

Stardog Empowers the Fight Against Infectious Disease

Case Study



With a mission to prepare for, detect, and respond to infectious disease threats across the globe, Models of Infectious Disease Agent Study (MIDAS) is a coalition of research scientists who deepen the world's understanding of infectious disease using statistical and computational models. The network of scientists undertakes projects that are out of scope for any individual to create a dynamic understanding of how infectious diseases emerge,

spread, and are ultimately contained. Funded by the National Institutes of Health, MIDAS is on the front lines of combatting future epidemics and outbreaks. By using the research and best practices MIDAS creates, public health workers, governments, and multinational organizations can better identify and more effectively treat infectious diseases.



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Stopping the spread of epidemics like Ebola is greatly informed by models of disease, but building disease transmission models is data and software intensive,” said one researcher. “Finding the needed data and software is made much easier by the ontology-based search that uses Stardog.”



The Challenge

To prepare the nation to respond to outbreaks of infectious diseases, MIDAS creates dynamic statistical and computation models that rely on hundreds of data sets spread across a growing number of data siloes, research papers, internal applications, and census information. With no way to productively query the vast stores of data, scientists were inhibited from completing holistic models and analyses which dampened the scope and increased the cost of their life-saving research.



The Solution

The MIDAS team partnered with Stardog and created an application that serves as a digital catalog for relevant infectious disease modeling and epidemiology. It adheres to FAIR principles, a collection of guidelines to improve the findability, accessibility, interoperability, and reusability of biomedical digital assets. Known as the MIDAS Digital Commons, the digital catalog enables researchers to search across a number of attributes, including pathogen type, host data, and disease forecasters. Users can now query over 700 mapped data sets, 62 indexed software applications, and over 200 data-related websites in 28 different formats. Also involved in the creation of MIDAS Digital Commons was the University of Pittsburgh, the University of Florida, and the Biomedical Informatics team.



The Results

With the creation of the MIDAS Digital Commons, scientists have a unified view of all relevant information on infectious diseases like Ebola, Zika, and Malaria. Within a single application, teams can host disease transmission models, query symptoms and treatments, and review how past outbreaks were contained. The several hundreds of researchers that regularly utilize MIDAS Digital Commons can now quickly find relevant, applicable resources to their research that were previously obfuscated by unconnected data. Stardog provides epidemiologists an unparalleled tool to efficiently and effectively bolster their research projects to protect the health and safety of the world.

Learn more at stardog.com