

Identifying Community Health Risks with Data-derived Insight

Learn how the CDC used Leidos' secure end-to-end big data analytics solution to reveal previously undetected information and possible outbreak factors for a community in Indiana

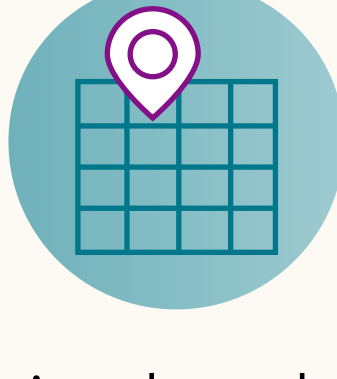


The Challenge

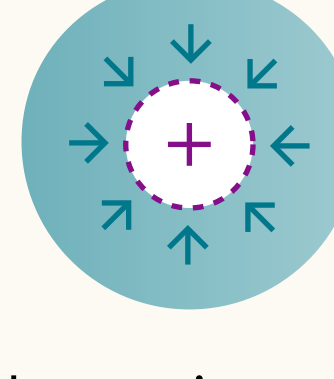
A large HIV-1 outbreak in Indiana
More than **200** confirmed cases in a population of **~4,500** people



Local health officials, unprepared to respond to these alarming spikes, invited the Center for Disease Control (CDC) to help:



Monitor the outbreak



Uncover its cause



Determine how to stop it

CDC needed to help their SMEs, scientists, executives, and researchers — who have little, if any, computer programming experience — use the power of data analytics to delve deeper into the questions about this outbreak and paint a more complete picture of the conditions that made the outbreak so large.



- Develop clinical rules in order to help control and stop the spread of this HIV outbreak
- Collect and analyze various HIV data sets related to outbreak clusters, geography, epidemiology, lab, and drug resistance data from many different sources, including internal data, data from the field, and publicly available information
- Understand the spread of HIV based on how risk behaviors and modes of transmission affect the outbreak

Goal

- Manage the disease
- Prevent onward transmission in the context of the risk factors

Obstacles

- Time required to prepare data for analytics
- Time required to create models and perform analysis
- Everything took too much time and required a lot of IT skills/intervention

The Leidos Solution

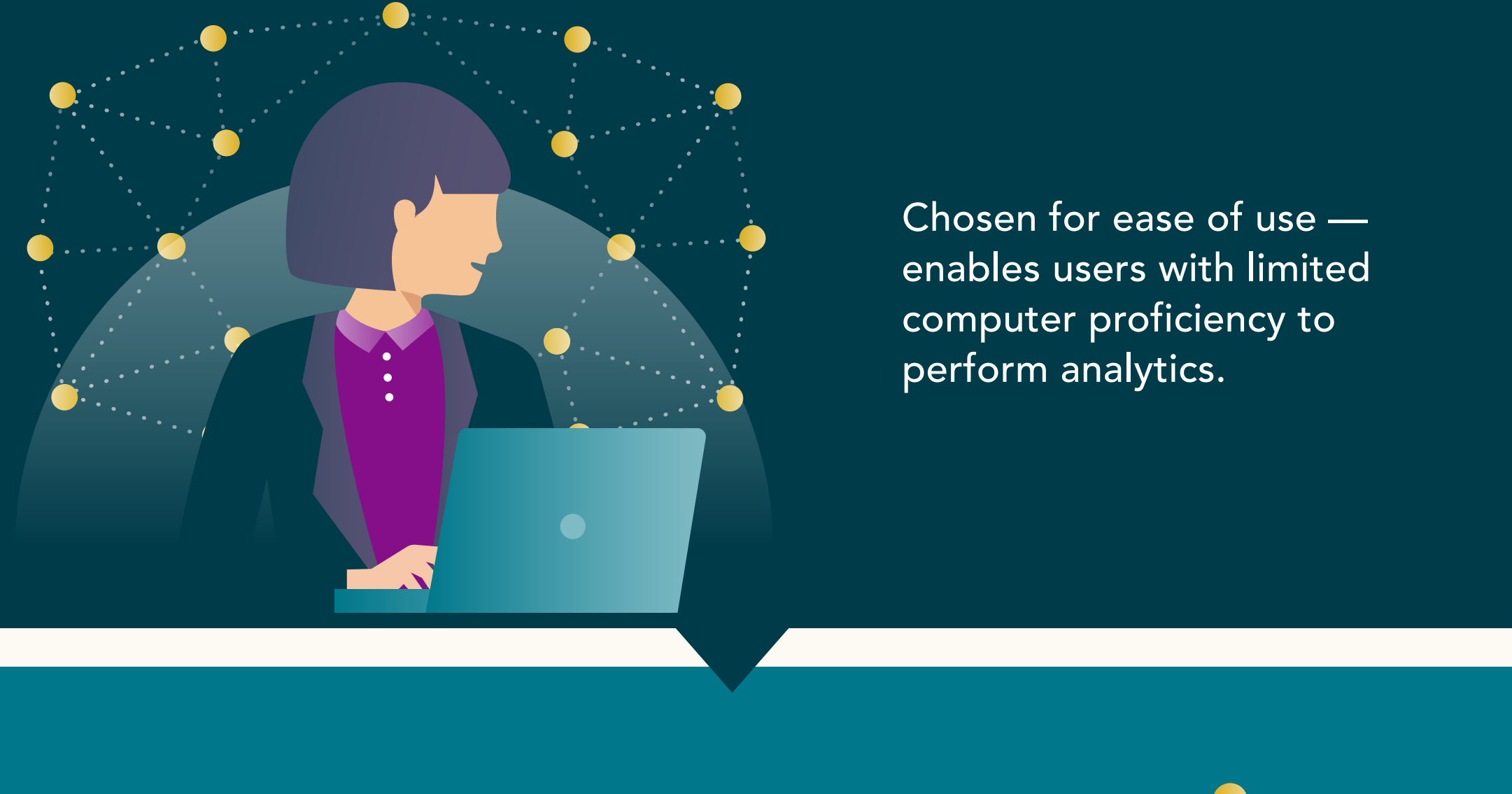
As part of the outbreak investigation the CDC used Leidos' big data platform CAADS™ (Collaborative Advanced Analytics & Data Sharing), an end-to-end environment for big data analytics and decision support tailored to the specific CDC need.



Self-service, data-centric analytics platform.

Single user interface integrating COTS data analytics tools into a secure and collaborative workflow with no coding.

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95461 9831
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Chosen for ease of use — enables users with limited computer proficiency to perform analytics.

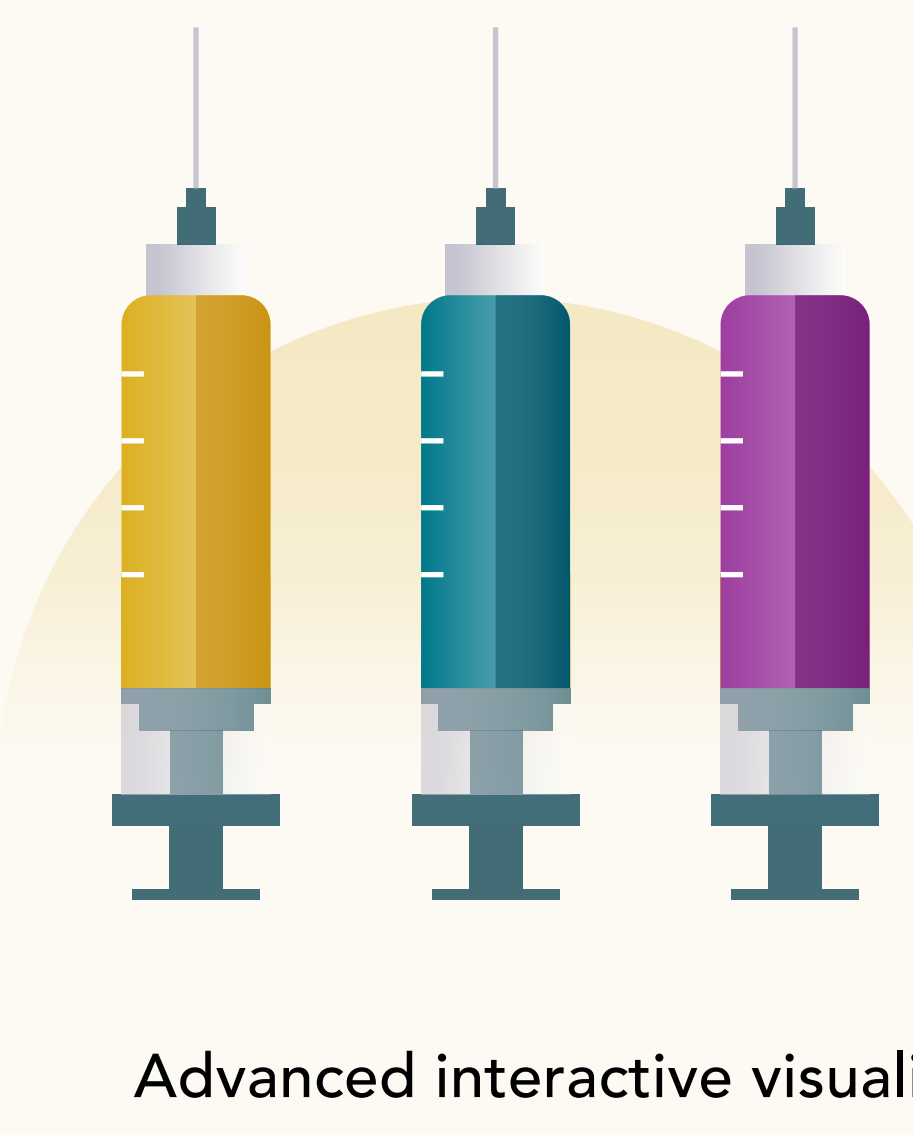
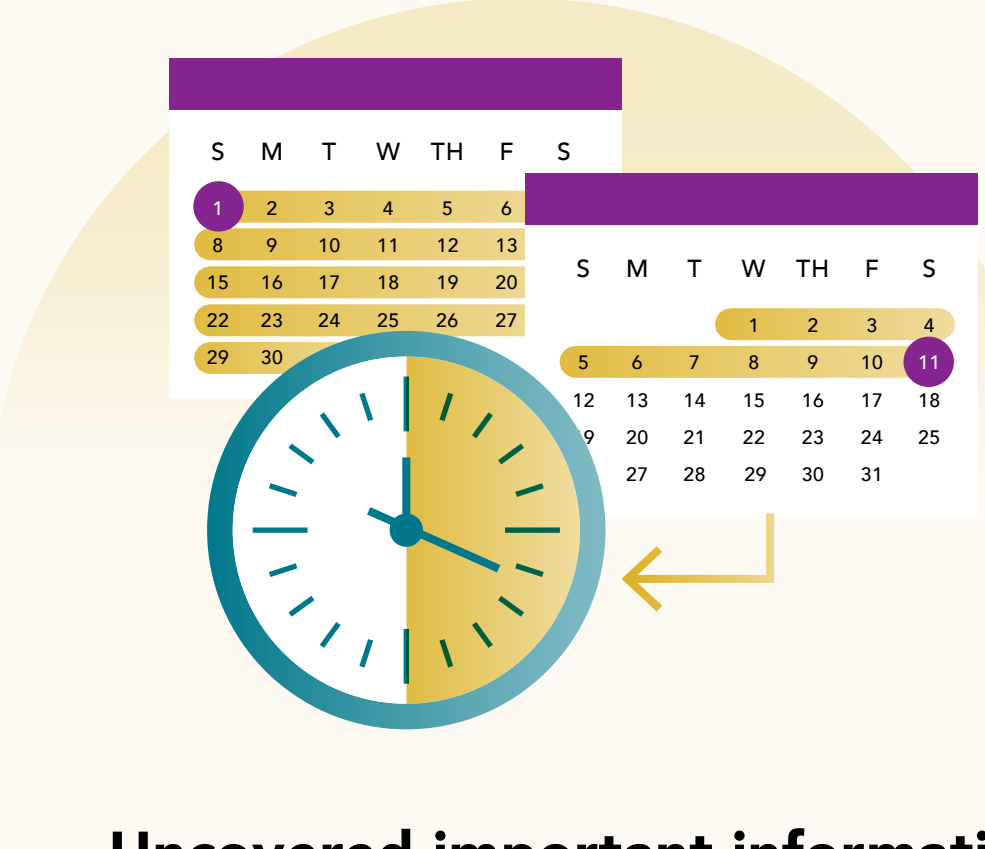
Deployment for the outbreak response optimized to support analysis of changing data sources and types without complex ontologies and data structures.



Outcomes

CDC data scientists, in collaboration with the Leidos CAADS team:

Reduced time between data analysis and data outcome from **six weeks to six hours**



Uncovered important information and possible outbreak factors previously undetected

Insight derived from data analysis revealed that intravenous injection of Opana ER (oxymorphone hydrochloride), an extended-release opioid painkiller, led to the outbreak.

Advanced interactive visualization allowed CDC users to identify infection clusters spanning geographic regions, which were reanalyzed to understand large-scale transmission patterns.



Increased collaboration between CDC scientists and health officials



Reduced number of required SAS programmers from six to one



Led to the removal of Opana ER from the market by the FDA



Reduced the cost and time for the development and testing of the platform using AWS



Rules generated through advanced analytics optimized outbreak response and improved surveillance activities in Indiana and other states



Overall effort given the Shepard Award, the highest award CDC gives

These insightful outcomes can be used to shape public health policy and initiatives. By determining which other areas in the USA have similar conditions, interventions can be put into place to prevent similar occurrences.

Our team of experts creates analytic solutions to identify trends and patterns in complex health data, making it easier for U.S. government health programs to predict public health challenges and determine methods to protect people.

Contact us today to learn more.

leidos.com/health

