

Contact tracing investigations for public health

Using analytics and data visualization to identify at-risk populations to reduce disease spread



Send intelligent alerts



Uncover public health insights



Automate tracing efforts

The Issue

Contact tracing is an essential function of public health. It is used to break the chain of transmission by identifying people who have been exposed to an infected person so that they can take necessary steps to isolate themselves, or if they are already showing symptoms, begin treatment. Contact tracing is employed in routine outbreak investigations, single-case surveillance efforts, and in working new or reemerging outbreaks of disease.

While contact tracing is a powerful and effective public health tool, it is often labor-intensive and an inefficient way to gather data and information. Fortunately, modernized public health case management software can be used to assist public health officials in expediting the investigation process using automated analytics capable of drawing insight and connection between cases, exposures and events when critically needed. SAS' contact tracing tool helps facilitate:

- Rapid identification of case, exposure and event linkages (e.g., point source exposure such as a contaminated food product).
- A timeline for exposure and onset of illness.
- Essential case details such as laboratory confirmation of illness, pathogen subtyping and contacts exposed.
- Geographic identification of areas at risk or locations connected due to a common or distributed exposure.

Contact tracing has never before been used as extensively as in the COVID-19 pandemic. The effort of the pandemic and its prolonged and unpredictable nature greatly strained public health and health care agencies attempting to protect the public. A modernized solution centered on scalability and agility is necessary to prepare agencies for managing current and future threats to human health.

The Challenge

Slowing the speed of transmission. Viral outbreaks will continue to be an issue in today's world, and it is important to know how to respond. SAS provides exceptional, intuitive link analysis capabilities so health officials see immediate connections between cases, contacts, exposures and events. This shortens the time between recognition of an outbreak and action to prevent the spread of illness.

Mobilizing sufficient public health resources. A modernized contact tracing solution must be scalable and agile. It has to handle an immense increase in data volume, accommodate changes to data elements, while also being available to a remote workforce. With SAS' contact tracing solution, content can be reached without web access, changes can be made on the fly, and large numbers of responders can be reached no matter the crisis.

Improving coordination among diverse agencies. Behind the scenes, SAS works closely with numerous types of data providers who supply data in many different formats. SAS breaks down data silos and creates exceptional ingestion processes with tested automation. Whether it's an API to a GitHub repository or an internal database connection, SAS has the power to seamlessly unify your organization's data.

Our Approach

SAS technologies create links among cases, contacts, exposures and events - creating link diagrams that make contact tracing easier and faster. We do this by providing software and services to help you:

- **Establish a contact tracing database.** You can gather contact tracing data in a system that is optimized for analysis, then use identification methods to consolidate multiple records of the same individual. The database enables you to establish and visualize links among cases, contacts, exposures and events. SAS allows you to see how linkages form over time.
- **Enrich contact tracing data with external sources.** The faster you can establish better, more comprehensive links, the quicker you can identify contact. SAS can help by allowing you to include data from supplemental sources such as airline passenger manifests, employee rosters, phone location data and many others.
- **Generate intelligent alerts.** Generating alerts is how public health officials communicate with the contacts for a given patient. SAS can help you dispatch alerts that convey health risk warnings and can be customized for each contact, such

as directing them to nearby testing facilities at a specified date and time or ordering them to self-quarantine until a specific date. Alerts can be communicated directly by a public health official or sent through automated channels, such as text/SMS messages and emails.

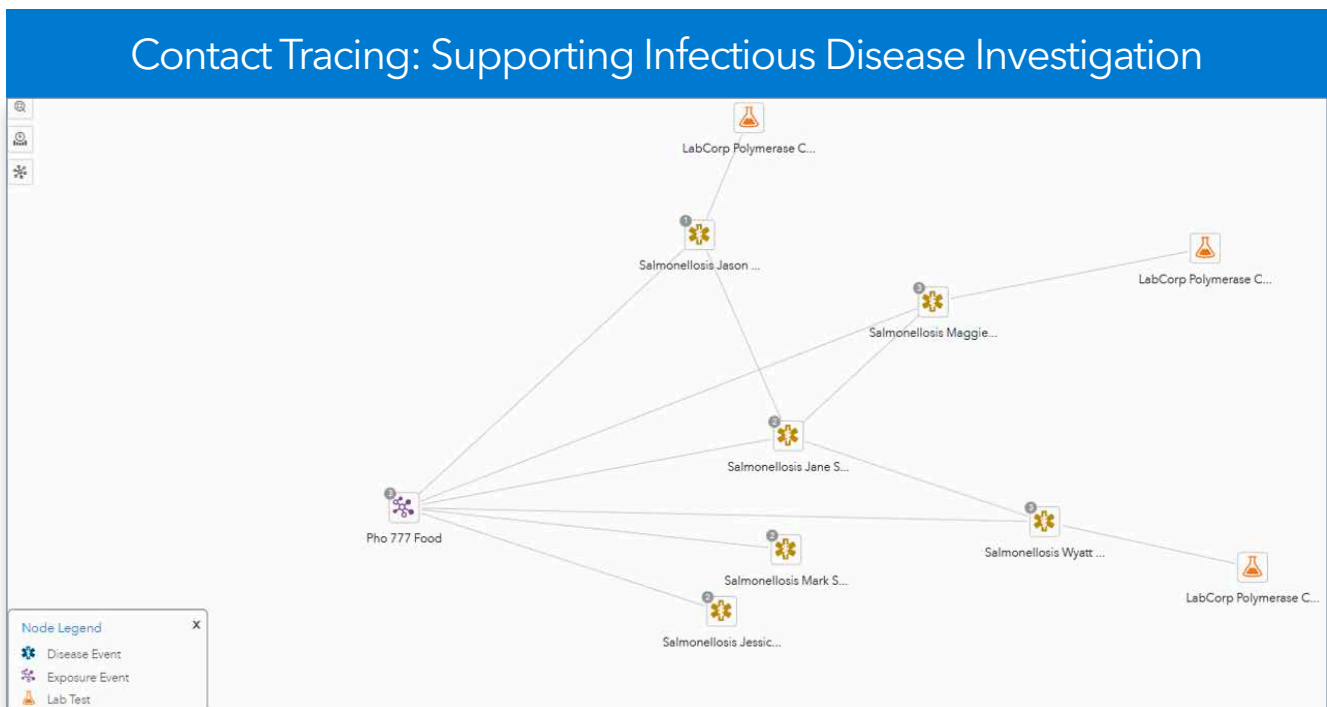
- **A single location for all of your analytic needs.** SAS serves as a one-stop shop for all contacting tracing analytic needs. Data captured within the cloud-hosted SAS solution is immediately available within the same system for analysis, whether internal trend reporting, forecasting or website publication.

The SAS® Difference

Link analysis is the foundation of modernized contact tracing. SAS provides a comprehensive solution that combines robust link analysis and visualization with text and geospatial search and analysis, interactive network building, entity generation and contact analysis.

Our data management tools can integrate data from many external sources to deploy the right data quickly to our cloud-ready investigation and incident management solution, where you can easily create, triage and manage your efforts to make contact tracing more complete. Our advanced analytical modeling tools help you to answer the critical questions needed to implement smart public health policies. With SAS visualization abilities, you can perform deeper investigations of contacts and data to uncover hidden patterns and share them across various health agencies.

SAS helps public health officials and investigators make sense of overwhelmingly complex disease events, manage the velocity of alerts and understand disease spread.



For more information, please visit [SAS for Public Health & Government Health Care](#).

