

Observations from the 2009 H1N1 Outbreak on Sharing Public Health Information

Public health 'threats' include a wide range of diseases and incidents:

- Naturally-occurring
 - Endemic
 - Epidemic
- Man-made
 - Accidental release
 - Deliberate release

Within these categories the biggest challenges are posed by novel or emergent diseases: SARS, Monkey Pox, Influenza viruses

In any outbreak of a 'novel' disease considerable effort will have to be expended to answer what appear to be fundamentally simple questions:

- What is the disease agent? What are the characteristics?
 - Who has been and who might be affected?
 - Why these people?
 - When did the first cases get identified?
 - Where is the disease? Where will it go next?
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- How do we need to respond?

Primary Tool: Epidemiology is 'evidence-driven' and leveraged through statistics – In that context emergent diseases are a considerable challenge

Data is at a premium

Information is scarce, is inherently lagging and often subject to revision

The transformation of data into information must address the fundamental issues surrounding most data relating to a public health incident:

- Fragmented and/or Incomplete
- Inherent trade-off between sensitivity and specificity
- Provenance (certainty) and/or Context
- Timeliness (Real-time versus Right-time)
- Validation (Verification and Follow-up)

Obtaining 'public health actionable information' is: time-consuming, man-power expensive, involves significant judgment calls (expertise) and must be contextual

Current methods and capabilities are not perfect, especially with respect to timeliness and resource requirements, but they have the following valuable features:

- Include checks and balances
- Under-react (Counter-balance)
- Verifiable
- Consistent
- Synchronized with response capabilities
- Inclusive

Obtaining faster data that may (or may not) be transformed into useful and usable information adds complexity to the task of generating actionable public health information.

Public health information is no longer the sole preserve of public health professionals

Q: Can we get actionable public health information from other sources?

A: Yes, BUT

Other sources:

Internet

- Online data sources (official & unofficial)
- Web-applications (mine, categorize, filter, visualize)
- Blogs, and social networking
- Web-tools (Google Flu-tracker)

Internet sources are frequently rapid but many suffer from concerns about:

- Information overload/ system failure
- False reports
- Lack of signal specificity
- Context

In reality the current state of the art is a 'system of systems' – a hybrid.

- Based on proven current public health information capabilities
 - Enhanced by emerging capabilities
 - Balanced with expertise and common-sense

“It isn't what you know or even what you don't know that will hurt you the most – what will hurt you most is what you think you know that just ain't so”

Leroy Satchel Paige