Solutions for real-time disease surveillance and data-driven decision making
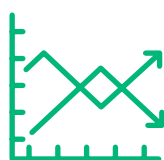
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Detect emerging trends

Manage and investigate cases

Model impact of interventions (i.e. vaccines)

The Issue

The COVID-19 pandemic has exposed gaps in our public health data systems. Poor data management and reporting capabilities, the inability to work with between systems and challenges with scalability have resulted in the virus moving faster than the data, making rapid response even more of a challenge. These difficulties highlight the significant and urgent need to upgrade infectious disease surveillance systems to an integrated, extensible platform that provides analytic insights for case management and quick outbreak detection.

Successfully operating in the dynamic world of communicable disease requires the ability to detect emerging trends. Data analytics is critical to making effective, timely decisions to connect individuals to testing and treatment, and strategically prepare resources and interventions for the next outbreak.

Challenges

SAS recognizes the challenges public health organizations face in collecting, integrating, and analyzing data for communicable disease management. Basic surveillance measurement is often labor-intensive and lacks inter-agency coordination. To be most effective, you need to:

- **Build a trusted data foundation.** Information needed to rapidly identify and respond to public health events is often siloed or inaccessible. The integration of data from laboratories, health information exchanges and patients – along with public health registries and other sources – facilitates rapid case detection and investigation.

- **Manage and investigate public health events.** Public health and emergency management cannot scale existing platforms to respond to biological crises. Current systems must integrate to allow rapid operational decision making, including case identification, asset management and mitigation efforts, such as vaccinations.

- **Set baseline metrics for longitudinal monitoring.** Traditional data sources and analysis techniques are adequate for monitoring basic incidence rates. However, building timely surveillance systems requires establishing baseline metrics, then leveraging dynamic data capable of tracking the spread, transmissibility and severity of the public health event over time.

- **Enlist advanced analytics.** Most surveillance systems do not use advanced analytics for forecasting and modeling. Systems capable of anticipating trends and societal impacts are essential to effective public health responses and may prevent future public health crises.

Our Approach

SAS has the experience and innovative technology to partner with public health entities to modernize disease surveillance. Our software simplifies the data extraction, integration, and cleaning processes; provides tools to track and trend disease activity, and improves anticipatory awareness with modeling and near real-time reporting. SAS' goal is to help you strengthen those epidemiological capacities to ultimately reduce the impact of disease on human health. The key to success is identifying, finding and responding to situations of public health significance is detection. Having confidence in the data to build surveillance metrics is critical to pinpointing abnormalities. With the help of SAS, your organization will gain a data an analytic foundation to support robust surveillance activities for timely identification, intervention and prevention.

SAS offers:

- **Robust data management and governance.** Establishing an integrated, analytic-ready data foundation is critical to disease surveillance. Our platform can automate tedious and manual processes – data prep, data integration, reporting, visualization and data exploration – to give your epidemiologists more time for response efforts.

- **Cluster detection and case management.** Whether you're investigating a foodborne illness or influenza outbreak, the SAS platform contains built-in analytic functions for easy transitions between data collection and analysis. For example, to draw connections between multiple cases and exposures, geospatial analysis within SAS tools can visualize potential connections.

- **Epidemiological modeling to support decision making.** Enhancing biopreparedness requires analytics capabilities that can guide proactive action. SAS offers customizable models and advanced modeling capabilities to predict outbreaks, track model spread and create data-driven responses.

- **Visualizations for enhanced surveillance.** Whether it's identifying clusters of disease, monitoring breakthrough disease events or tracking progress toward ending the crisis, SAS data visualizations enable public health agencies to explore all aspects of a disease outbreak. And built-in alerting, relationship detection and natural-language exploration allow users to uncover insights hidden in the data.

The SAS® Difference

SAS gives public health agencies confidence they are seeing the whole picture. And our solutions allow you to scale investigations when needed and evaluate your efforts once complete. Our unique capabilities include:

- **Proven predictive analytics.** SAS is the market leader in analytics. Public health agencies use SAS to quickly answer the critical questions necessary for rapid response, disease prevention and health advocacy efforts.

- **Trust and usability.** SAS is one of the core programming languages for global public health reporting. However. SAS solutions may also be used with non-SAS, open source languages. This flexibility facilitates scalability in a crisis, and removes the necessity of training analysts on a single language.

- **Delivery expertise.** SAS brings decades of experience with infectious disease outbreaks and modeling. Our solutions are enhanced by our global team of epidemiologists, clinicians, data scientists, PhD researchers and industry experts to make sure customers get the most out of their investments.

Public health surveillance systems must be equipped to quickly identify new or divergent pathogens to enable a proactive, data-driven response to protect human life. Never was public health tested as it was in 2020, and never again should public health be left without the tools to respond.

Learn more at the SAS COVID-19 Resource Hub

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