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## Insecurity, weak health systems and poliomyelitis eradication

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Poliomyelitis, more commonly referred to as polio, is defined by the World Health Organization (WHO) and the Mayo clinic as contagious viral illness transmitted by the poliovirus.<sup>1,2</sup> In its worst form, the poliovirus can cause death or can invade the nervous system and cause paralysis, which is often permanent.<sup>2</sup> Other symptoms of polio include, fever, fatigue, headache, vomiting, stiffness in the neck, and pain in the limbs. The poliovirus is highly contagious and is transmitted through the fecal oral route.<sup>3</sup> In addition, it also transfers through sneeze or cough droplets of infected individuals.<sup>1</sup> From there, it multiplies in the intestine and can invade the nervous system and cause paralysis. Although there is no cure for polio; cheap, effective and easy to administer vaccines are available to prevent the illness.

In order to completely eradicate poliomyelitis, every child needs to be vaccinated. The wild poliovirus (wPV) cannot survive outside the human body, therefore, unlike other infectious diseases, if every child is vaccinated, poliomyelitis can be eradicated worldwide.<sup>3</sup> In order to provide vaccinations and keep the disease eliminated in an area, the presence of a strong healthcare system is crucial. However, in many resource poor countries, health systems are not self-sustaining, unable to measure their performance and therefore unable to pinpoint the needs of the population.

This paper explores how violence fragments health service delivery in fragile states and how this negatively impacts global polio eradication efforts. The Global Polio Eradication Initiative (GPEI), formed in 1998 is a 10 billion USD initiative and is the largest public private partnership and largest ever internationally coordinated public health effort in history.<sup>4</sup> The GPEI assists countries in their poliomyelitis eradication efforts. Since its formation, the WHO claims that polio cases worldwide have been reduced by 99%.<sup>4</sup>

Despite the worldwide success in polio eradication, there are currently three countries where poliovirus transmission has never been interrupted: Nigeria, Pakistan and Afghanistan.<sup>5</sup> Violence, insecurity and political and civil unrest are common occurrences in these three endemic countries. The aforementioned situations weaken infrastructure and leave systems such as the healthcare system devastated. Violence and insecurity directly disrupt upstream factors that influence health. For instance, after a false polio campaign was used to find and capture Osama Bin Laden in Pakistan, the Pakistani Taliban banned polio vaccinations in 2012 in certain regions of the country and continued to attack health care workers.<sup>6,7</sup> This creates a climate of mistrust between individuals and the healthcare system. Thus, as a result of non-health related circumstances, populations are left vulnerable to vaccine preventable diseases, which hinder global poliomyelitis eradication efforts.

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In addition to the three countries that have never been declared polio-free, as of November 26<sup>th</sup>, 2013, the WHO had confirmed seventeen poliomyelitis cases in Syria.<sup>8</sup> The strain of the poliovirus found in Syria was tracked back to the same one found in Pakistan. Before 2013, Syria had been declared polio-free since 1999.<sup>8</sup> However, since 2011, Syria has been in a state of political and civil unrest, leaving many individuals dead and societal structures including the health care system devastated. In addition, as a result of the conflict and violence in Syria, people have been displaced and now live in areas of poor sanitation. Moreover, as a result of the Syrian crisis, more people left their homes to seek refuge in neighbouring countries.<sup>8</sup> Due to the aforementioned circumstances, vaccination rates decrease leaving populations vulnerable to polio. This increases the risk of spreading the disease in Syria as well as beyond its borders.

In order to eradicate poliomyelitis worldwide, health systems in fragile states need to be strengthened. Violence and political unrest disrupt access to health services and vaccines which leave children vulnerable to preventable diseases such as polio.

### **Global Health Relevancy**

In order to eradicate poliomyelitis, it is important to eliminate it from every country and ensure that the virus does not reappear. If factors such as violence, political instability and insecurity continue to weaken healthcare systems in fragile states, then global efforts to eradicate polio are disrupted and resources invested in this effort are wasted.