



Global Public Health Intelligence Network

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November 12, 2019



Outline

- What is GPHIN?
- Why is GPHIN important?
- How does GPHIN work?
- Who is using GPHIN?
- Where are we going?



Global Public Health Intelligence Network (GPHIN)

- Started in 1997 in collaboration with the WHO
- Event-based multilingual early-warning and situational awareness network for potential chemical, biological, radiological and nuclear (CBRN) public health threats worldwide

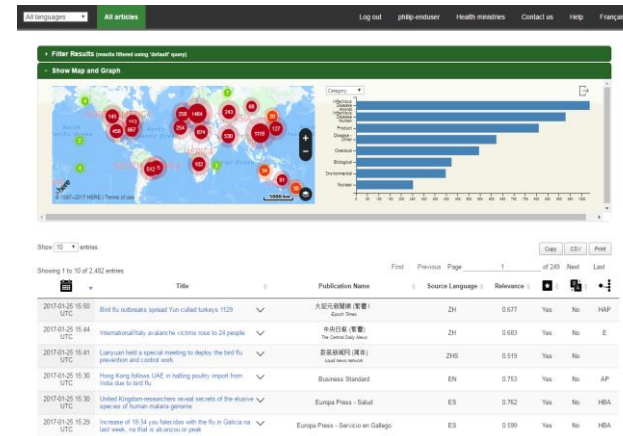


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- Two critical components:



Analysts
Multidisciplinary & Multilingual



Information
Management Tool

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- Two critical components:
 - 10 Analysts with advanced life science degrees working in 9 languages (Arabic, Farsi, Chinese – traditional and simplified, English, French, Russian, Spanish Portuguese) conducting rapid risk assessments to detect public health threats
 - Information Management Tool that uses machine learning and natural language processing to facilitate analysts' work
- Inputs are open source information including news media
- Only event-based surveillance system that is state owned and operated
- Earliest event-based surveillance system to adopt Big Data



Why is GPHIN important?

- Supports compliance with International Health Regulations (2005) core capacity
- Increases situational awareness and capacity for the early detection of and response to emerging public health events
- An important component of international event-based surveillance activities such as Global Health Security Initiative's Early Alerting and Reporting (EAR) Project:
 - Approximately 20% of WHO's Epidemiological Intelligence from Open Source (EIOS) input comes from GPHIN
- Disseminates time-sensitive information to public health professionals in Canada and worldwide for appropriate risk management, control prevention, and response measures

How does GPHIN work?

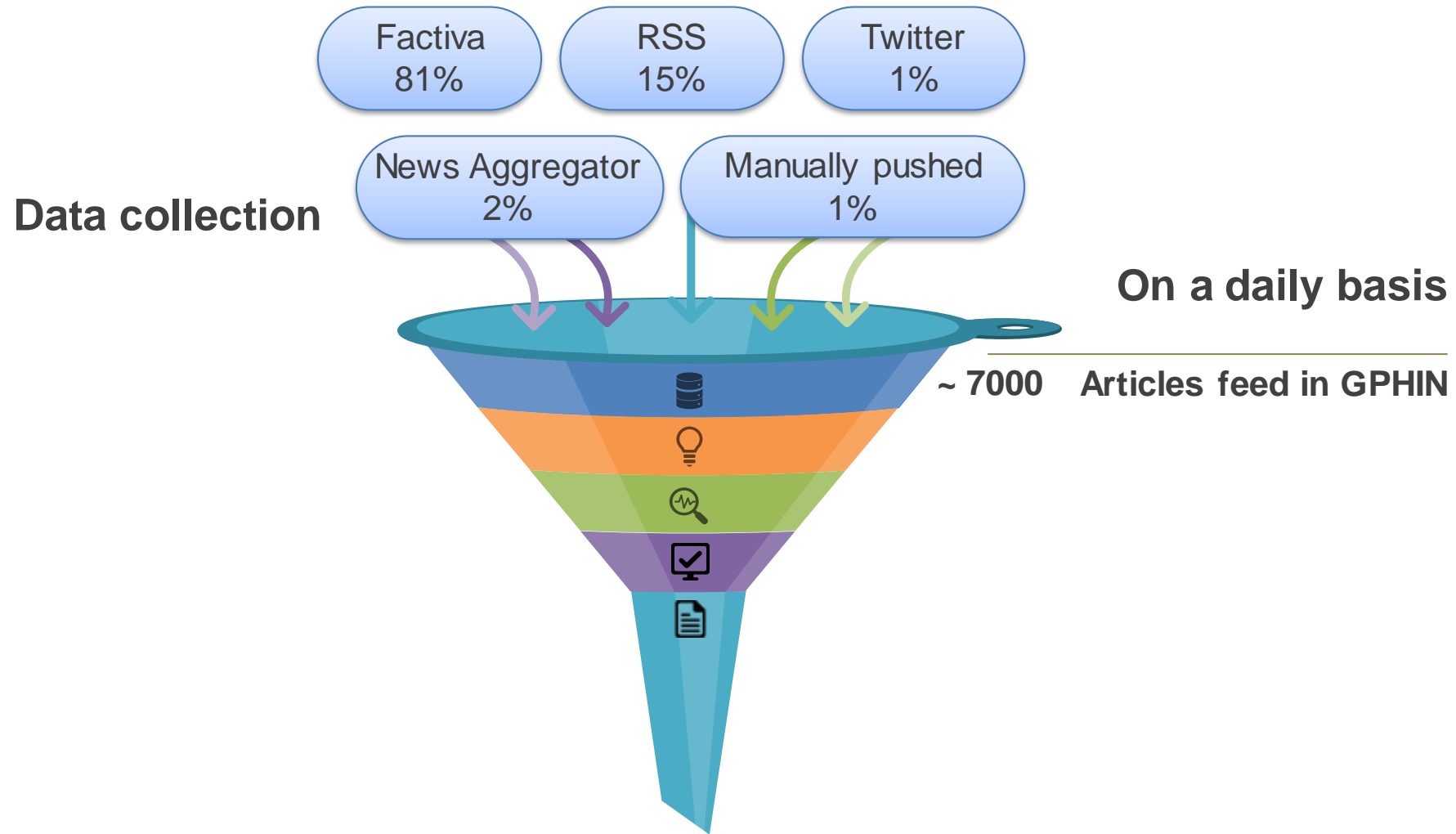
Data collection



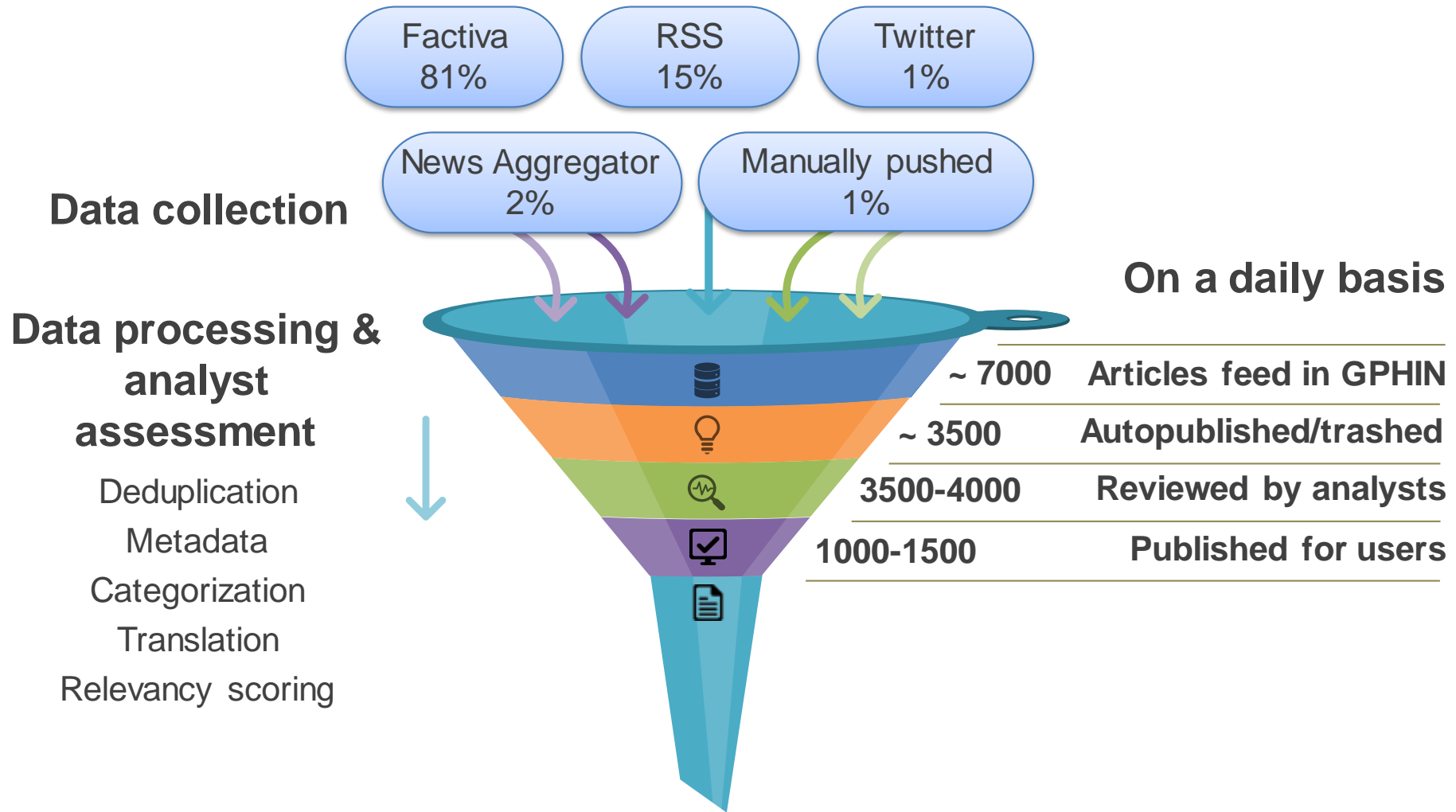
On a daily basis

~ 7000 Articles feed in GPHIN

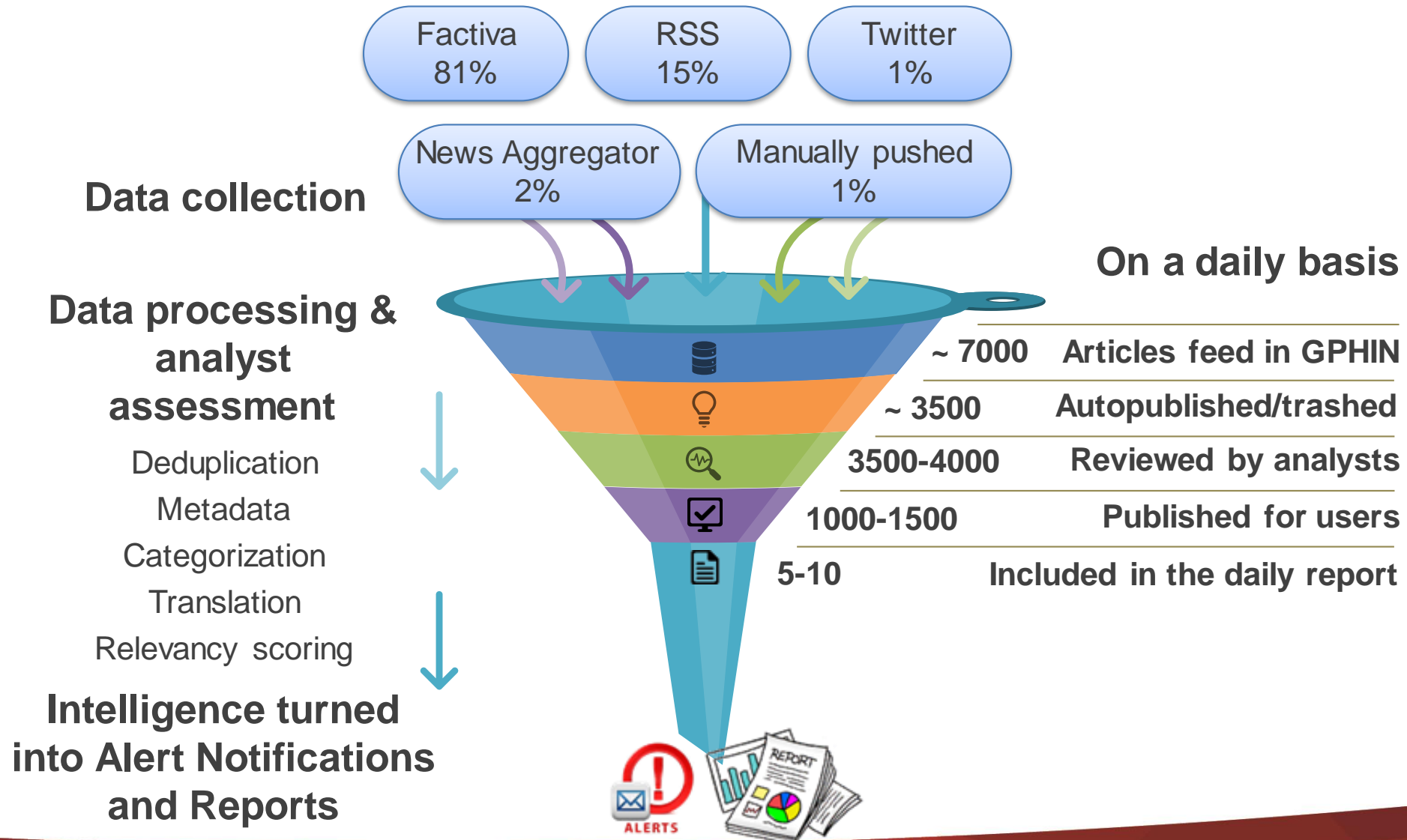
How does GPHIN work?



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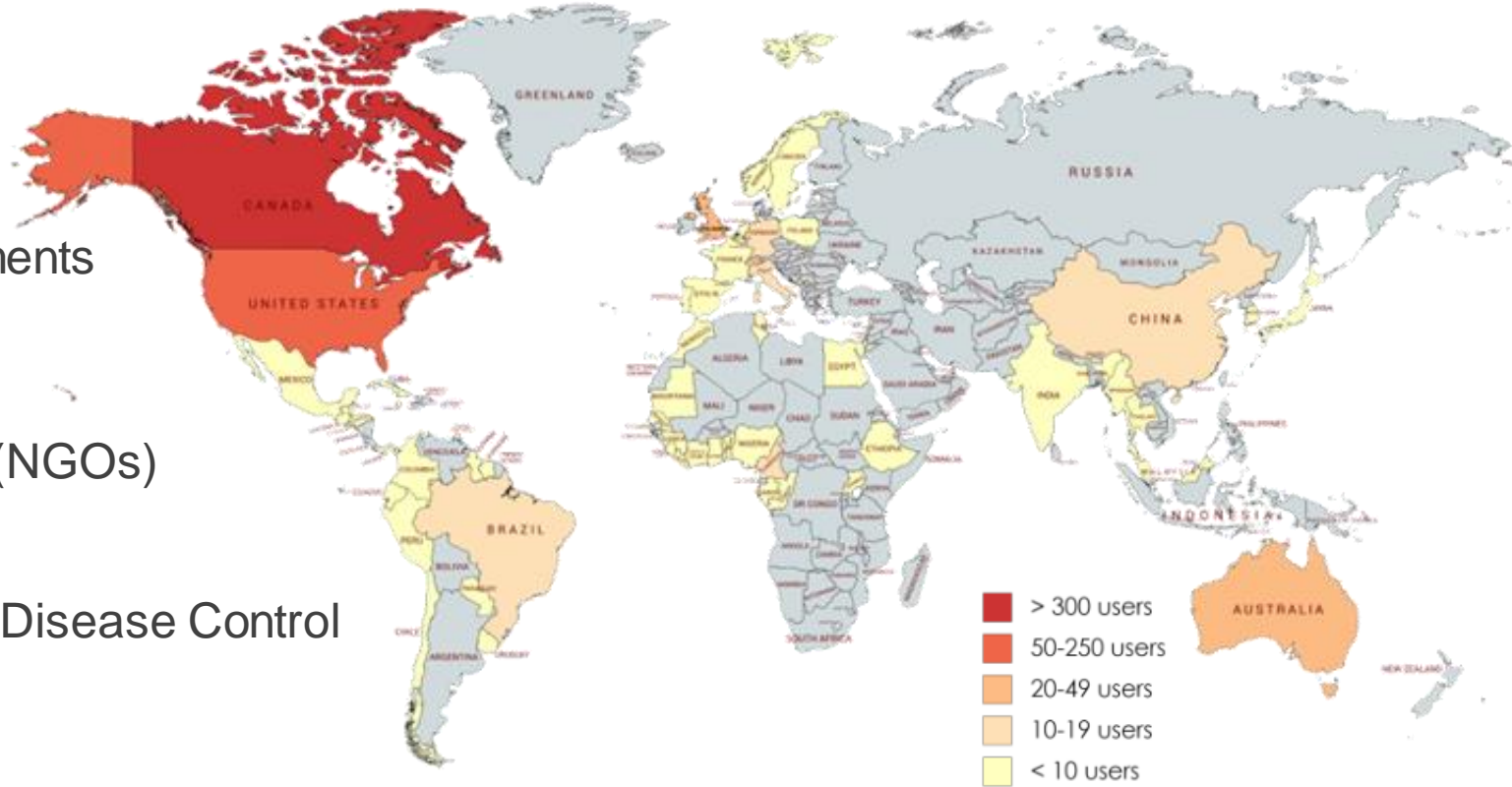


How is data collected in GPHIN?

- Complete taxonomy at the basis of all searches and queries
 - Consists of keywords and variations in 9 languages
 - Regularly reviewed and updated by the analysts
- Set of complex logical queries created by the analysts in Factiva
 - Queries are constantly refined by the analysts
- RSS feeds with relevant articles and some twitter accounts fed into the system
- Google Alerts and other news aggregator applications programmed by the analysts
- Internet searches for relevant news including social media manually pushed into the system

Who uses GPHIN?

- Government authorities and non-governmental agencies and organizations that conduct public health surveillance
- Canada (> 350 active users)
 - Health Portfolio Programs
 - Other federal government departments
 - Provinces and Territories
 - Academics
 - Non-Governmental organisations (NGOs)
- International (> 450 active users)
 - Ministries of Health or Centres for Disease Control from 85 countries
 - Other Government Departments
 - International Organizations (e.g. WHO/PAHO, OIE, FAO)



GPHIN products

- Canada
 - Daily situational awareness report for Canadian public health stakeholders
 - Emergency responses reports
 - Ad hoc reports to stakeholders as requested (e.g. EVD situation update, vaping specific media reports, etc.)
- International
 - Alerts to all GPHIN users
 - Other Notifications e.g. FYIs
 - PAHO report
 - Support during mass gathering events

Good morning,

Please find below the daily Summary and articles collected by GPHIN for your review and risk assessment.

GPHIN Daily Report Email Summary

Domestic Events of Interest

[New Brunswick & Nova Scotia - Flu shot shipments delayed, but there's enough available for high risk groups \(Media\)](#)
The flu shot season is getting underway, and while there is no critical shortage of the vaccine, there have been delays in some shipments. New Brunswick's health department states that it is aware of the delays in distributing the vaccine, but expects to have 60 per cent of its supply by the end of October, adding that flu shots are available to high-risk groups and they expect everyone who wants a flu shot will be soon able to get one. In Nova Scotia, there are also delays. A statement from the Nova Scotia Department of Health and Wellness indicates that they currently have about 50 per cent of their order, about 25 per cent less than usual at this time. The authorities expect to receive the full supply by November.

[Ontario & Quebec - Public Health Notice - Outbreak of Salmonella illnesses linked to Filicetti brand Italian Style mild, dry, cured sausage \(Official\)](#)
As of 23 October 2019, there are 12 confirmed cases of Salmonella Litchfield illness in Ontario (10) and Quebec (2). Individuals became sick between May and September 2019. One individual was hospitalized. No deaths have been reported. The collaborative outbreak investigation was initiated because of an increase of Salmonella Litchfield illnesses being reported, which is a rare strain not commonly seen in Canada. The Public Health Agency of Canada is collaborating with provincial public health partners, the Canadian Food Inspection Agency and Health Canada to investigate the outbreak. On 15 October 2019, the CFIA issued a [food recall warning](#) for various ready-to-eat dry sausage products that tested positive for Salmonella, including Filicetti brand Italian Style mild, dry, cured sausage.

International Events of Interest

[Global - WHO: Two out of three wild poliovirus strains eradicated \(Official\)](#)
In an historic announcement on World Polio Day (24 October 2019), an independent commission of experts concluded that wild poliovirus type 3 (WPV3) had been eradicated worldwide and followed the eradication of smallpox and wild poliovirus type 2. WPV3 is the second strain of the poliovirus to be eliminated following the certification of the eradication of WPV2 in 2015. The last case of WPV3 was detected in northern Nigeria in 2012. According to the chair of the independent Global Commission for the Certification of Poliovirus Eradication, this achievement should provide motivation for the eradication of wild poliovirus type 1 that remains in circulation in Afghanistan and Pakistan.

[Global - NHIE Update: More Global Flu Vaccine Delays \(Media\)](#)
Media reports indicate that several countries (Canada, Taiwan, United Kingdom (Scotland and England), and United States) are reporting that getting this year's flu vaccine has become even more of a challenge. In the US, for example, pharmacies are reporting problems getting the high dose flu vaccine designed for seniors. Some of that is likely due to the WHO's 35-day delay in deciding on which H3N2 strain to include, but there also appear to be some (unspecified) manufacturing challenges involved as well. The ultimate impact of these shortages will depend upon when flu season ramps up, its severity, and whether the manufacturers manage to deliver sufficient quantities of the vaccine before that happens. While flu activity remains low in the United States and Canada, this week several US states have reported recent flu deaths.

Researches, Policies and Guidelines

[United States - New blood monitoring could be used to help people infected with tuberculosis](#)
More than 10 million people around the world have active tuberculosis (ATB). To help if patients at highest risk for having ATB get the care they need, WHO has called for the creation of a triage test that is blood-based rather than sputum-based and can identify patients, who are at high risk for ATB, and should be given a diagnostic test. Researchers from several institutions has answered that call with a text, ultrasensitive, multiplexed blood-based TB triage test that identify patients who are likely to have ATB and require advanced diagnostics and treatment. It can be configured into a point-of-care test that costs only \$2 and gives results in about 30 minutes, lowering the barrier to care in low-resource settings and potentially saving millions of lives. The research is reported in [Science Translational Medicine](#).

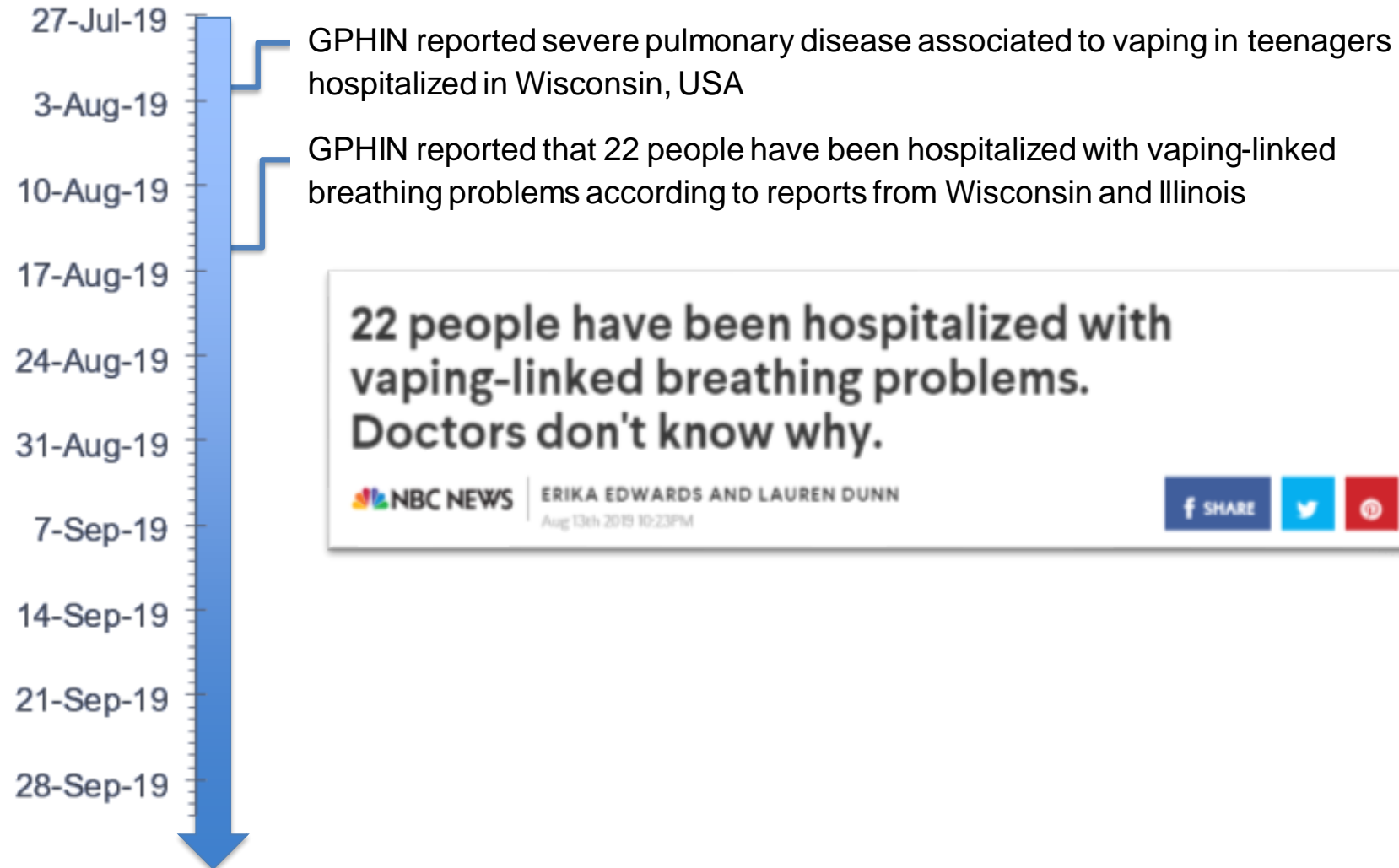
Best Regards / Sincères salutations
The GPHIN Team / L'Équipe du RMSP

Global Public Health Intelligence Network | Health Security Information Branch
Public Health Agency of Canada, Government of Canada
[www.gphinteam.ssi.gc.ca](#)
Réseau mondial d'intelligence en santé publique | Section d'information de l'infrastructure de sécurité sanitaire
Agence de la santé publique du Canada, Gouvernement du Canada
[www.gphinteam.ssi.gc.ca](#)

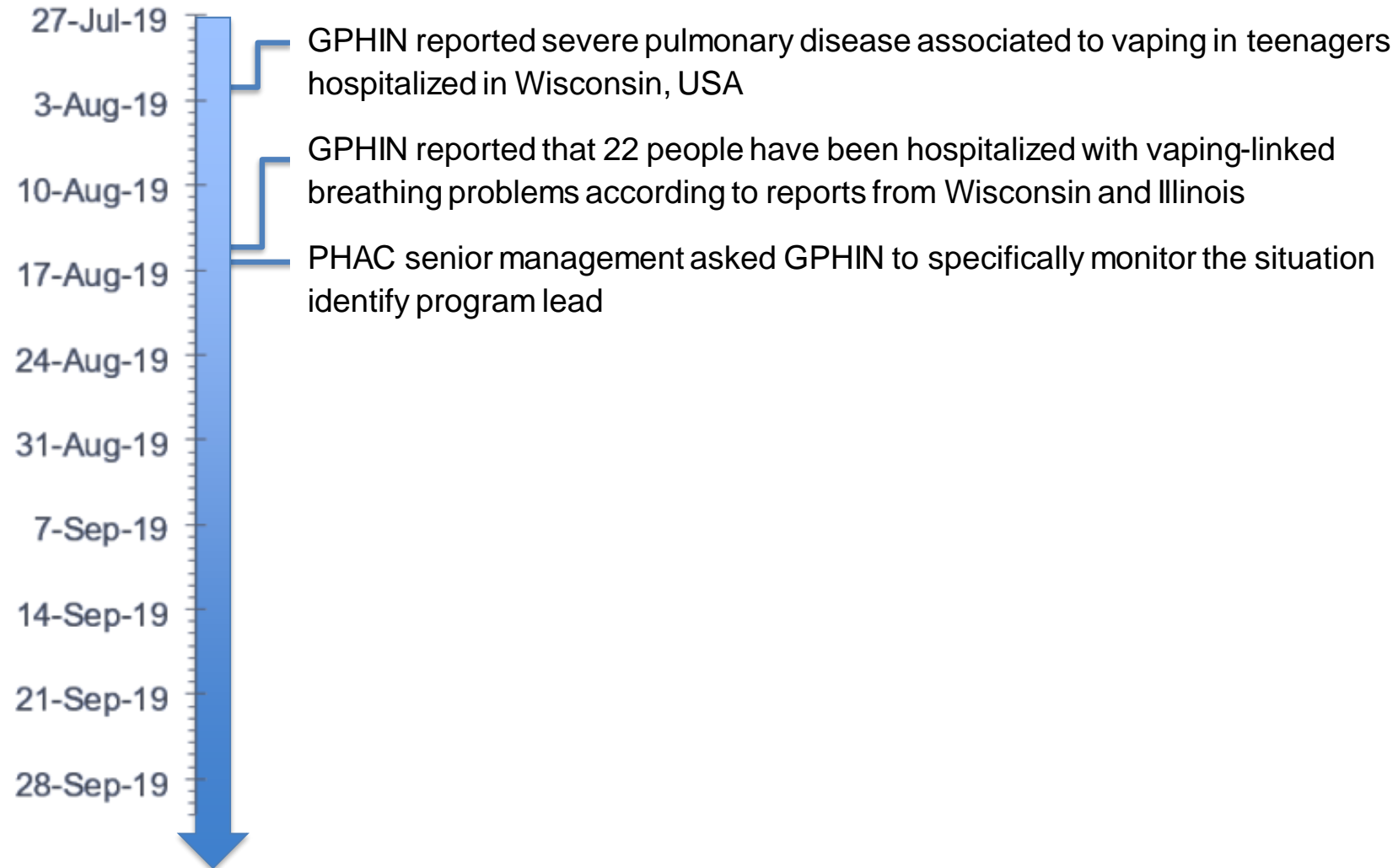
Examples of GPHIN's early detection in Canada



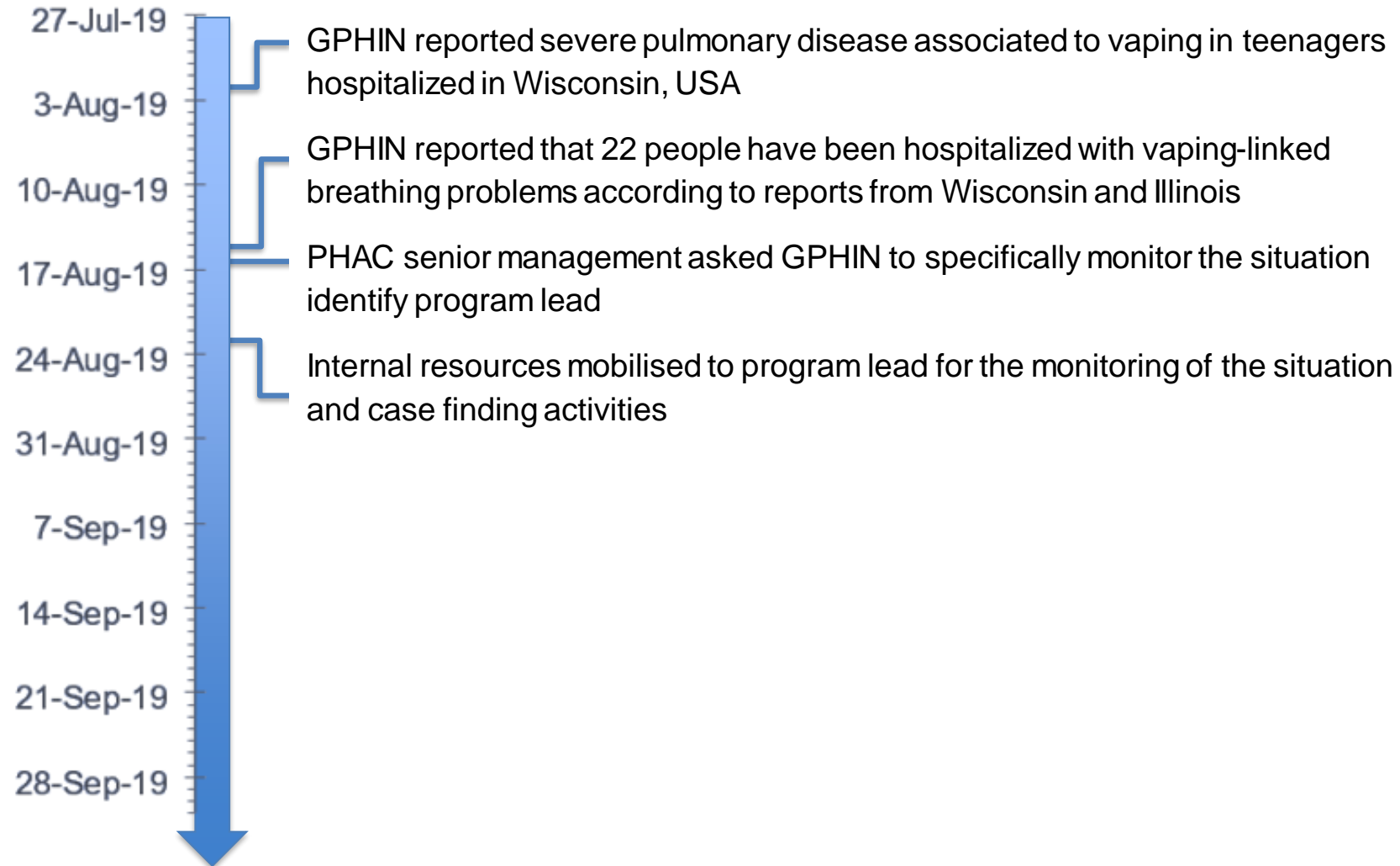
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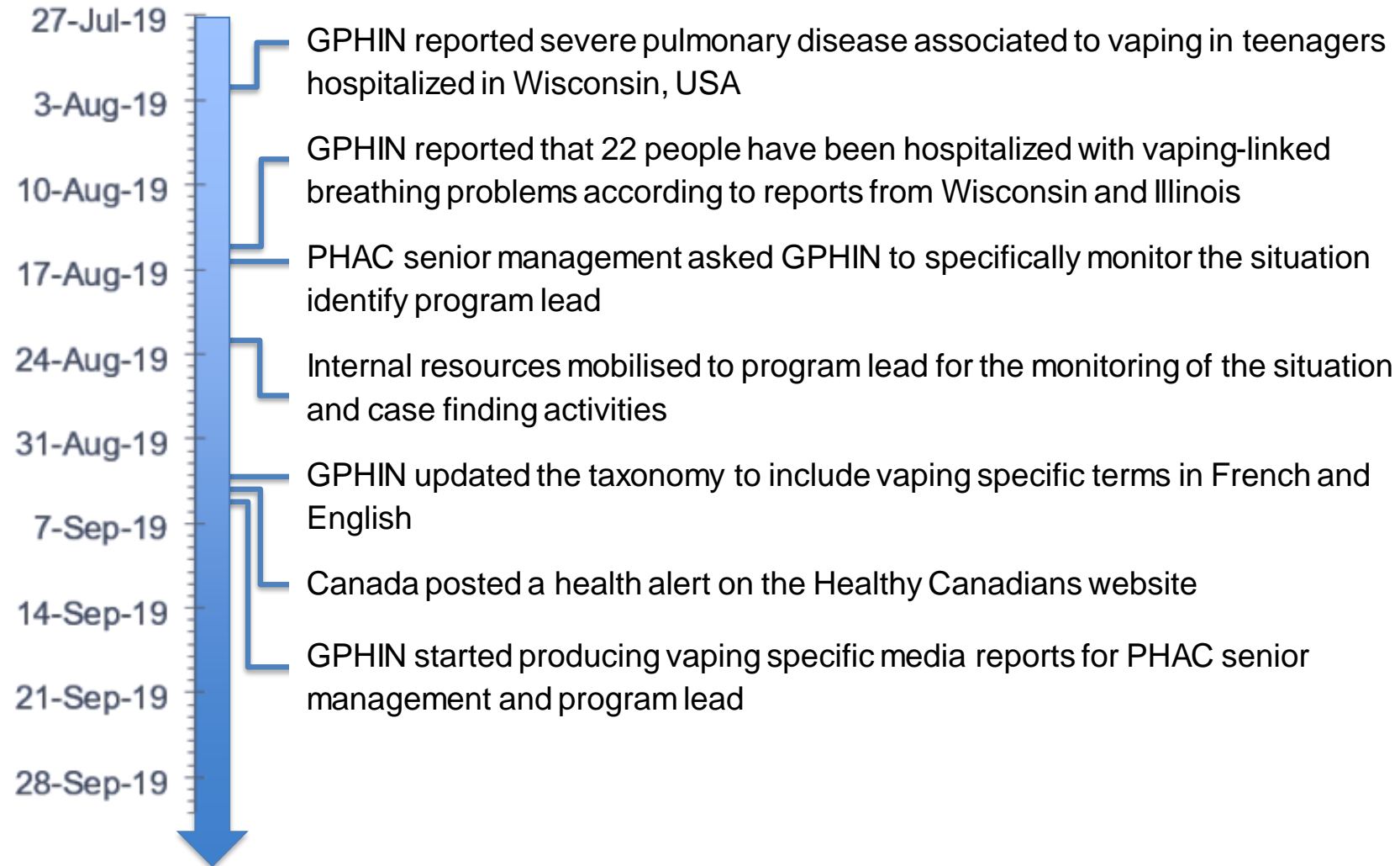
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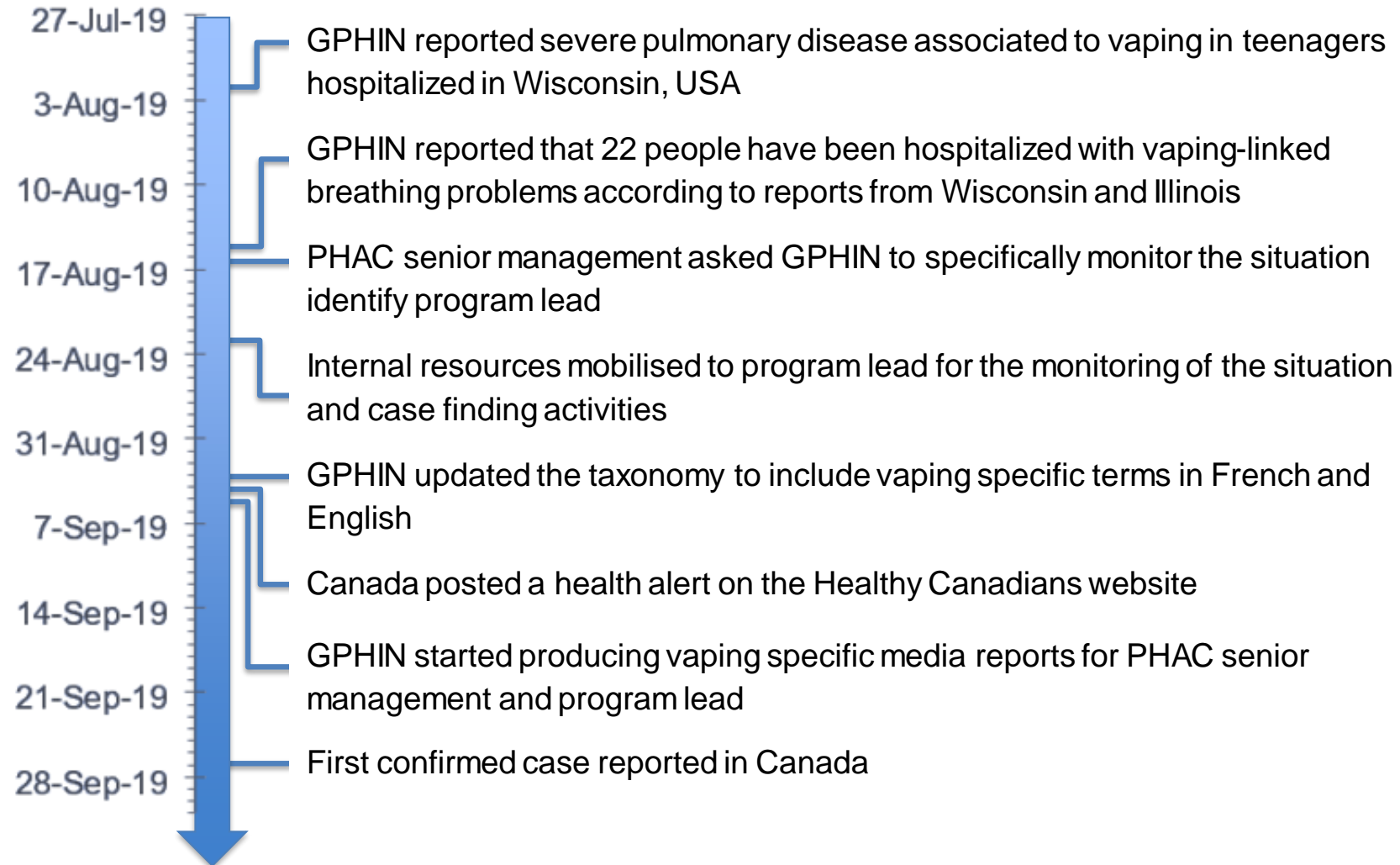
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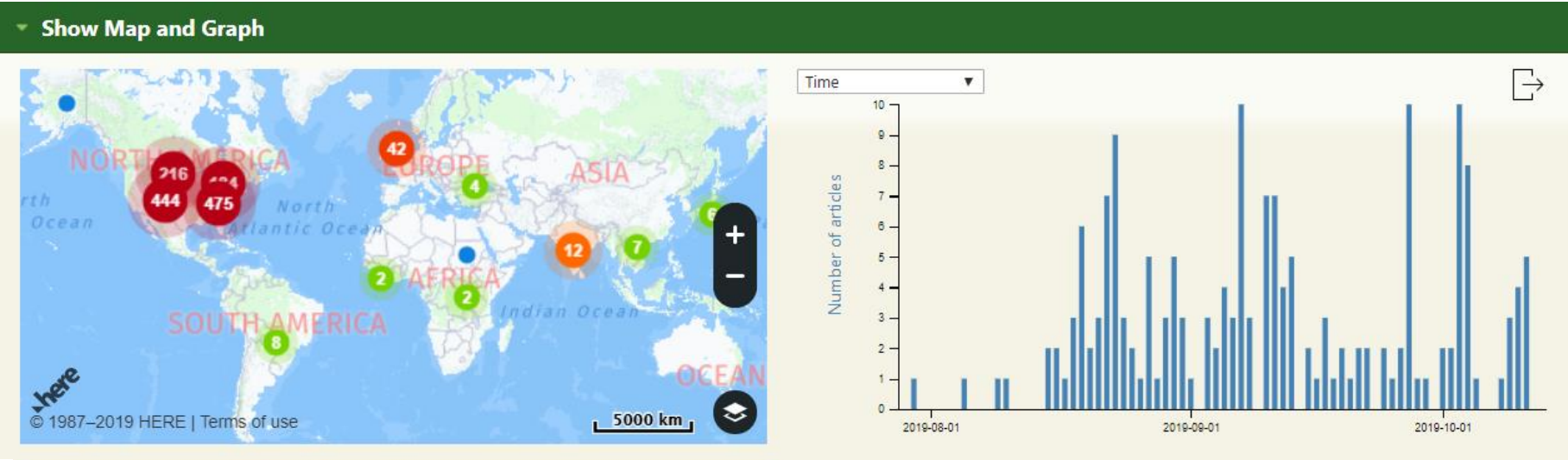
Examples of GPHIN's early detection in Canada



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Examples of GPHIN's early detection in Canada



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Quebec confirms 1st case of vaping-related illness



BY [KALINA LAFRAMBOISE](#) - GLOBAL NEWS

Posted September 27, 2019 9:20 am

Updated September 27, 2019 5:32 pm

JASON HERRING Updated: September 10, 2019

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required marketing authorization

ICIALS

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GPHIN's recent improvements

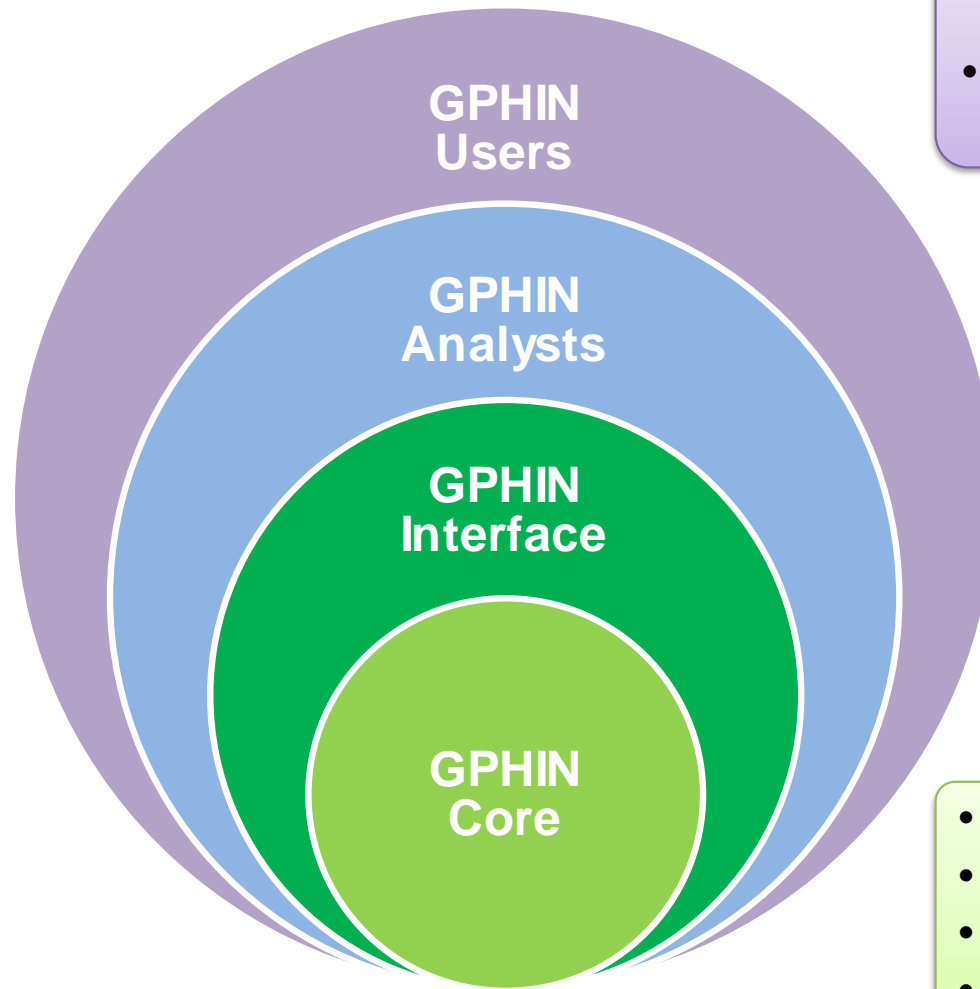
- GPHIN renewal project
 - Collaboration with National Research Council Canada
 - Development of a new, enhanced web-based platform using emerging technologies to provide greater automation in the collection, collation, and analysis of open source information
 - Relevancy score with auto-publish and auto-trash functions
 - Categorization and geographical tagging of the articles
 - Near-duplicate detection
 - Redesign of system architecture for more flexibility
- Situational Awareness Daily Report revamp
 - Satisfaction survey issued to all users in May-June 2019
 - Revamped report implemented in September 2019
 - Scope of the sections is more explicit
 - More analysis on event reported
 - Implementation of a process to review the distribution list on a periodic basis

And more to come...

- InSight research project
 - Provide epidemiological context of events detected by GPHIN and EIOS
 - Develop advanced analytical tools that will help enhance GPHIN's capacity to
 - Detect signals and events more accurately
 - Identify susceptible populations
 - Forecast the epidemiological curve of a disease outbreak
 - Estimate disease spread pathways
 - InSIGHT dashboard accessed via GPHIN
- Improvement in the geographical and time tagging algorithm
- Expansion to new data sources (e.g. social media)
- Addition of new languages
- Improvement of the administrative functions of the platform
- Development and implementation of the « Story building » and customizable reporting tools
- Satisfaction survey to all GPHIN users (domestic and international)



GPHIN – Next generation



- Groups of users with tailored communication
- Enhanced collaboration within Canada and internationally

- Improved efficiency
- Data analysis and risk assessment
- Trends identification and outbreak forecast

- Enhanced visualisations
- Customizable reporting tools

- Modular architecture
- Artificial Intelligence
- Machine Learning
- Modeling

THANK YOU

merci – muchas gracias – obrigado

شكرا – مرسى – спасибо – 谢谢 – 謝謝

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