of sovereignty. To ensure compliance, or rather avoid elite capture, by the federal government, who in this instance becomes the proverbial middle-man, the conditionality of other current foreign assistance disbursements would need to be tied to the successful distribution of the appropriate funds to communities, as well as to overall health outcomes.

#### *Selecting the Criteria*

The best strategy will do a reasonable job of meeting several applicable criteria, in terms of...

- Efficiency
- Logistical Feasibility
- Political Feasibility
- Social Acceptability

Regarding efficiency, the objective is a cost-effective solution for addressing the highest percentage of clients. In essence, the most bang for the buck. It is not enough to be the cheapest potential solution, rather a high premium will be placed upon systemic value creation. Further, any viable solution must meet a high enough initial vaccination target so as to reasonably reach

near total population coverage in subsequent years. Covering at least half of the 25% of the total population that is not vaccinated would be a minimum acceptable target.

Logistically, the solution should be capable of operating in the region's low resource environment. A more in depth characterization of these types of environments has previously been alluded to, and solutions must not only be effective in them, but they should also be able to perpetuate themselves given low levels of manufactured capital. Doing so speaks to the very heart of sustainability.

Politically and socially, care must be taken to weigh the interests of all actors. A practical plan will include actors with reasonable political latitude to implement. It is unlikely any alternative will surmount such a task without tacit support in this area. Socially, local actors must approve of the measure. Benefits must be recognizable, so fears might be assuaged. Ideally local actors will assist in, or direct, interventions and strategies, but at the very least they must approve of, or at the very least allow, the implementation.

### *Projecting the Outcomes*

For a tabled summary of this information, please reference the table in Annex 2.

### Status Quo / Intermittent Domestic Military Intervention

- Efficiency

Costs are largely negligible in this scenario; the military is being paid regardless and vaccine production costs are borne by outside actors (WHO, INGOs, foundations, etc.).

Operations are tagged to existing activities. In terms of client coverage, the military has

proven largely inept at reaching high percentages of the population. Opinions will differ on the increased vaccination rate, but it is reasonable to believe they will meet 10-15% of the uncovered population per year, resulting in a 2.5-3.75% overall increase.

- Logistical Feasibility

The Pakistani military is certainly capable of operating in low resource environments.

However, given estimates of their low level of outreach, it is likely that an eradication lead effort by the military would require a 7 – 10 year timeline. While a following three year monitoring period would be required in any scenario, the WHO is equipped to do that and is currently performing the task. However, the military will not realistically stay posted in the region for near a decade.

- Political Feasibility

The domestic military enjoys a high level of political latitude in Pakistan, and as such its ability to perform such an operation is almost unquestioned. Their collective will to do so is another matter, and unlikely high enough to project a probable success.

- Social Acceptability

Such an endeavor would likely be viewed as an occupation by a military largely representative of a Punjabi majority throughout the rest of the country. It would likely be met with local resistance and foster discontent, though certainly less than that the amount were it any western military or aid agency.

### Foreign Military Intervention

- Efficiency

A foreign military intervention would incur the highest monetary cost of all considered alternatives. Current projections of the US military intervention to fight Ebola in Liberia (a country with comparable size to FATA and KPK), are estimated at US\$750m per year.<sup>282</sup> Given the increased security risk in Northern Pakistan, a likely conservative estimate would be US\$900m a year, over two years, for a total price tag of US\$1.8b. Given minimal resistance, this intervention is capable of addressing a high percentage of the population, with a reasonable estimate of covering 90% of the unvaccinated population.

- Logistical Feasibility

Such an intervention exceeds in logistic capability, and would likely initially be up to the task. However, such an alternative is highly unsustainable, with the results likely leaving as soon as the last troops ship out.

- Political Feasibility

This is exceedingly low. High resistance is likely from the domestic military and federal government. It would easily be viewed by such actors as an infringement on sovereignty.

- Social Acceptability

The local social acceptability is also exceedingly low. Any foreign military is likely to be met with significantly more local resistance than the Pakistani Army.

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<sup>282</sup> Berman, Russell. "The U.S. Military's War on Ebola." The Atlantic. Atlantic Media Company, 07 Oct. 2014. Web. 7 Dec. 2014.

## Bolster WHO Efforts

- Efficiency

WHO currently spends US\$350m per year on global polio eradication measures, and that has not proven enough.<sup>277</sup> Efforts in Pakistan are largely focused on monitoring and vaccine supply. Previous vaccination efforts have been largely stifled since 2012, when public outcry over the use of a separate vaccination campaign (for Hepatitis-B) as cover for a clandestine operation to kill terrorists reached fever pitch. Vaccination teams were subsequently targeted and assassinated, and WHO withdrew its ground efforts in light of the growing assaults. Amidst such security concerns, costs are hard to predict. Going back in would likely cost less than a foreign military intervention, but it would still be significantly high. A doubling of their budget to US\$700 for the next two years could work. In terms of vaccination coverage, this alternative has the highest likely payoff, with over 90% coverage of uncovered populations, resulting in a 22.5 – 23.75+% increase.

- Logistical Feasibility

Current administration of the global polio eradication program and maintenance of Pakistan's monitoring network for new cases, suggest WHO is technically capable of the endeavor. Further they have a history of operating in politically sensitive areas, having notably addressed endemics of smallpox in the Soviet bloc during the Cold War and influenza in China in 2009.

- Political Feasibility

This is low. Currently charged with managing this response, WHO has had difficulty rallying political will to the cause. There is no evidence to suggest that will quickly change, and they will soon receive funds.

- Social Acceptability

Also a low probability of success. Vaccination teams have regularly been targeted over the past two years in Northern Pakistan specifically. Mistrust of foreign intervention is extremely high.

#### Local Communities Secure Assistance from Federal Government

- Efficiency

The alternative is cost effective, posing low security costs, and capable of receiving vaccines free of charge from WHO. Assuming local communities contain parties interested in filling the task, there would be increased costs for the training and salaries of new health workers. Given a 25% uncovered population, the ability of one worker to serve 1,000 clients a year and the annual cost of a worker at US\$745, this would be an estimated US\$33.7m per year expenditure.

In terms of coverage, there would be a comparatively lower return than the aforementioned alternatives involving an international response, yet markedly higher than continued reliance upon a piecemeal domestic military solution. Once administrative hurdles are handled, a process certainly due to last longer than any other option's start-up phase, and actual implementation begins, it is not unreasonable to see initial returns in the 50% range

for the first full year of activities, with a potential of hitting 75% by the end of year two.

This equates to somewhere between a 12.5% - 18.75% increase in total coverage.

- Logistical Feasibility

Logistically this is very possible given low infrastructure levels, and bears the promise of the highest potential for long-term sustainability. One drawback is reliance on continued federal funding, which has proven erratic for initiatives neither tied to military budgets nor to more urban and peri-urban areas. A lynchpin is the realistic potential for open dialogue between domestic parties traditionally dominated by asymmetric power relations.

Assuming open conversation as an eventuality, this approach would likely produce a domino effect, whereby the dialogue opens the door to fund management, which increases community resiliency, further fosters cooperation, and eventually leads to reduced security risks. It should be noted that this trend has already begun, spurred by foreign pressure for increased governmental decentralization following the end of Gen. Pervez Musharraf's military dictatorship.

- Political Feasibility

The probability of such an effort remains low, chiefly for political reasons. Even were dialogue to open, this strategy would require a timeline of 3 -5 years to be effective, and before completion federal political actors would eventually likely be hampered by funding requests from more influential sectors. Infectious disease of this nature requires a sustained effort, which seems improbable in this context.

- Social Acceptability



While hard to forecast, social acceptability is very possible. The current low level of social trust is largely driven by beliefs that foreign actors are using vaccination as a weapon.

Though posited long before the clandestine activities of foreign governments did use vaccination campaigns as cover, those events have wholly reinforced the notion. Social adhesion is more probable if perceived to be domestically driven.

#### Local Communities Secure Assistance through Foreign Aid

- Efficiency

For our purposes, the efficiency of this alternative is the same as the previous one.

- Logistical Feasibility

For our purposes, the efficiency of this alternative is the same as the previous one.

- Political Feasibility

Higher than the aforementioned option, this alternative presents concrete political feasibility. The federal government is not opposed to accepting assistance, as evidenced by the current existence of development programming throughout the country. The likelihood of a sustained cash flow for up to five years is much more probable coming from a foreign donor than expecting the same from the federal government.

- Social Acceptability

This is tricky. Perhaps the hardest point to forecast well, there is a large degree of uncertainty in estimating levels of social acceptability towards receiving vaccination

assistance from foreign donors. However, there are two caveats that may be of assistance. The first is that the money would be issued by the federal government, which opens the possibility for local actors to not question how their benefactor received the funds. The second is that there is no reason the funds must come from a western government, or an institution widely perceived to promote western values, like the WHO. Given a latent pan-Islamic narrative, Saudi Arabia, or a similar Gulf state, would be an obvious choice for headlining such an initiative.

### *Confronting Trade-Offs*

Any number of trade-offs are inherent in comparing these options. Our expectations can be exceeded in one area of an alternative, while untenable in others. Some alternatives seem ill fit within the context, inspiring questions of how they can be considered at all. And yet other scenarios seemingly strike a balance on paper that is muddled by uncertainty in practice.

We know that any military intervention, foreign or domestic, has the highest potential for efficacy, with logistical capabilities and command and control structures that make an attractive case for their use. Yet militaries present the baggage of authoritarian rule, with decidedly negative effects on social acceptance. Further, we understand that military occupation of both the region and the problem will inevitably come to an end, leaving behind a population still unable to manage its own health outcomes.

Similarly, any international agency implementing on a large scale draws the attention and ire of local populations, and thus faces the same security challenges of a military. The increased risk drives costs up to levels comparable to foreign military intervention, squandering any

comparative advantage that may have been had. Indeed, to the average local resident, a full scale WHO operation looks in practice nearly indistinguishable from a military one.

Solely mobilizing federal actors to a central role also proves fruitless. Marginalized populations are by definition excluded from political representation. Federal actors tend to lack either the will, the means, or both in addressing the key issues involved in the sustainability of such a program.

And there are massive barriers to entry. Including local groups in the conversation means confronting local groups' resistance to foreigners and outsiders. Not only does the support of locally driven programs require significant follow through on foreign donor aid promises, it also requires that perceptions around where the money comes from are dealt with delicately.

#### *Sensitivity, Decisions and Telling the Story*

When confronting policy choices, sensitivity analysis allows us to confront the risks of inaccurate assumptions. Some assumptions, despite wild miscalculation, may pose little risk to predicting the true model if inaccurate, while others may fall apart with comparatively smaller errors.<sup>283</sup> Our analysis could benefit from such a perspective.

Without being overly simplistic, it might be fair to say that our first three alternatives, involving either a military or international agency, all easily pass a sensitivity analysis. For the domestic military we know that given the absence of both will and dedicated resources to specifically confront the endemic, there is a low probability of significantly increased coverage

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<sup>283</sup> Bardach, Eugene. "STEP FIVE: PROJECT THE OUTCOMES." A Practical Guide for Policy Analysis: The Eightfold Path to More Effective Problem Solving. 4th ed. N.p.: Sage / CQ, 2012. 7-8. Print.

outcomes. Whether that level is within the estimate range or 2.5% - 3.75% hardly matters; the alternative is unlikely to produce significant results. Perhaps on the other end of the spectrum, foreign military intervention and large scale bolstering of WHO efforts both pass as well. Yet, costs will be prohibitively exorbitant, to the point where the actual amount is of decreasing relevance. Where the actual value falls between US\$1.5b – US\$2b does not change that such an increase in funding is significant to the possibility of impractical. It might seem in this case that sensitivity analysis offers little reassurance.

And yet, the alternatives that present themselves as most sustainable flounder when confronted with the same analysis. Even were we to assume that a federal funding option could meet the challenge, both of our latter options hinge directly upon participation of local communities. Some level of buy-in is necessary to make either of them go, and an honest estimate of that probability is binary; it either happens or it does not. One possibility seems just as likely as the other.

Does this necessitate the disposal of these alternatives? Certainly not. We must be vigilant to remember that realistic long-term policy solutions are those that while “not necessarily... the best, ...would satisfy the whole or nearly the whole, array of minimum policy desirata.”<sup>283</sup> Under that standard, indeed, they both remain viable options, and choosing an alternative where local communities secure assistance through foreign aid is the correct decision. Were it to fail, it would at most cost roughly US\$113m of donor money, with little burden placed on any other actor. In light of current annual expenditures of an estimated US\$1b a year, and other viable solutions requiring an additional amount close to two times that, the risk is more than justified.<sup>276</sup>

And that is the real story. The narrative here is that there is a debilitating disease that we as a race were on the cusp of eliminating, but conflict, zealotry and chance colluded to set us back. The problem could be left to fester; a growing disease well continuing to affect neighboring communities and push us all back nearly sixty years. We could, also, declare some semblance of global marshal law and expensively solve the problem for the whole, while effectively pushing an already marginalized group even lower. Or we could spend sixteen times less to implement a solution with a high long-term probability of success, which also happens to foster social institutions and interconnectedness in an area that could really use the boost after over a decade of war.

### *Conclusions*

In closing there are a few points worth remembering. The first is that this is not about Pakistan. Global disease burden is a risk to us all, and disaster relief scenarios left over from the 1950's are no longer viable. It is imperative that we begin to adapt and pioneer new methods and strategies; ones that are highly functional in resource poor environments, and non-reliant upon militaries which inherently bring their own baggage and inefficiencies.

These strategies will need to be able to identify and target authority figures and institutions. Inherent authority does not always come from federal governments, though federal governments are always important actors. At the same time local communities need to be prepared to vocalize their calls for outside assistance clearly, and sometimes until hoarse, through advocacy measures that promote their needs.

Institutions play a vital role in that effort. There is a tension in low resource environments between everything and everything. Notions of limited manufactured capital resources and hard decisions, can blind us to the efficacy of institutional, over infrastructure, solutions. Indeed, building large-scale infrastructure is rarely feasible in the face of outbreak, but a combination of social and knowledge capital, through empowered institutions, is capable of addressing not just identified problems, but also imbuing residual benefits useful in the solution of any host of other issues.

And finally, we must retain a goal-oriented perspective. Nothing is perfect. Rather than striving to be, our “standard should [always] be whether reliance on a model can lead to better results and avoid worse results than less disciplined guesswork.”<sup>284</sup>

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<sup>284</sup> Bardach, Eugene. "STEP FIVE: PROJECT THE OUTCOMES." A Practical Guide for Policy Analysis: The Eightfold Path to More Effective Problem Solving. 4th ed. N.p.: Sage / CQ, 2012. 3. Print.

Figure 15 – Outcome Projection

| COMPARATIVE ANALYSIS<br><i>Polio Intervention Strategies - Northern Pakistan</i> |   |   |  | O (Operational)<br>E (Economic)<br>P (Political)<br>S (Social) |
|--|---|---|--|--|
|  |   | (% increase in<br>vaccination coverage<br>over two years) | (Total estimated<br>additional<br>expenditure) |  |
|  | Policy Scenario   | Efficacy  | Cost-effectiveness                             | Viability  |
| Military Intervention  | Status Quo /<br>Intermittent<br>Domestic Military<br>Intervention | 2.5% - 3.75%  | N/A*   | O: Low<br>E: High<br>P: Medium<br>S: Low                       |
|  | Foreign Military<br>Intervention                                  | 22.5% - 23.75%  | US\$1.8b                                       | O: High<br>E: Low<br>P: Low<br>S: Low                          |
| Int'l Agency   | Bolster WHO efforts   | 22.5% - 23.75%  | US\$1.4b                                       | O: High<br>E: Medium<br>P: Low<br>S: Low                       |
| Assistance to Local<br>Communities   | From Federal<br>Government  | 12.5% - 18.75%  | US\$81.1 - 112.9m                              | O: Medium<br>E: High<br>P: Low<br>S: Medium                    |
|  | From Foreign Aid  | 12.5% - 18.75%  | US\$81.1 - 112.9m                              | O: Medium<br>E: High<br>P: Medium<br>S: Medium                 |

\*Additional funding not required

# Part VI: Beyond Polio

## *Lessons Learned*

The case study of polio offers a number of insights into the dynamics of problems that do not fit within borders, the delicacy of sovereignty issues, the limits of global cooperation and the efficacy of quick blanket strategies versus building enduring systems. In an increasingly globalized world these are the characteristics of tomorrow's challenges. The questions, and sometimes answers, gleaned from analyzing this problem are applicable beyond military or public health spheres.

In terms of intrastate politics, sovereignty issues play a key role in such crises. If people are given greater levels of self-rule, as we have seen with devolution schemes in Pakistan, it is not enough to merely begin to transfer the power. Without viable strategies for conveying the rationale behind certain policy stances, outcomes are likely to be chaotic at best. Outreach and education provide a key role in influencing appropriate local communal decision making.

This crisis has also highlighted the effect that low levels of regional cooperation can have on slow burning issues. There was little alignment from any of the major players in this scenario. The Pakistani government and military were on different pages, the Afghan government has had little weight to bear, and the two main terrorist organizations that operate in the area have major tactical and ideological differences that have not allowed them to agree either. While there is a distinct possibility that the OIC could play a significant role in this arena still, a lack of leadership has resulted in a muddled response to the detriment of the region, and potentially to the detriment of major populations elsewhere.



Finally, we learned about the effects of strategic choices. Two different overarching strategies emerged in this case: large-scale mass-coverage versus building out enduring systems over time. Both have worked in other countries previously, but attempts at blanket coverage in Pakistan have proved ineffective in the long run. Ultimately, the problem is unlikely to be solved without a commitment to building out a base level of healthcare infrastructure capable of maintaining services.

### *What is Security?*

The largest and most powerful player in the polio crisis has been the Pakistani military. Charged with the security of the state, this endemic has highlighted an interesting tension at the very foundations of the intrinsic nature of both the state and security. On a Hobbesian level it has been argued that the state is merely a monopoly on legitimized violence. In Pakistan, as in any number of places around the globe, it seems that that might not be enough. Is Pakistan made a state by its military's ability to defend its borders from India, its historical nemesis?

Pakistan's security is easily called into question today, despite the size and might of its military, and despite the fact that full blown war between it and India is several decades behind us. Pakistan's overall security is suffering from a group of marginalized and ostracized radicals. They were previously sponsored by the state as paramilitary groups, further signaling their otherness, and they have been turned on in the GWOT. It is more than likely that deliberate efforts at a more equitable division of services, perhaps starting with health services, would have a greater impact on overall state security than continued military campaigns. The concept of using military command and control structures to address this public health concern now, and continue

a trend of the militarization of global health, would surely not result in an increased level of security throughout the region.

# Bibliography

- "50 Facts: Global Health Situation and Trends 1955-2025." *World Health Report*. WHO, n.d. Web. 02 Jul. 2015.
- Abbas, Atta, and Nida Yazdani. "Polio dilemma: A wake-up call for Pakistan." *Medical Science*, 2014, 13(52), 88-89.
- Abimbola, Seye, Asmat Ullah Malik, and Ghulam Farooq Mansoor. "The Final Push for Polio Eradication: Addressing the Challenge of Violence in Afghanistan, Pakistan, and Nigeria." *PLoS Med PLoS Medicine* 10.10 2013.
- Adalja, Amesh A. "Deadly Choices: How the Anti-Vaccine Movement Threatens Us All." *JAMA* 305.23 (2011): 2469. Web.
- Adeney, Katharine. "The Limitations of Non-consociational Federalism: The Example of Pakistan." *Ethnopolitics* 8.1 (2009): 87-106. Web.
- Ahmed, Qanta A., Sania Nishtar, and Ziad A. Memish. "Poliomyelitis in Pakistan: Time for the Muslim World to Step in." *The Lancet* 381.9877 (2013): 1521-523.
- Ahmed, Samina. "Pakistan's Nuclear Weapons Program: Turning Points and Nuclear Choices." *International Security* 23.4 (1999): 178-204.
- Al-`Ubaydi, Muhammad. "Stories of Foreign Fighter Migration to Syria." *Combating Terrorism Center Sentinel* 7.8 (2014): 11-13.
- Ali, Zulfiqar, and Shashank Bengali. "Pakistan Raises Death Toll in Peshawar School Attack to 148." *Los Angeles Times* 17 Dec. 2014.
- Alexander, J. P., M. Zubair, M. Khan, N. Abid, and E. Durry. "Progress and Peril: Poliomyelitis Eradication Efforts in Pakistan, 1994-2013." *Journal of Infectious Diseases* 210.Suppl 1 (2014): 152-161.
- Angez *et al.*: Genetic relationships and epidemiological links between wild type 1 poliovirus isolates in Pakistan and Afghanistan. *Virology Journal* 2012 9:51.
- Arie, S. "Polio Outbreak Leads to Calls for a "Vaccination Ceasefire" in Syria." *BMJ* 347.Nov05 6 (2013).
- Arie, S. "Polio Virus Spreads from Syria to Iraq." *BMJ* 348.Apr02 3 (2014): 1-2.
- Aylward, Bruce, and Rudolf Tangermann. "The Global Polio Eradication Initiative: Lessons Learned and Prospects for Success." *Vaccine* 29 (2011): 80-85.

- Aylward, R. Bruce, and Ala Alwan. "Polio in Syria." *The Lancet* 383.9916 (2014): 489-91.
- Babakarkhail, Zubair, and Dean Nelson. "Taliban Renounces War on Anti-polio Workers." *The Telegraph*. N.p., 13 May 2013. Web. 05 Oct. 2014.
- Bardach, Eugene. "STEP FIVE: PROJECT THE OUTCOMES." *A Practical Guide for Policy Analysis: The Eightfold Path to More Effective Problem Solving*. 4th ed. N.p.: Sage / CQ, 2012.
- Bartlett, Karen. "Eradicating the Last 1% of Polio Is Deadly but Essential." *Newsweek* 28 Nov. 2014. Web. 30 Nov. 2014.
- Beaubien, Jason. "Taliban In Pakistan Derail World Polio Eradication." *NPR*, 28 July 2014. Web. 14 Oct. 2014.
- Beaubien, Jason. "The Comeback Of Polio Is A Public Health Emergency." *NPR*, 5 May 2014. Web. 14 Oct. 2014.
- Bergen, Peter. "Was There a Cover-up in Bin Laden Killing?" *CNN*, 20 May 2015. Web. 22 July 2015.
- Berman, Russell. "The U.S. Military's War on Ebola." *The Atlantic*. Atlantic Media Company, 07 Oct. 2014. Web. 7 Dec. 2014.
- Bhatnagar, Nidhi, Manoj Grover, Smita Sinha, and Ravneet Kaur. "Poliomyelitis Eradication: Rhetoric or Reality." *Asian Pacific Journal of Tropical Disease* 3.3 (2013): 240-41.
- Bhutta, Z. A. "Children of War: The Real Casualties of the Afghan Conflict." *BMJ* 324.7333 (2002): 349-52. Web.
- Bhutta, Z. A. "Conflict and Polio." *JAMA* 310.9 (2013): 905.
- Bhutta, Z. A. "The Push and Pull for Global Polio Eradication." *Transactions of the Royal Society of Tropical Medicine and Hygiene* 107.10 (2013): 601-02.
- Bhutta, Z. A., and Walter A. Orenstein. "Scientific Declaration on Polio Eradication." *Vaccine* 31.27 (2013): 2850-851.
- "Blast Targets Polio Security Team in Charsadda, Seven Killed." *Pakistan Today* [Lahore] 22 Jan. 2014.
- Blood, Peter R. *Pakistan: A Country Study*. Washington, D.C.: Federal Research Division, Library of Congress, 1995. Print.
- Bloom, Barry R. "WHO Needs Change." *Nature* 473.7346 (2011): 143-5.
- Boone, Jon. "Pakistan 'Soft Coup' Fears as Army Chief Holds Talks with Protest Leaders." *The Guardian*, 29 Aug. 2014. Web. 8 Dec. 2014.

- Brumfiel, Geoff. "Fake Vaccination Campaign Raises Real Fears." *Nature* (2011). Web.
- Bush, Kenneth. "Polio, War, and Peace," *Bulletin of the World Health Organization* 78:3 (2000): 281-2.
- Carapetis, Jonathan R. "The Cutter Incident: How America's First Polio Vaccine Led to the Growing Vaccine Crisis." *BMJ* 332.7543 (2006): 733. Web.
- Carver, Fred. "When Tiers Clash: Devolution vs. Democracy in Pakistan." *E-International Relations* (2012). 2 Aug. 2012.
- Celentano, Lucia Pastore, Pier Luigi Lopalco, Emma Huitric, Denis Coulombier, and Johan Giesecke. "Polio and the Risk for the European Union." *The Lancet* 383.9913 (2014): 216-17.
- Chan, Margaret. "Proposed Programme Budget 2014-2015." Sixty-sixth World Health Assembly Provisional Agenda Item 12.3 A66/7 (2013): World Health Organization, 19 Apr. 2013.
- Chang, April. "Eradicating Polio in Afghanistan and Pakistan." CSIS Global Health Policy Center (2012): Center for Strategic and International Studies, Aug. 2012. Web. 14 Oct. 2014.
- Chappell, Bill. "CIA Says It Will No Longer Use Vaccine Programs As Cover." *NPR*. 20 May 2014.
- "Chapter Six: Asia." *The Military Balance* 115.1 (2015): 207-302.
- Chatterjee, Animesh, Sanjukta Vidyant, and Tapan N. Dhole. "Polio Eradication in India: Progress, but Environmental Surveillance and Vigilance Still Needed." *Vaccine* 31.9 (2013): 1268-275.
- Chhabra, Esha. "Injecting Competition." *The Economist*. The Economist Newspaper, 19 July 2013. Web. 9 Dec. 2014.
- Clark, William. "Chapter 5: Linking Knowledge with Action for Sustainability.", 2014. Working Paper.
- Closser, Svea, and Rashid Jooma. "Why We Must Provide Better Support for Pakistan's Female Frontline Health Workers." *PLoS Med PLoS Medicine* 10.10 (2013): n. pag. Web.
- Cushing, Terence N. "Pakistan's General Pervez Musharraf: Deceitful Dictator or Father of Democracy?" *Pennsylvania State International Law Review* 21 (2003): 621-647.
- De Waal, Alex. "Militarizing Global Health." *Boston Review*. 11 Nov. 2014. Web. 15 Nov. 2014.
- Eichner, Martin, and Stefan O. Brockmann. "Polio Emergence in Syria and Israel Endangers Europe." *The Lancet* 382.9907 (2013): 1777.
- Ellencweig, Avi Yacar. "The 1988 Polio Epidemic in Israel: An Analysis and Consequences." *Health Policy* 13.3 (1989): 177-88. Web.

- Estívariz, Concepción F., Mark A. Pallansch, Abhijeet Anand, Steven Gf Wassilak, Roland W. Sutter, Jay D. Wenger, and Walter A. Orenstein. "Poliovirus Vaccination Options for Achieving Eradication and Securing the Endgame." *Current Opinion in Virology* 3.3 (2013): 309-15.
- Fair, C. Christine. "Pakistan on the Brink of a Democratic Transition?." *Current History* 112.753 (2013): 130-136.
- Fair, C. Christine. "The US–Pakistan Relations after a Decade of the War on Terror." *Contemporary South Asia* 20.2 (2012): 243-53. Web.
- Farwell, James P. "The Prosecution of Pervez Musharraf." *Survival* 56.4 (2014): 33-38.
- Ganapathiraju, Pavan V., Christiaan B. Morssink, and James Plumb. "Endgame for Polio Eradication? Options for Overcoming Social and Political Factors in the Progress to Eradicating Polio." *Global Public Health* 10.4 (2015): 463-73.
- Garon, Julie R., and Walter A. Orenstein. "Overcoming Barriers to Polio Eradication in Conflict Areas." *The Lancet Infectious Diseases* (2015): Web.
- Ghias, Shoaib A. "Miscarriage of Chief Justice: Judicial Power and the Legal Complex in Pakistan under Musharraf." *Law & Social Inquiry* 35.4 (2010): 985-1022.
- Gilmartin, David. "Partition, Pakistan, and South Asian History: In Search of a Narrative." *The Journal of Asian Studies* 57.4 (1998): 1068.
- Gorman, Christine. "Milestones in the Effort to Eradicate Polio [Timeline]." *Scientific American*, 14 May 2012. Web. 14 Oct. 2014.
- Graham-Harrison, Emma. "Afghan Gunmen Kill Polio Vaccination Worker in Latest Attack on Women." *The Guardian*. N.p., 5 Dec. 2012. Web. 15 Nov. 2014.
- Graham-Harrison, Emma. "Afghan Taliban Bans Polio Vaccination Teams from Southern Helmand." *The Guardian* 8 July 2014. Web. 14 Oct. 2014.
- Groce, Nora Ellen, Lena Morgon Banks, and Michael Ashley Stein. "Surviving Polio in a Post-polio World." *Social Science & Medicine* 107 (2014): 171-78.
- Hadi, Yousaf Bashir, and Abdul Malik Amir Hamza Sohail. "Pakistan: The Nidus for Global Polio Re-emergence?" *Journal of Infection and Public Health* 8.2 (2015): 214-15.
- Hagan, Jose E., Steven G.F. Wassilak, Allen S. Craig, Rudolf H. Tangermann, Ousmane M. Diop, Cara C. Burns, and Arshad Quddus. "Progress Toward Polio Eradication - Worldwide, 2014-2015." *Centers for Disease Control and Prevention Morbidity and Mortality Weekly Report* 64.19 (2015): 527-31.
- Haqqani, Husain. "History Repeats Itself in Pakistan." *Journal of Democracy* 17.4 (2006): 110-24. Web.

- Hasan, Mushirul. Introduction. *India's Partition: Process, Strategy, and Mobilization*. Delhi: Oxford UP, 1993. Print.
- Hassan, Syed Raza. "Karachi Airport Attack Signals Tactical Shift by Taliban." *Reuters*. Thomson Reuters, 12 June 2014.
- Hashim, Asad. "Pakistan's Polio Problem and Vaccination Danger." *Al Jazeera English*. Al Jazeera, 28 Mar. 2015.
- Heinsbroek, Ellen, and E. Joost Ruitenberg. "The Global Introduction of Inactivated Polio Vaccine Can Circumvent the Oral Polio Vaccine Paradox." *Vaccine* 28.22 (2010): 3778-783.
- Hersh, Seymour M. "The Killing of Osama Bin Laden." *London Review of Books* 37.10 (2015) Print.
- Hills, Carol. "Facing a Determined Opposition, Pakistani Officials Tell Parents to Vaccinate Their Kids or Go to Jail." *Health & Medicine*. Public Radio International, 5 Mar. 2015. Web. 15 June 2015.
- Hotez, Peter J. "'Vaccine Diplomacy': Historical Perspectives and Future Directions." *PLoS Neglected Tropical Diseases* 8.6 (2014): 1-7.
- Hourel, Katharine. "'Disastrous' Health Campaign Feeds Pakistan's Worrying Polio Spike." Thomson Reuters, 27 Oct. 2014. Web. 1 Nov. 2014.
- Hussain, Zahid. "The Battle for Balochistan." *Dawn* [Karachi] 25 Apr. 2013: n. pag. 25 Apr. 2013. Web. 23 June 2015.
- Jalal, Ayesha. *The Sole Spokesman: Jinnah, the Muslim League, and the Demand for Pakistan*. Cambridge: Cambridge UP, 1985. Print.
- Jawaid, Arsla. "Pakistan's Polio Workers Targeted for Killing." *Al Jazeera* 17 Dec. 2013. Web. 14 Oct. 2014.
- Javaid, Umbreen. "South Asian Studies." *South Asian Studies* 30.2 (2010): 43-58.
- Jegede, Ayodele Samuel. "What Led to the Nigerian Boycott of the Polio Vaccination Campaign?" *PLoS Medicine* 4.3 (2007): 0417-0422. Web.
- Kahn, Herman. *On Escalation: Metaphors and Scenarios*. New York: Praeger, 1965. Print.
- Kakakhel, Fakhar, and Umar Farooq. "Pakistan's War and Loss of Hope for Those Displaced." *Al Jazeera English*. Al Jazeera, 15 June 2015.
- "Karachi Population 2015." *World Population Review*, 13 Oct. 2015. Web. 13 Dec. 2015.
- Kazi AM, Khalid M, Kazi AN. "Failure of polio eradication from Pakistan: Threat to world health." *Journal of Pioneering Medical Sciences* 2014; 4(1):8-9.

- Kew, Olen. "Reaching the Last One per Cent: Progress and Challenges in Global Polio Eradication." *Current Opinion in Virology* 2.2 (2012): 188-98.
- Khalil, Shaimaa. "The Parents Refusing to Vaccinate Their Children against Polio." *BBC News*. BBC, 23 Nov. 2014. Web. 15 June 2015.
- Khan, Suleman. "The Viral Consequences: Pakistan's Polio Crisis." *Berkeley Political Review*. 25 Dec. 2014. Web. 15 June 2015.
- Kharal, Asad. "Numbers: Who had biggest march of them all?" *The Express Tribune* [Karachi] 20 Aug. 2014.
- Kumar, Sumita. "Sharif Vs. Musharraf: The Future of Democracy in Pakistan." *Strategic Analysis* 24.10 (2001): 1861-875. Web.
- "Lady Health Workers Boycott Polio Campaign in Absence of Security." *Dunyanews.tv*. Dunya News, 3 Oct. 2014. Web. 14 Oct. 2014.
- Larson, Heidi J., and Zulfiqar A. Bhutta. "Security, Insecurity, and Health Workers." *JAMA Internal Medicine* 173.15 (2013): 1393.
- Lenzer, Jeanne. "Fake Vaccine Campaign in Pakistan Could Threaten Plans to Eradicate Polio." *BMJ* 343.Jul19 2 (2011): D4580. Web.
- Letendre, Kenneth, Corey L. Fincher, and Randy Thornhill. "Does Infectious Disease Cause Global Variation in the Frequency of Intrastate Armed Conflict and Civil War?" *Biological Reviews* (2010): 669-83.
- Mahmood, Safdar. *Pakistan: Political Roots and Development, 1947-1999*. Karachi: Oxford UP, 2000. Print.
- Malik, Asmat Ullah, Peter Stewart Hill, Anar Ulikpan, and Saima Hamid. "Polio Eradication: Getting the Basics Right." *The Lancet* 381.9875 (2013): 1359-360.
- MacKenzie, Debora. "Polio Near-eradicated in India – Pakistan Struggling." *New Scientist* 212.2841 (2011): 4.
- Mazrui, Ali Al'Amin., and Etin Anwar. "Islamic Doctrine and the Politics of Induced Fertility Change." *The Politics of Gender and the Culture of Sexuality: Western, Islamic, and African Perspectives*. Lanham, MD: U of America, 2014. 293-306. Print.
- McNeil, Donald G., Jr. "Gates Calls for a Final Push to Eradicate Polio." *The New York Times*. N.p., 31 Jan. 2011. Web. 22 Nov. 2014.
- Miller LC, et al. "Afghan refugee children and mothers." *Archives of Pediatric and Adolescent Medicine* 1994;148:704-8.



- Mohsin, Saima. "Pakistani Prime Minister: Musharraf Should Stand Trial for Treason" *CNN World*. Cable News Network, 24 June 2013.
- Mullaney, Alexander, and Syeda Amna Hassan. "He Led the CIA to Bin Laden-and Unwittingly Fueled a Vaccine Backlash." *National Geographic*. 27 Feb. 2015.
- Murakami, Hitoshi, Makoto Kobayashi, Masahiko Hachiya, Zahir S. Khan, Syed Q. Hassan, and Shinsaku Sakurada. "Refusal of Oral Polio Vaccine in Northwestern Pakistan: A Qualitative and Quantitative Study." *Vaccine* 32.12 (2014): 1382-387.
- Murray, C. J L. "Armed Conflict as a Public Health Problem." *BMJ* 324.7333 (2002): 346-49.
- Mustafa, Daanish, Katherine E. Brown, and Matthew Tillotson. "Antipode to Terror: Spaces of Performative Politics." *Antipode* 45.5 (2013): 1110-127.
- Nasir, H. "Polio and Politics in Pakistan." *Archives of Disease in Childhood* 98.5 (2013): 392-93.
- Nathanson, N., and O. M. Kew. "From Emergence to Eradication: The Epidemiology of Poliomyelitis Deconstructed." *American Journal of Epidemiology* 172.11 (2010): 1213-229.
- "Nigeria Marks a Year without Polio, with Hopes High for Eradication from Africa." *The Guardian*. Reuters, 24 July 2015. Web. 1 Aug. 2015.
- Nishtar, Sania. "Pakistan, Politics and Polio." *Bulletin of the World Health Organization* 88.2 (2010): 159-60. Web.
- Nizami, Asad Tamizuddin, Mowadat Hussain Rana, Tariq Mahmood Hassan, and Fareed Aslam Minhas. "Terrorism in Pakistan: A Behavioral Sciences Perspective." *Behavioral Sciences & the Law Behav. Sci. Law* 32.3 (2014): 335-46.
- O'Reilly, Kathleen M., Elias Durry, Obaid Ul Islam, Arshad Quddus, Ni'ma Abid, Tahir P. Mir, Rudi H. Tangermann, R. Bruce Aylward, and Nicholas C. Grassly. "The Effect of Mass Immunisation Campaigns and New Oral Poliovirus Vaccines on the Incidence of Poliomyelitis in Pakistan and Afghanistan, 2001–11: A Retrospective Analysis." *The Lancet* 380.9840 (2012): 491-98.
- "Our Progress Against Polio." *Global Health - Polio*. Centers for Disease Control and Prevention, 01 May 2014. Web. 14 June 2015.
- Owais, Aatekah, Asif Raza Khawaja, Syed Asad Ali, and Anita K.m. Zaidi. "Pakistan's Expanded Programme on Immunization: An Overview in the Context of Polio Eradication and Strategies for Improving Coverage." *Vaccine* 31.33 (2013): 3313-319.
- "Pakistan." *Human Development Report* (2013). UNDP.
- "Pakistan." *Polioinfo : Priority Countries*. UNICEF, n.d. Web. 15 June 2015.

- "Pakistan Arrests Parents for Refusing Polio Vaccine." *BBC News*. BBC, 2 Mar. 2015. Web. 15 June 2015.
- "Pakistan Killings near Peshawar Disrupt Polio Campaign." *BBC News*. BBC, 19 Dec. 2012. Web. 15 June 2015.
- "Pakistan Military Officials Admit Defector's Key Role in Bin Laden Operation." *Dawn*. Agence France-Presse, 12 May 2015. Web. 15 June 2015.
- "Pakistan's Polio Drive 'a Disaster'." *The National*. Reuters, 28 Oct. 2014. Web. 15 June 2015.
- "Pakistan Profile - Timeline." *BBC News*. British Broadcasting Corporation, 5 June 2015. Web.
- "Pakistan Reverses Decision to Close Save the Children Charity." *BBC News Asia*. BBC, 14 June 2015. Web. 15 June 2015.
- "Pakistan Shuts down Save the Children Office." *Yahoo! News*. Agence France-Presse, 12 June 2015. Web. 15 June 2015.
- "Pakistan's Imran Khan and Tahirul Qadri in Islamabad Rally - BBC News." *BBC News*. British Broadcasting Corporation, 16 Aug. 2014.
- Pasricha, Anjana. "India Looks for Easier Relations Under Sharif." *VOA News*. Voice of America, 13 May 2013.
- "Peace Initiative: Govt Begins TTP Dialogue Process, Not Actual Talks." *The Express Tribune* [Karachi] 1 Nov. 2013.
- "Polio Cases in Pakistan Pass 2012 Total." *The Express Tribune*. Agence France-Presse, 13 Nov. 2013. Web. 14 Oct. 2014.
- "Polio: Pakistan Polio Outbreak Hits Record High." *BBC News*. BBC, 4 Oct. 2014. Web. 15 June 2015.
- Rawlings, Laura B., and Gloria M. Rubio. "Evaluating the Impact of Conditional Cash Transfer Programs." *The World Bank Research Observer* 20.1 (2005): 29-55.
- Riaz, Fatima, and Yasir Waheed. "Islam and Polio." *The Lancet Infectious Diseases* 14.9 (2014): 791-92.
- "Rising Security Threats in Pakistan." *Council on Foreign Relations*. Council on Foreign Relations, n.d. Web. 24 Sept. 2015.
- Robbins, Anthony. "The CIA's Vaccination Ruse." *Journal of Public Health Policy* 33.4 (2012): 387-89. Web.

- Roberts, Leslie. "Killings Force Rethinking of Pakistan's Anti-Polio Drive." *Science* 339.6117 (2013): 259-60. Web.
- Rodríguez-Álvarez, Mauricio, María Eugenia Jiménez-Corona, Rocío Cervantes-Rosales, and Samuel Ponce De León-Rosales. "Polio Eradication: How Long and How Much to the End?" *Archives of Medical Research* 44.5 (2013): 401-04.
- Roul, Animesh. "The Pakistani Taliban's Campaign Against Polio Vaccination." *Combating Terrorism Center Sentinel* 7.8 (2014): 17-19.
- Rushton, Simon, and Maria Kett. "Polio, Conflict and Distrust: A Global Public Health Emergency." *Medicine, Conflict and Survival* 30.3 (2014): 143-45.
- Shah, Aqil. "Democracy on Hold in Pakistan." *Journal of Democracy* 13.1 (2002): 67-75. Web.
- Shah *et al.*: Resistance of polio to its eradication in Pakistan. *Virology Journal* 2011 8:457.
- Shah, Nitin K. "Polio Eradication – Miles before We Smile." *Pediatric Infectious Disease* 4.3 (2012): 130-36.
- Shah, Saeed. "Pakistani Leader Sharif Nears Pact With Military." *The Wall Street Journal* [New York], 27 Aug. 2014.
- Shah, Saeed. "Pakistan Military Offensive Poses New Perils in Country's Polio Crisis." *The Wall Street Journal* [New York], 22 June 2014.
- Shams, Shamil. "Pakistan: Polio Vaccinator Killed in Faisalabad." *Deutsche Welle*. Agence France-Presse, 12 Sept. 2014. Web. 15 June 2015.
- Shehzad, Mohammad. "The State of Islamic Radicalism in Pakistan." *Strategic Analysis* 37.2 (2013): 186-92.
- Sheikh, Ali Sibtain Farooq. "Protocol versus Practice of Supplementary Immunization Activity (SIA) for Polio Eradication in Pakistan." *Vaccine* 33.29 (2015): 3270.
- Short, Clare. "The UK White Paper on International Development - And Beyond." Department for International Development, 2 May 1998. Web. 7 Feb. 2014
- Smith, Amelia. "Polio-Related Murders Kill More Than the Disease Itself." *Health. Newsweek*, 28 Nov. 2014. Web. 15 June 2015.
- Spain, James W. "The Pathan Borderlands." *Middle East Journal* 15.2 (1961): 165-77. Web. 01 Aug. 2015.
- Stancati, Margherita. "Afghan Taliban Bans Polio Vaccination in." *The Wall Street Journal*. N.p., 7 July 2014. Web. 10 Dec. 2014.

- "Statistics." Pakistan. UNICEF, 27 Dec. 2013. Web. 5 Dec. 2014.
- Stenersen, Anne. "The Internet: A Virtual Training Camp?" *Terrorism and Political Violence* 20.2 (2008): 215-33. Web.
- Stewart, Jill. "Is There a Kinder, Gentler Way to Get Anti-Vaxxers to See the Light?" *L.A. Weekly* 15 July 2015: n. pag. *L.A. Weekly*. 15 July 2015. Web. 17 July 2015.
- Talbot, Ian. "General Pervez Musharraf: Saviour or Destroyer of Pakistan's Democracy?" *Contemporary South Asia* 11.3 (2002): 311-28. Web.
- "Taliban Pledge Support for Afghan Polio Campaign." *CBC News / World*. CBC/Radio Canada, 15 May 2013. Web. 14 Oct. 2014.
- Timm, Trevor. "The Media's Reaction to Seymour Hersh's Bin Laden Scoop Has Been Disgraceful." *Columbia Journalism Review*. Columbia University, 15 May 2015.
- Tulchinsky, Theodore H., Asad Ramlawi, Ziad Abdeen, Itamar Grotto, and Antoine Flahault. "Polio Lessons 2013: Israel, the West Bank, and Gaza." *The Lancet* 382.9905 (2013): 1611-612.
- Walsh, Declan. "Polio Crisis Deepens in Pakistan, With New Cases and Killings." *The New York Times*. 26 Nov. 2014. Web. 30 Nov. 2014.
- Washburn, Sam. "How the CIA's Fake Vaccination Campaign Endangers Us All." *Scientific American*. 16 Apr. 2013. Web. 15 June 2015.
- Weiner, Tim. "Countdown to Pakistan's Coup: A Duel of Nerves in the Air." *The New York Times* 17 Oct. 1999. Web.
- Wilder-Smith, Annelies, et al. "Potential for International Spread of Wild Poliovirus via Travelers." *BMC Medicine BMC Med* 13.1 (2015). Web.
- Wilkinson, Isambard. "Pakistani Government Victory as Public Opinion Turns against the Taliban." *The Telegraph*. Telegraph Media Group, 7 June 2009. Web. 15 June 2015.
- Williams, Brian Glyn. "Talibanistan: History of a Transnational Terrorist Sanctuary." *Civil Wars* 10.1 (2008): 40-59. Web.
- World Bank. *Military expenditure (% of GDP)*. World Bank Data Catalogue. 2015.
- World Bank. *Poll: Most Not Convinced World Is Prepared for Next Epidemic*. News. World Bank, 23 July 2015. Web. 24 July 2015.
- World Health Organization. Global Polio Eradication Initiative. *Financial Resource Requirements 2013-2018*. Geneva: WHO, 2013. Print.

World Health Statistics 2014. Rep. Geneva: World Health Organization, 2014. Web. 22 Mar. 2014.

Zucchini, David, and Hashmat Baktash. "Prominent Female Official in Afghanistan Assassinated." *Los Angeles Times* 10 Dec. 2012.

Zucchini, David, and Hashmat Baktash. "Slaying of Afghan Polio Program Worker Raises Questions." *Los Angeles Times* 06 Dec. 2012.