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Using Ayasdi for Non Profit Analytics Case Study: Syria Polio Vaccination Campaign

Using the most advanced analytical tools available is a necessity for any organization, and SumAll.org has engaged with Ayasdi, a powerful topological data analytics software that delivers both visual and statistical analytics. By using this software, SumAll.org is able to quickly identify and explore relationships that, without the software, would take significant resources to complete. This provides an opportunity to more quickly develop and implement life saving interventions, creating real world impact on today's toughest problems.

The Analysis

SumAll.org used Ayasdi software to perform a quick systemic cluster analysis of a Polio vaccination campaign in Syria for children, with data provided by HumanitarianTracker.org. This humanitarian effort in a conflict zone reaches millions of people per campaign, however there is a need to quickly and easily understand which locations are most impacted from the constantly fluctuating refugee population. This is especially important as follow doses are necessary for the Polio vaccine to be effective in protecting the population.



[Courtesy of PolioEradication.org](http://PolioEradication.org)

Analysis with Ayasdi differs from simply counting the number of doses by region as the software is taking into account all available features in the data set, not just ranking doses. In a traditional analysis of this data one would first need to examine each district and try to locate outliers in terms of each feature class. After that, one or several hypothesis would need to be formed and tested, which in this case would involve testing and validation between over 100 districts.

Ayasdi is capable of interacting with all of the available feature classes at once and the results are then visualized in such a way that any interesting behavior in the data can be quickly identified. This means that there is no to have a formulated hypothesis to find important and significant information in your data set. Moreover, once the interesting data is identified, Ayasdi supplies all the necessary statistical results to validate significance.

The systematic cluster analysis first creates nodes that contain statistically similar rows from a given dataset. Statistically similar nodes are then connected by "edges", resulting in a structured architecture that can be used to identify interesting relationships. These relationships can then be further explored both visually and with high-level statistical comparisons. For example when node clusters exhibit a behavior that is not similar with the majority of the population, they show up as "flares" or protrusions in the node network. These are visually apparent, and once identified the flares can be selected for statistical analysis.

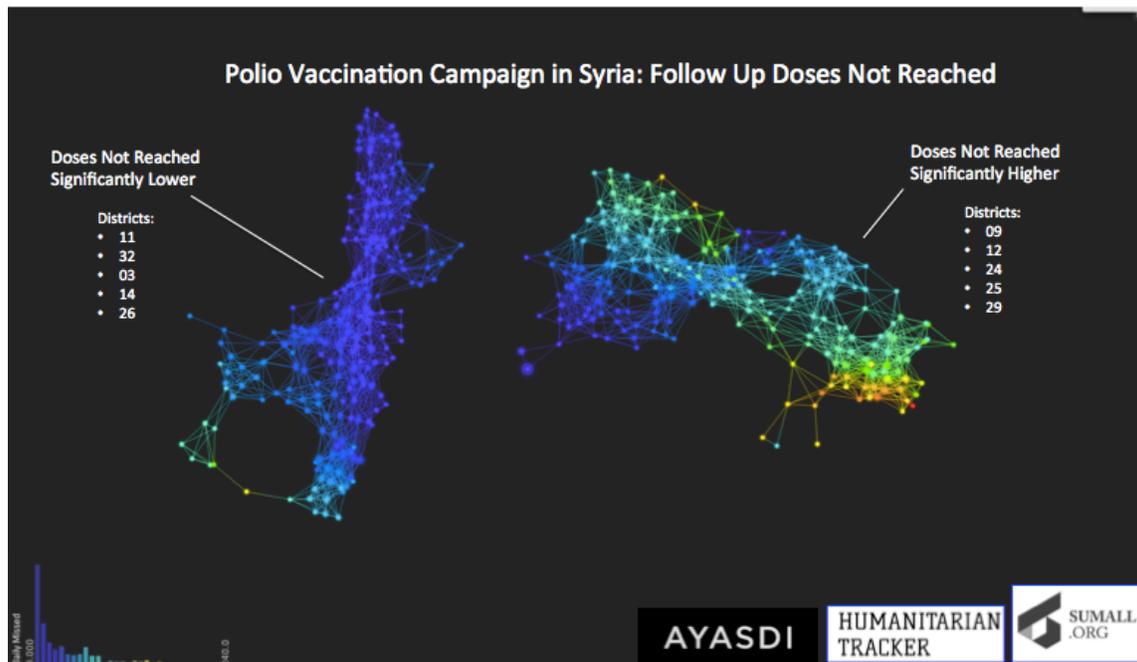


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The Results

SumAll.org identified two statistically distinct groups where Not Reached Doses were the largest defining factor, with statistically significant districts within each group. There were no significant differences for those receiving their first dose. Based on insight from the vaccination team, it is likely the reason why children are not reached for follow-up doses is because of the high fluidity of refugee populations at vaccination sites.



The Impact

By understanding where children are most likely not reachable for follow up doses, SumAll.org is able to work with Humanitarian Tracker and help examine strategy to ensure that all individuals are receiving their doses. "Children in Syria have a right to be vaccinated, and it's even more critical because Polio is a preventable disease." Taha Kass-Hout, Humanitarian Tracker Founder and CEO.

For humanitarian aid organizations strapped for time and resources, the ease and efficiency of reliable statistics and reporting can become crucial, and in cases such as this, Ayasdi can significantly cut down on the investment needed for analysis. Moving beyond a tabular report, Ayasdi provides a statistical and visual aid that, with other techniques would take a significant amount of time and resources. By saving this time, organizations can keep their focus on providing the aid and saving lives.