CASE STUDY

SPATIALLY HEALTH

BUILDING A CUSTOMIZED VULNERABILITIES MAP FOR THE HEALTH FOUNDATION OF SOUTH FLORIDA

DEFINING THE CHALLENGE

COVID-19 is a massive health and economic crisis very much affecting Americans at the local level. And it is at this local level where the richest sources of data often exist, sources of "data truth" that can then be utilized to develop impactful health initiatives and community-wide mitigation strategies.

The response to the coronavirus pandemic has often been fractured and uncoordinated. Arguably, there were and still are systemic failures across all institutions, those sectors relying on antiquated strategies that take too long to implement and are not nearly effective enough. Unsurprisingly, the virus "didn't get the memo" about respecting different jurisdictions, and infection rates have regularly spiked wherever data science has been supplanted by wishful thinking.

With COVID-19 affecting Black, Hispanic/Latinx communities at far higher rates than other racial groups or ethnicities, it was imperative that this data be incorporated to achieve targeted health goals. Complicating things further, the data available were often incompatible with truly addressing the problems associated with COVID-19. For example, relying on case data alone was inefficient, as racial and ethnic data were often absent.

The Health Foundation of South Florida (hfsf.org) is a healthcare nonprofit whose mission emphasizes the use of proactive strategies impacting the well-being of communities they serve. When Miami-Dade and Broward Counties became the epicenter of the state's COVID-19 outbreak, the Health

HIGHLIGHTS

Customized vulnerability score addressing the immediate challenges focusing on outreach education and access to diagnostic testing.

Visualization of populations with the greatest disparities, down to block level.

Evaluation of the effectiveness of the outreach and accountability for future projects.

PRODUCT

» Spatial Vulnerability Index

Health Foundation of South Florida

Foundation committed a $1.5M investment into those local communities, focusing on outreach education and access to diagnostic testing.

The foundation sought a cutting-edge approach to identify pockets of social, racial and economic disparities where the greatest vulnerabilities exist, and determine optimal locations for COVID-19 testing sites alongside other community health initiatives. Reimagining what that process looked like required implementing a data-driven tool — a modern, comprehensive approach to ensure interventions would have the most impact.

It was at this crucial point in formulating a comprehensive, community-wide strategy that the Health Foundation chose to partner with Spatially Health, a data analytics and predictive modeling health tech company uniquely qualified to address the local dynamics of what needed to be measured to generate customized, useful analytics.

" The COVID Vulnerability Index is an invaluable tool for the Health Foundation. With precision and detail, the platform allows us to find the people and communities most in need of coronavirus support and interventions. It informs our strategy and shapes our outreach so that we can get in front of the pandemic rather than just follow it."

-Janisse Rosario Schoepp, M.P.H., Ph.D., Vice President of Operations and Strategy Health Foundation of South Florida

SPECIFIC NEEDS AND GOALS

» **Highly-targeted, customizable, community-wide approach.** Operating from the principle of "You can't change what you're not measuring" applies with even greater urgency in the fight against COVID. Without factoring in localized vulnerabilities due to health and/or economic disparities, effective responses with community partners is compromised and sub-optimal.

» **Go beyond case data.** As much as 40% of case data for Miami-Dade and Broward Counties fails to include racial and ethnic makeup.

» **Identify where interventions are most needed.** The average zip code in the targeted areas under the Health Foundation's purview has a population of 42,000 people. The ability to pinpoint at the city block level where need is greatest would be essential to the project's success.

» **Be up and running within a couple of weeks.** The value of an "ounce of prevention" could not be more applicable, especially since there is no "pound of cure" for this highly contagious disease.

PRESENTING THE SOLUTION

In April of 2020, Spatially Health launched its COVID-19 Local Vulnerabilities Map. With coronavirus infections exploding in the U.S., the company applied their expertise in building proprietary data models to develop an effective data tool in combating COVID: an online map that displays vulnerabilities throughout geographic sectors of the country, pinpointing higher-risk areas across some 500 cities.

The map exemplifies Spatially Health's mission of harnessing the power of spatial analytics for healthcare applications. The company's proprietary data modeling calculates population densities alongside useful demographic data imported from trusted sources like the CDC and the World Health Organization. Deterministic factors such as racial makeup, prevalence of chronic conditions and concentration of long-term care facilities are compiled and analyzed through native AI algorithms, and the map assigns a vulnerabilities index. Use of this searchable visualization tool helps a clearer, more localized data picture of risk emerge.

The Health Foundation of South Florida saw the potential benefit in having such a map tailored specifically for the challenges facing underserved communities in Miami-Dade and Broward Counties. They understood that reducing transmission among the most vulnerable would be guided by insights generated at the local level; these insights would guide the foundation and its community partners on how to strategically identify where location-based interventions and testing sites would provide maximum benefit.

The Health Foundation commissioned Spatially Health to develop a similar data-driven tool to the company's Local Vulnerabilities Map. This new map would be tailored specifically for the risk factors, needs and challenges unique to South Florida. The foundation was very particular

about what they wanted to visualize and therefore target. Spatially Health worked closely with the foundation and built a customized vulnerability index with fully functional features and delivered the project within two weeks. The index included a number of different variables as well as specific points of interest like public housing, houses of worship and key businesses because they play a major role in vulnerable communities.

Utilization of the map was designed to be highly intuitive. Adjustable parameters drive block-by-block visualizations to show how local populations with elevated levels of vulnerability are depicted and distinguished from the surrounding community. These features better enable prioritizing and implementing necessary interventions. The data displayed in the maps allowed the foundation to seamlessly leverage the tool to research, strategize, and communicate the needs and underlying conditions with pinpoint accuracy and level of detail.

The Health Foundation's custom vulnerabilities index is as much a tool for the future as it is for the present. The geographic areas targeted for interventions will also be used to collect data from the field — data such as how many people opted for testing or were accepting of assistance, how many PPE kits were distributed, and so forth. Here the data generated will continue to result in new, meaningful insights: Measuring the differences among various communities will help the Health Foundation successfully execute future health campaigns, initiatives and endeavors.

KEY FEATURES OF THE MAP

» Over a dozen filters to fine-tune target populations.

» Ability to select by zip code in conjunction with other filters.

» Percentiles displayed in order to identify greatest need.

» Intuitive graphics that are easy to comprehend.

» Accelerates how partners can continuously monitor and iterate as needed to ensure the maximum impact with limited resources.

» Less than 2-week implementation.

QUANTIFIABLE RESULTS

By constructing a customized, localized COVID-19 vulnerability map, Spatially Health has presented the Health Foundation of South Florida with a new window into how goals can be measured and objectives realized regarding community health. During the most challenging public health crisis in a century, having this spatial data and analysis organized and displayed visually through a single-view map has resulted in improved outcomes simply not possible without integrating location intelligence.

The ability to zoom in via the data tool and see all relevant characteristics assists the foundation to accurately tell the story of the most vulnerable local populations. This, in turn, helps secure the right community partners for providing educational services, intervention initiatives and delivering the support necessary to best curtail an outbreak. With a clearer data picture present, everyone involved could efficiently get to work helping to stand up testing sites, conduct outreach efforts and properly stock distribution points for personal protective equipment.

Finally, the data-driven map will continue assisting the nonprofit develop mitigation strategies for underserved and at-risk communities well into the future. This, in turn, will keep empowering those members of the community, letting them know they're supported with on-the-ground efforts geared toward reducing the spread of coronavirus.

BY THE NUMBERS

$ **$1.5 million** investment by the Health Foundation to protect the vulnerable and get them safely back to work.

2,521 block groups in Miami-Dade and Broward Counties visually represented.

Out of Miami-Dade and Broward Counties' **2.5 million** people, **150,000** individuals were identified as those most vulnerable.

BENEFITS OF DATA VISUALIZATION

» **Using location to paint the clearest data picture.** Spatial patterns are a rich, often unused source of health data; utilizing them greatly accelerates delivering impactful healthcare initiatives.

» **Highlighting local characteristics.** Racial and ethnic makeup of targeted communities, along with other social determinants, contributes valuable insight on how these neighborhoods truly line up with the existing resources and testing sites available.

» **Granular visualization.** Block-by-block observation of what's working and how well, and where partner outreach may need to recalibrate for optimal outcomes.

» **High-performance analytics at scale.** Spatially Health built a custom product with the agility to adjust, pivot and grow with local conditions as needed, and assist in the procurement of future funding efforts.