Pardon the "Int"-eruption: Why Healthcare Organizations Should Embrace Geospatial Intelligence (GEOINT)

In a previous post, I discussed how healthcare organizations can be better prepared for the next pandemic by adopting some of the tools and technologies of open-source intelligence (OSINT). As was mentioned, health systems often had to rely on traditional scientific channels (CDC, WHO, etc.), the popular press, or patients presenting at the emergency department or doctors' offices to be notified that a viral disease was spreading. The validity, timeliness, and usefulness of these notifications is often in doubt. Conversely, social media sites often post news of these type of outbreaks more frequently and from more world-wide locations. Can, or should, a hospital or other provider rely on unclassified publicly available information (PAI) from social media to achieve real-time, or near real-time, surveillance of potential pandemics? For unclassified location information to be utilized as intelligence by healthcare organizations preparing for infectious disease outbreaks, GEOINT can be a valuable resource.

GEOINT

Geospatial intelligence (GEOINT) is spatial intelligence that is produced from unclassified PAI (imagery, spatial, and unstructured) and classified information and contains spatial reference information. Typically, classified GEOINT is used by state and national governments for security issues and usually involves the analysis of various types of imagery and related spatial data. However, because of the increasing amount of publicly available imagery, unstructured data (file formats not easily imported into common mapping software programs), data feeds from non-profit organizations (NGOs) and national and international health agencies, it is now being used by the private sector (healthcare providers, security firms, supply chain logistics firms, etc.). Security firms can exploit satellite and drone imagery for threats to their physical

assets and staff. Supply chain logistics firms can use port and travel network imagery as well as unstructured information for potential disruptions to their delivery schedules.

The tools used to gather geospatial information are numerous but can often be unreliable. A fundamental problem for healthcare organizations with geospatial information is the volume and format of data published every day around the world on infectious disease outbreaks. Being able to turn that information into actionable intelligence can be a challenge. As an example, in August 2022, Pakistan suffered its worst flooding in decades. Imagery produced by NASA's Earth Observatory, available here, shows the extent of the flooding. Subsequently, news reports highlighted the extent of the disease outbreaks that resulted. How can hospitals and other healthcare organizations that face increasing frequency of infectious disease outbreaks make efficient use of GEOINT tools to prepare for pandemics?

Health System Strategic Planning and GEOINT

Healthcare providers can now monitor social media sites and professional association websites for national and international infectious disease outbreaks. As mentioned in my previous post, The Program for Monitoring Infectious Diseases (ProMED) a program of the International Society for Infectious Diseases, has an free email subscription service ProMED Mail, which sends out daily reports of news regarding outbreaks among other issues. However, as this data is often in a form not easily utilized in traditional geospatial software, being able to exploit this unstructured data becomes necessary. Utilizing unstructured geospatial data has several advantages for healthcare providers:

- Data from multiple sources can be obtained for free or low-cost
- Data can be visualized and statistically analyzed to increase confidence it its validity
- Data gathering and analyzing can be out-sourced to minimize disruptions to current operations

- Using previously mentioned open-source intelligence (OSINT) tools, world-wide geospatial data can be gathered, analyzed and reported to key decision makers in a timely manner
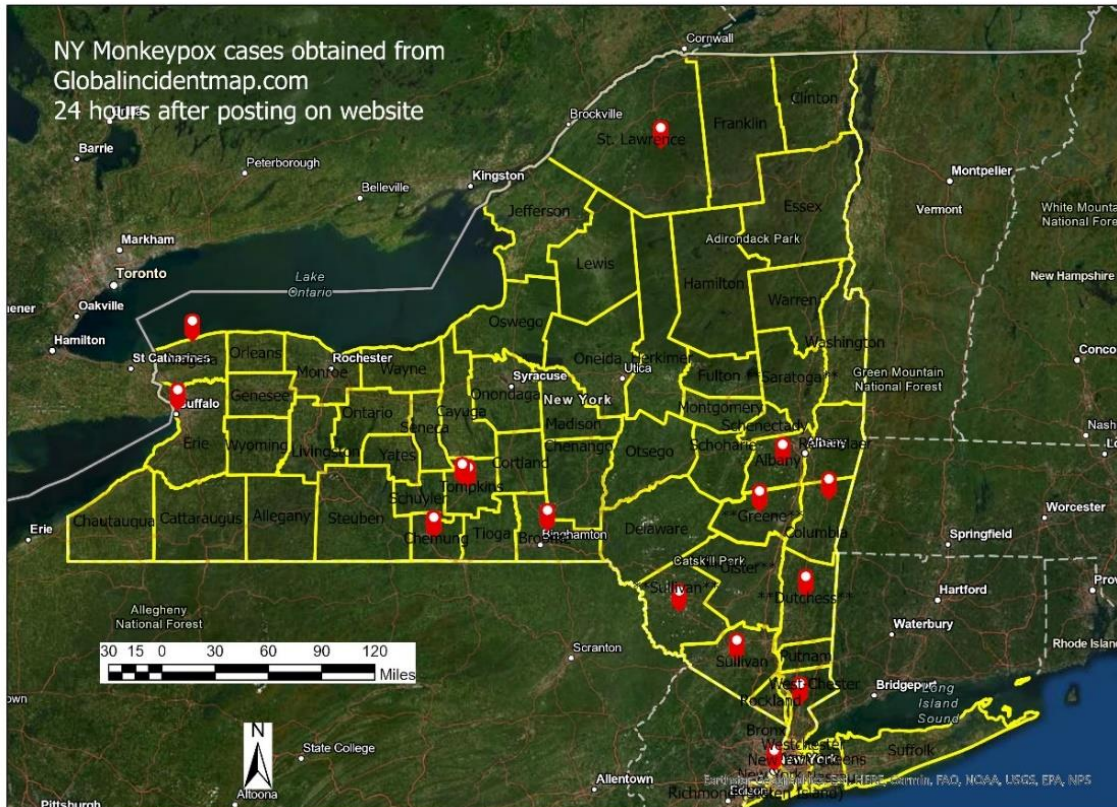
This map shows the locations of monkeypox outbreaks in New York state. The data was obtained from Globalincidentmap.com 24 hours after it was posted. The spatial data contained in the text of the story (in this case latitude and longitude) was geocoded and visualized. Other unstructured data from websites, news stories, and word documents can also be utilized.

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