Weill Cornell Medicine

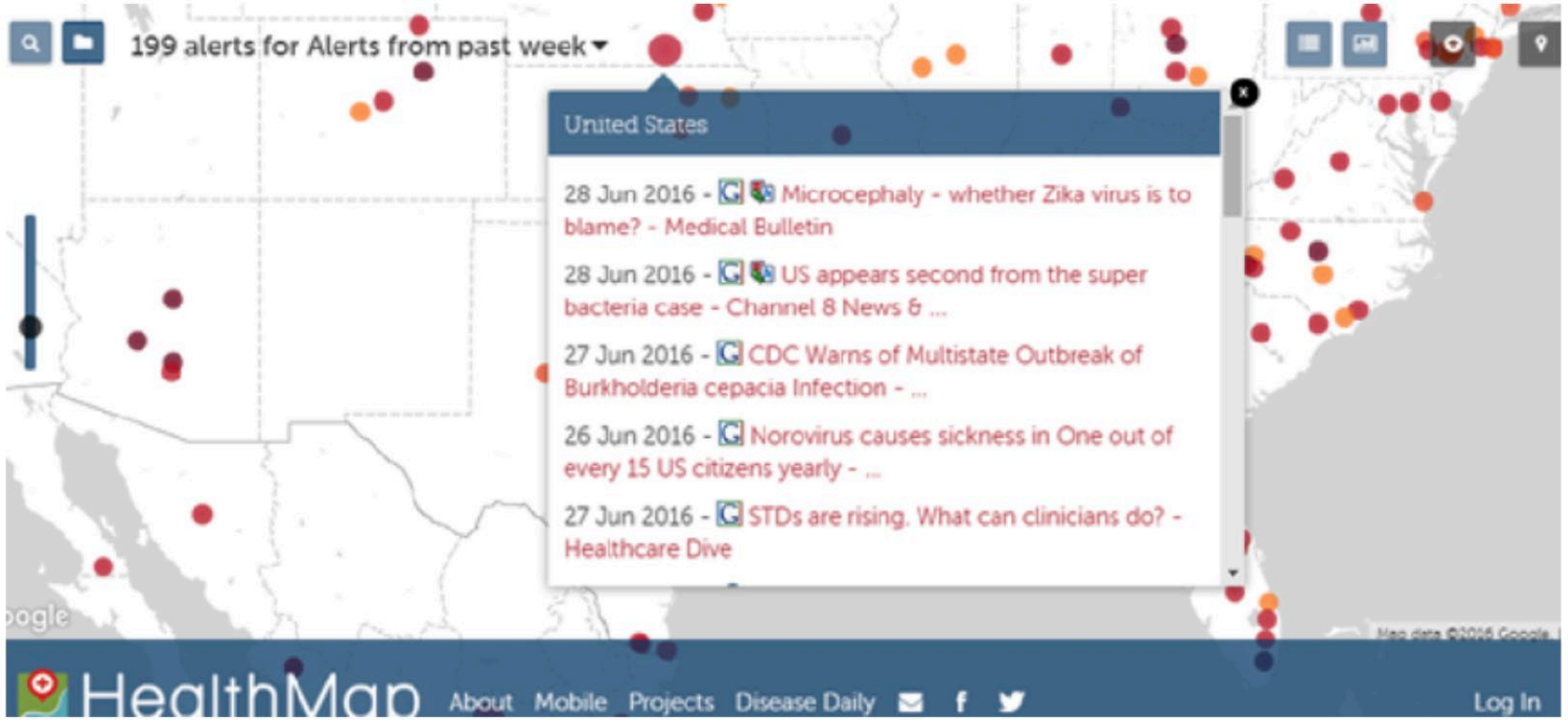
Event- and Indicator-based surveillance to track infectious disease outbreaks

David Scales MPhil, MD, PhD
Assistant Professor of Medicine, Weill Cornell Medical College
CMO, Critica

HealthMap software in Boston flagged Ebola 9 days before outbreak announced

Published: Aug. 09, 2014, 6:24 p.m.

Disease detection platform maps Zika fast -- with surprising accuracy



By Suzette Lohmeyer

JUNE 28, 2016

HealthMap automatically aggregates more than 200,000

Digital Disease Detection & Event-based Surveillance

- GPHIN (~1994)
- HealthMap (2006)
- EpiSPIDER
- BioCaster
- MediSys

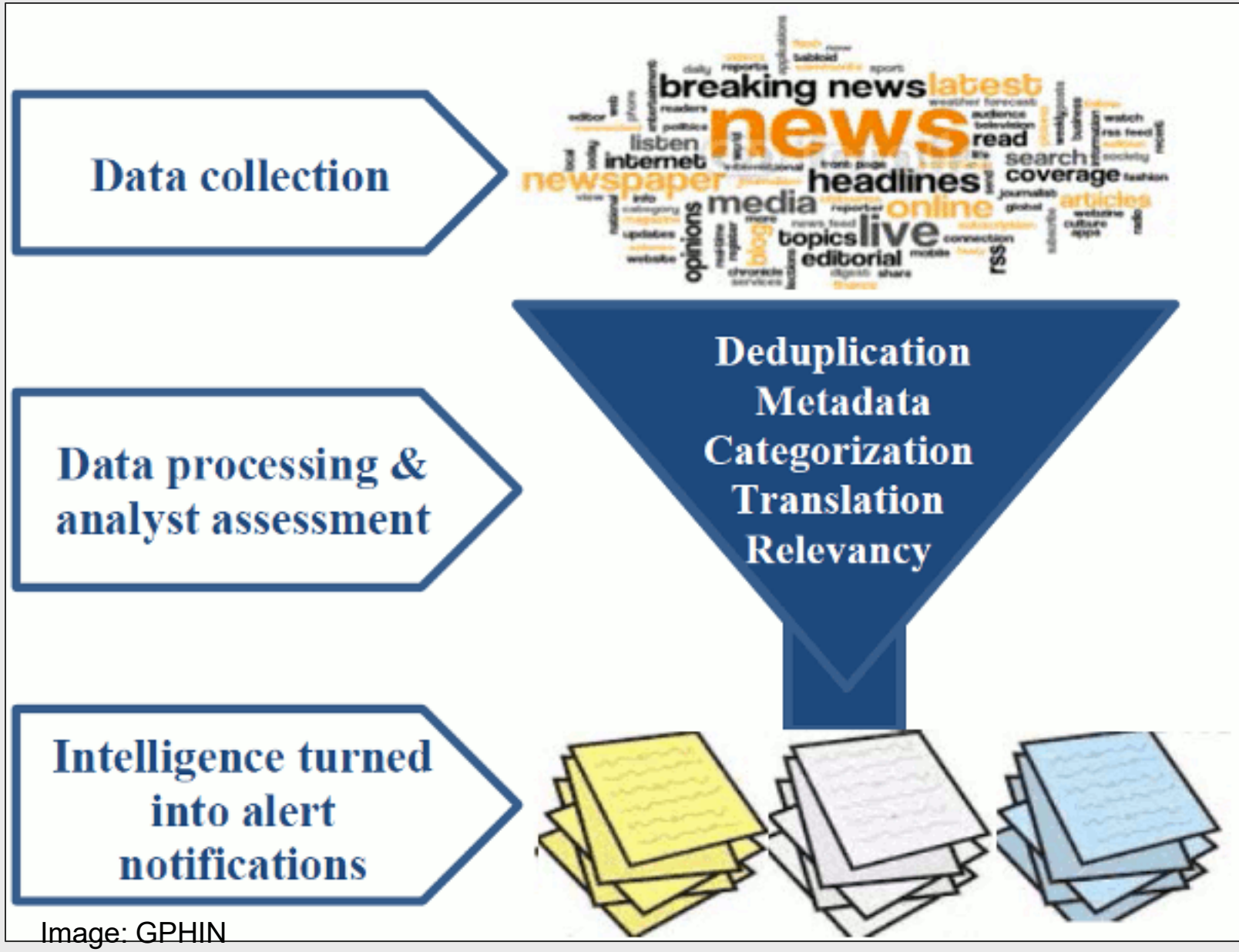


Image: GPHIN

	Event-based	Indicator-based
Objective	Outbreak detection, early warning	Outbreak detection, inform response, monitor trends/risk over time
Sources	Official and unofficial (print, broadcast & social media)	Physicians' diagnosis, laboratories, emergency rooms
Credibility	¯_(ツ)_/¯ (caveat emptor)	High
Speed	Rapid, constant updates	Variable, often significant lag
Responsible Parties	Academia/NGOs (in partnership with gvts)	Local, state, federal government

Defining “event”?

- Left to each detection system to define
- Can change as a public health event evolves
- Flexible approach allows academic/NGO partners to cast wide net without giving too much credibility to rumors

Infodemic surveillance is event-based surveillance!

- Building & leveraging partnerships **outside** government
- Leaves defining ‘misinformation’ to academic/NGO partners
- Defining “indicator-based” surveillance for infodemics: monitor & report claims widely agreed to be false and of high potential public health consequence (COVID-19 vaccines contain microchips or affect fertility)

Thank you!
Thoughts? Questions?

David Scales

das9289@med.cornell.edu

Brief recent history of emerging infectious disease surveillance

- International Sanitary Regulations (1951): cholera, plague, relapsing fever, smallpox, typhoid & yellow fever
- “Indicators” – confirmed disease cases or known ‘syndromes’ like “influenza like illness” — Slow, but certain.
- International Health Regulations (2005) shifts priority to reporting based on risk, not based on disease
- Surveillance need shifts: Find known threats earlier; detect the unknown as quickly as possible.