Web 2.0 for Emergency Response: Emerging Opportunities for Greater Situational Awareness

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Overview

- Learning objectives
- Important definitions
- Recap of H1N1 in 2009
- Why do situational awareness
- Types of social media for situational awareness
- Advantages & Disadvantages
- Example: School closures
- Role for librarians

Objectives

- Learning Objective 1: Identify 3 public health organizations that used social media tools to disseminate and exchange information during response to the H1N1 pandemic;
- Learning Objective 2: Identify the advantages and disadvantages of using social media for situational awareness;
- Learning Objective 3: Propose 2 ways librarians can assist with situational awareness monitoring

Situational awareness

“The ability to identify, process, and comprehend the critical elements of information about an incident.”

- National Health Security Strategy (2009)

What is situational awareness?

- Understanding what is going on around you
- More than information gathering
- To achieve situational awareness, the right information (without a lot of noise) is available at the right time, and the right person is prepared to receive it, is capable of analyzing it, and is then able to do something useful with it.

- SA = situational awareness

Social media

What is social media?

“Group of internet-based applications that build on … Web 2.0 and allow for the creation and exchange of user-generated content”

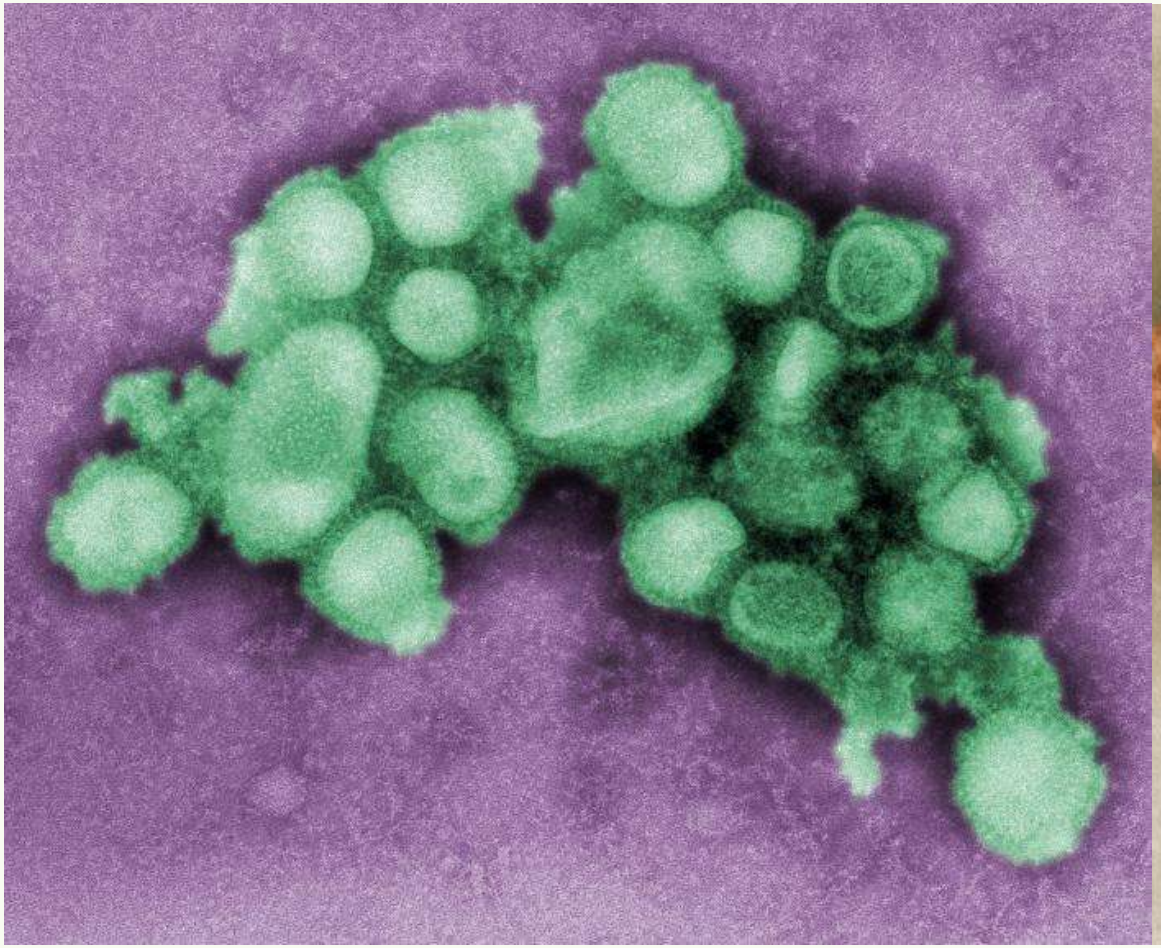
Kaplan Andreas M., Haenlein Michael, (2010)., Users of the world, unite! The challenges and opportunities of social media, Business Horizons, Vol. 53, Issue 1, p. 59-68.

Social media usage in US

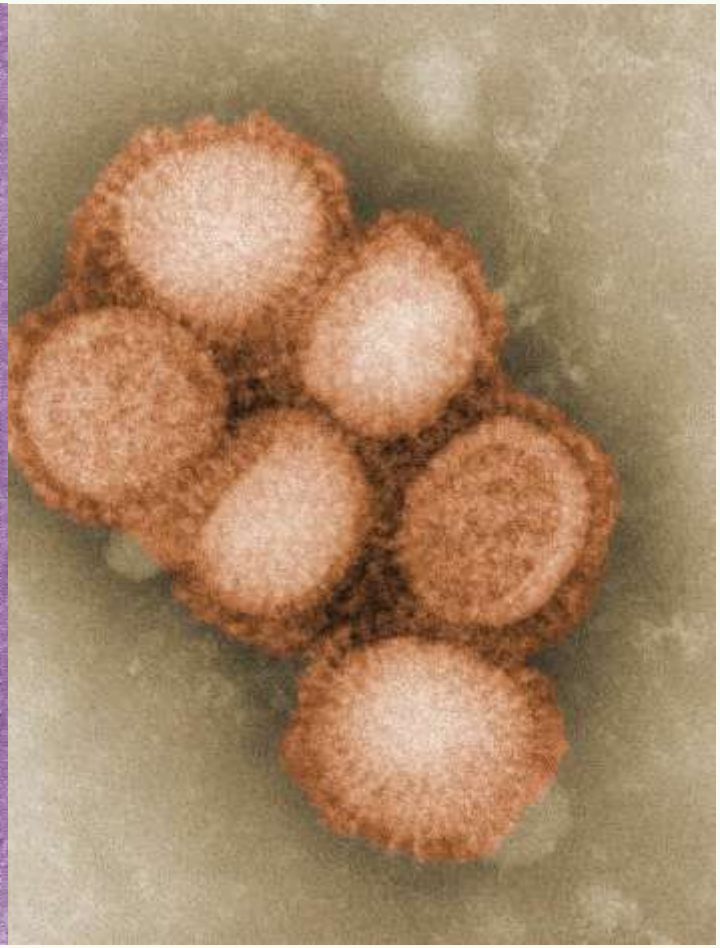
- 75% adults use Internet
- 62% broadband @ home
- 80% own cell
- 53% wireless internet
- 55% 18-29yo wireless internet via phone
- African American adults mobile web users
- 57% online adults use social networking sites
- 73% teens use them
- 19% adults use Twitter
- 8% of teens use Twitter
- ~40% online adults get email/text alerts

Source: Pew Internet & American Life Project

H1N1



CDC/ C. S. Goldsmith and A. Balish (2009)



CDC/ C. S. Goldsmith and A. Balish (2009)

Brief (A)H1N1 Timeline

- Early outbreaks in North America in April 2009
- WHO declared a pandemic in June 2009 & 74 countries and territories had reported laboratory confirmed infections
- As of April 25, 2010, more than 214 countries, including over 17,919 deaths
- 39-80 million cases of 2009 H1N1 occurred between April-December 12, 2009 in USA (CDC)
- 7,880-16,460 2009 H1N1-related deaths occurred in USA between April and December 12, 2009 (CDC)

3/17/09-first case

3/28/09-first US case

4/29/09-first US death

6/11/09-WHO Pandemic Level 6

2009	A(H1N1) Outbreak and Pandemic Milestones
17 March	First case in the world of what would later be identified as swine flu origin.
28 March	First case in the US of what would later be identified as swine flu origin.
12 April	First known **death** due to what would later be identified as swine flu origin.
24 April	First Diseases Outbreak Notice mention of the Swine Flu by the World Health Organization.
25 April	**Community outbreaks** confirmed in United States.
	Community outbreaks confirmed in Mexico.
27 April	First case confirmed in Canada.
	First case confirmed in Spain.
	First case confirmed in the United Kingdom.
28 April	First case confirmed in Israel.
	First case confirmed in New Zealand.
29 April	First **death** confirmed in the United States.
	First case confirmed in Germany.
	First case confirmed in Austria.
30 April	First case confirmed in Netherlands.
	First case confirmed in Switzerland.
	First case confirmed in Ireland.
1 May	First case confirmed in Hong Kong, China.
	First case confirmed in Denmark.
	First case confirmed in France.
2 May	First case confirmed in Italy.
	First case confirmed in South Korea.
	First case confirmed in Costa Rica.
	First case confirmed in Colombia.

Source: Wikipedia

World Health Organization

Timeline of influenza A(H1N1) cases
Laboratory confirmed cases and deaths
As reported to WHO

23 May 2009, 06:00 GMT: 43 countries, reporting 12 022 cases

Previous Next

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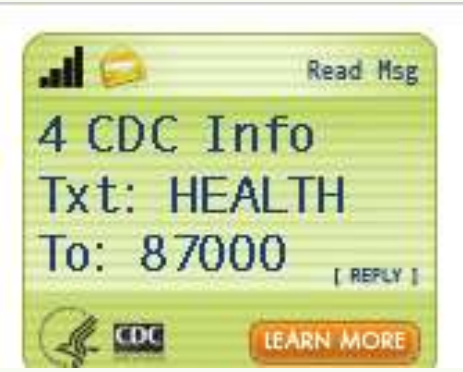
http://www.who.int/csr/disease/swineflu/history_map/InfluenzaAH1N1_maps.html

Federal government response

- The White House
- HHS/CDC
- HHS/CDC/NIOSH
- HHS/NIH
- HHS/FDA
- HHS/OS/ASPR
- HHS/SAMHSA
- HHS/NVPO
- Dept of Education
- DHS/FEMA
- USDA/APHIS
- DoD
- Dept of Interior/FWS
- Dept of Interior/USGS
- Dept of Interior/NPS
- Dept of Labor/OSHA
- Dept of State/USAID
- EPA

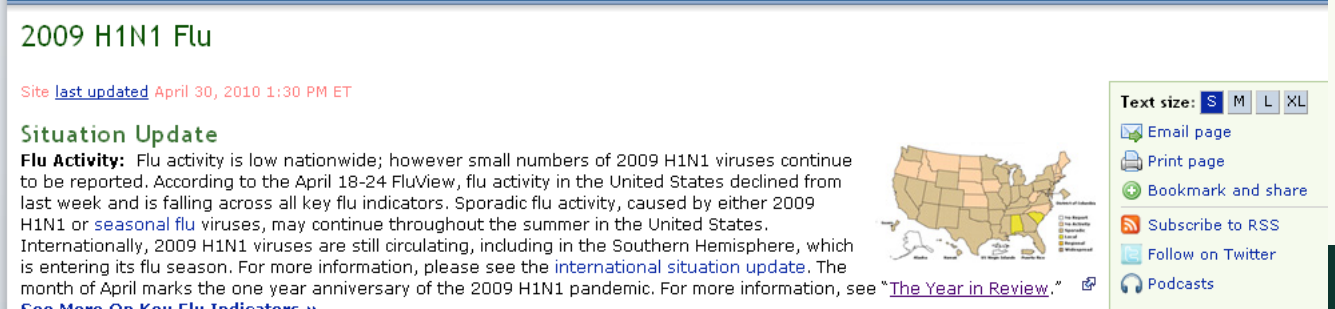
SM + H1N1: CDC


Read Msg
4 CDC Info
Txt: HEALTH
To: 87000
[REPLY]
CDC
LEARN MORE

H1N1 Flu
(Swine Flu)
CDC
Tips
Facts
News
Stay home if you're sick
Get more tips:
Learn more about H1N1 Influenza (Swine Flu)
SHARE
INFO

YouTube
Search
Browse
Upload
Create Account
Sign In
CDC
Centers for Disease Control and Prevention
Your Online Source for Credible Health Information
Visit CDC.gov | Social Media at CDC | 1-800-CDC-INFO
CDCStreamingHealth
Subscribe
Uploads
Playlists
I never get the flu
My
WOMAN #2:
My kids don't need more shots.
Info
Comments
Favorite
Share
Playlists
Flag
I never get the flu
Novel H1N1 Influenza
I never get the flu
Mixing Tamiflu in Sweet Liquid
H1N1 flu vaccine—why the delay?
Influenza Round Table: Antiviral Drugs
Influenza Round Table: Dont Get, Dont Spread
Influenza Round Table: Take Three

CDC Home
CDC
Centers for Disease Control and Prevention
Your Online Source for Credible Health Information
A-Z Index A B C D E F G H I J K L M N O P Q R S T U V W X Y Z #


2009 H1N1 Flu
Site last updated April 30, 2010 1:30 PM ET
Situation Update
Flu Activity: Flu activity is low nationwide; however small numbers of 2009 H1N1 viruses continue to be reported. According to the April 18-24 FluView, flu activity in the United States declined from last week and is falling across all key flu indicators. Sporadic flu activity, caused by either 2009 H1N1 or seasonal flu viruses, may continue throughout the summer in the United States. Internationally, 2009 H1N1 viruses are still circulating, including in the Southern Hemisphere, which is entering its flu season. For more information, please see the international situation update. The month of April marks the one year anniversary of the 2009 H1N1 pandemic. For more information, see "The Year in Review."
Text size: S M L XL
Email page
Print page
Bookmark and share
Subscribe to RSS
Follow on Twitter
Podcasts

Social Media at CDC

Current Social Media Campaigns

Novel H1N1 Flu (Swine Flu)
Help us spread the word and prevent novel H1N1 flu by sharing interactive tools with friends, co-workers and family members!

- Learn more about novel H1N1 Flu
- Use social media tools to share information about novel H1N1 Flu

Seasonal Flu 2008 - 2009
Learn how to prevent the spread of flu and protect yourself, friends, and family—visit CDC's social media tools page for free, easy-to-use tools that will help "spread the word, not the flu."

Peanut Product Recalls
Review the CDC and FDA social media tools used to inform the public and partner organizations about product recalls of peanut butter and peanut-containing products in early 2009.

See All Social Media Campaigns »

Social Media Tools on CDC.gov

- Blogs
- eCards
- eGames
- Public Health Image Library
- Podcasts
- RSS Feeds

Connect with CDC

- Twitter
- Facebook
- MySpace
- DailyStrength
- CDC's YouTube Channel
- CDC's Flickr site
- CDC on iTunes
- CDC's Second Life Island

Metrics Dashboard

Find metrics for CDC.gov, CDC's social media tools, m.CDC.gov. Explore the data to better understand the types of users who use our products and tools.

More »

Social Media Tools Guidelines & Best Practices

Refer to these guidelines for information

Get email updates
To receive email updates about this page, enter your email address:

What's this? Submit

eHealth Marketing

- CDC.gov
- Social Media
- CDC-INFO

Contact Us:

Centers for Disease Control and Prevention
1600 Clifton Rd
Atlanta, GA 30333
800-CDC-INFO
(800-232-4636)
TTY: (888) 232-6348
24 Hours/Every Day

Twitter + H1N1: CDC

CDCFlu

Verified Account

Name CDC Flu
Location Atlanta, GA
Web http://www.cdc.go...
Bio Flu-related upda...

about 13 hours ago from web

Transcript & Audio of yesterday's (May 11) CDC Press Conference on H1N1 flu: http://bit.ly/PeQ1Z #swineflu
about 15 hours ago from web

Conference Call Today 4-5PM ET, Pediatrics and novel H1N1 flu, 800-369-1826, passcode: 5072327 CDC COCA #h1n1 #swineflu
10:35 AM May 11th from web

Update 5/11/09: 2618 total cases of novel H1N1 flu, 3 deaths, 44 states affected in US: http://bit.ly/dVJKO #swineflu #H1N1
8:28 AM May 11th from web

Transcript & Audio file of yesterday's (May 9) CDC Press Conference on H1N1 Flu: http://is.gd/yCIN Please RT. #swineflu
11:33 AM May 10th from web

RT @CDCFlu New novel H1N1 interim guidance for public gatherings: http://bit.ly/14ZM6P #swineflu #h1n1 Please RT
10:38 AM May 10th from web

RT @CDCFlu Update 5/10/09: 2532 total cases of novel H1N1 flu, 3 deaths, 44 states affected in US:http://bit.ly/Wropx #swineflu #h1n1
10:09 AM May 10th from web

http://twitter.com/CDCFlu

CDCemergency

Verified Account

Name CDC Emergency
Location Atlanta, GA
Web http://emergency....
Bio CDC Emergency Preparedness and Response: increasing the nation's ability to prepare for and respond to public health emergencies.

79 following | 1,245,419 followers | 6,238 listed

Tweets 312

Favorites

Following

View all...

RSS feed of CDCemergency's tweets

Prepare for winter flooding. Learn about health threats associated w exposure to cold weather & cold water: http://is.gd/aP1GW
10:27 AM Mar 19th via web

Last Chance! Help us improve our Twitter profile! Click here complete a short survey: http://is.gd/a8F8L (OMB# 0920073
12:20 PM Mar 17th via web

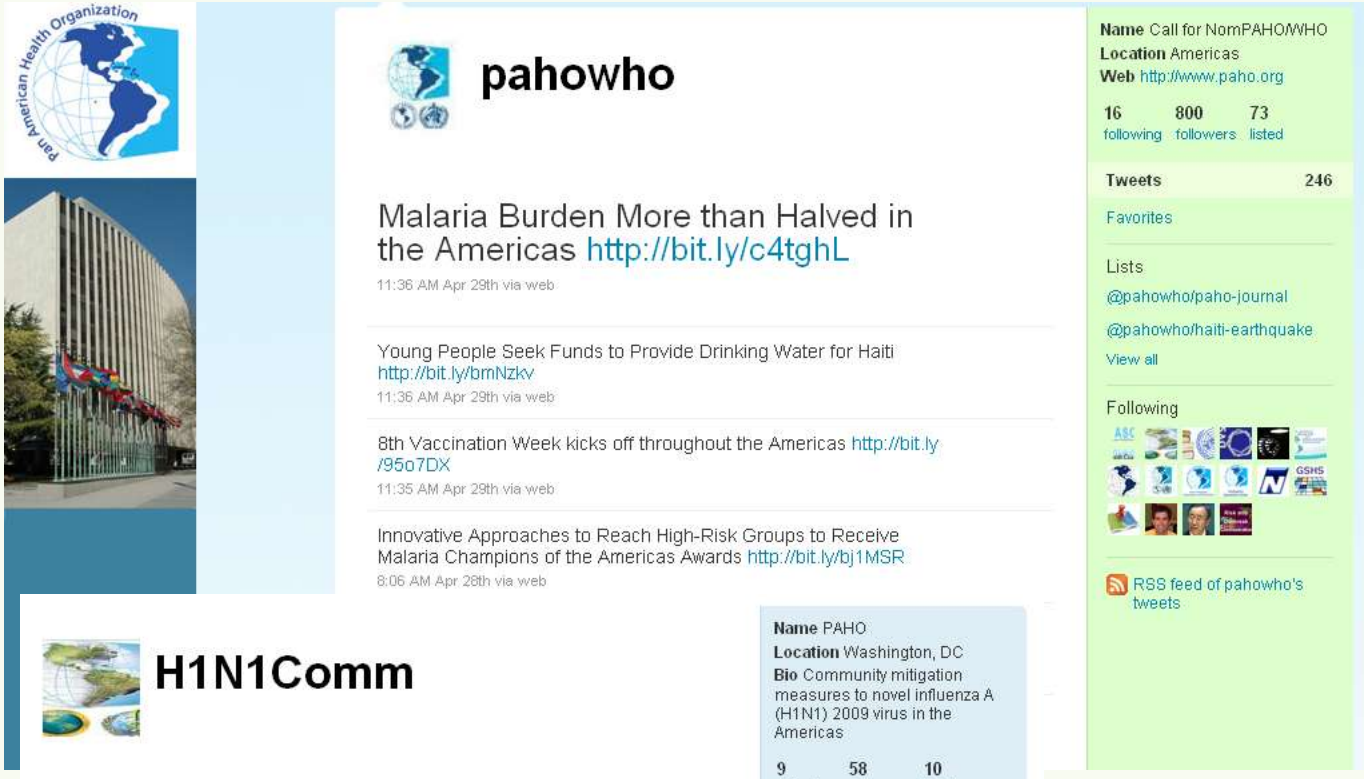
Flooding expected: Red River (ND & MN). During flood warni gather emergency supplies, turn off utilities: http://is.gd/aKwc
5:16 AM Mar 16th via web

Flooding expected Red River (ND & MN). Learn steps to stay & protect your health during a flood warning: http://is.gd/aIA
1:52 PM Mar 15th via web

Help us improve our Twitter profile! Click here to complete a survey: http://is.gd/a8F8L (OMB# 09200735)
9:12 AM Mar 10th via web

http://twitter.com/CDCemergency

SM + H1N1: PAHO


Pan American Health Organization
pahowho
Malaria Burden More than Halved in the Americas http://bit.ly/c4tghL
11:36 AM Apr 29th via web
Young People Seek Funds to Provide Drinking Water for Haiti http://bit.ly/bmNzkv
11:36 AM Apr 29th via web
8th Vaccination Week kicks off throughout the Americas http://bit.ly/95o7DX
11:35 AM Apr 29th via web
Innovative Approaches to Reach High-Risk Groups to Receive Malaria Champions of the Americas Awards http://bit.ly/bj1MSR
8:06 AM Apr 28th via web
Name Call for NomPAHO/WHO
Location Americas
Web http://www.paho.org
16 following
800 followers
73 listed
Tweets 246
Favorites
Lists
@pahowho/paho-journal
@pahowho/haiti-earthquake
View all
Following
RSS feed of pahowho's tweets
H1N1Comm
Cubanos recibirán la vacuna contra la Influenza AH1N1 http://bit.ly/b3ILj1
11:28 AM Mar 27th via TweetDeck
Anti-Flu Vaccine for Cuban Peoplehttp://bit.ly/cgKZQr
9:33 AM Mar 27th via TweetDeck
Everyday Preventive Actions That Can Help Fight Germs, Like Flu
Name PAHO
Location Washington, DC
Bio Community mitigation measures to novel influenza A (H1N1) 2009 virus in the Americas
9 following
58 followers
10 listed
Tweets 46
Favorites
Following

Subscribe
2.0 RSS
0.3 ATOM
1.0 RDF
YouTube
PAHO Channel
facebook
twitter
eqpaho
H1N1Comm
pahoeoc
pahowho
pahoresearch
riskcomm
podcast

YouTube + H1N1: PAHO

FLU.GOV

Know what to do about the flu.

SEARCH

Flu Home
News, PSAs & Outreach
Where You Live
Frequent Questions (FAQs)
For Individuals & Families
About the Flu
Vaccination
Prevention & Treatment
Parents (& Expecting)
Emotional Health and Flu
People with Health Conditions
Seniors
Caregivers
Travelers
For Professionals
Business Planning
Community Planning
School Planning
Transportation Planning
Health Professional
State & Local Government
Federal Government
Global Activities
Research Activities

One Year 1
Planning for Summer Camp 2
The 1918 Influenza Pandemic 3
Together We Can All Fight the Flu 4
News Briefings and Webcasts 5

Recent Home Page Features

Get vaccinated!
H1N1 flu shots are widely available and everyone is urged to get vaccinated. Protect yourself in case there is a third flu wave this winter. Enter your zip code in the Flu Vaccine Locator to learn where to get vaccinated, or select your state from the dropdown menu below.

Select ...

Flu Vaccine Locator

Find flu clinics near you

Vaccine supplies may be limited.
Check availability; call ahead.

Find flu shots near:

GO

powered by Google

VISIT FLU.GOV SHARE THIS WIDGET

MYTHS vs FACTS
Straight talk about the flu & you.

DO I HAVE H1N1 FLU?
Self-Evaluation Tool

The BLOG

Ask the Flu Experts!

Our experts have answered hundreds of questions this flu season, and those that are still current are now available at the Flu FAQ Database.

Popular Resources

Vaccine and Vaccine Development

What to Do if You Get Flu-Like Symptoms

Twitter + H1N1: Flu.gov

Why do situational awareness?

- Situational awareness is critically important—it drives policy decisions
- Traditionally: teleconferences, written reports, email
- Diverse systems currently used: disease surveillance, news trawling, alerting, bed tracking, patient tracking, ICS, EHRs
- Disease Detection & Surveillance examples: BioWatch; BioSense; State & local systems (RODS, ESSENCE, AEGIS); CDC flu surveillance (ILInet, EIP); WHO GISN; traditional disease surveillance; lab reporting systems

Why is social media important to SA?

- Ability to push out information to public quickly
- Ability to pull in data from SM tools to see what the public “is really saying” – “ground truthing”
- It’s what is being used

- But, using the right tools to reach the right audiences is crucial

Types of SM for SA

Facebook
Blogs
MySpace
Mashups
DownloadableApps
SocialBookmarking
Wikipedia
SMS/Texting
FlickrTwitter

HealthMap
Global health, local information

HealthMap for your SmartPhone More »

Search disease or location go Advanced Search Full Screen

Activity Index — Low / High — Country Level — Local/Province Level

Latest Alerts (past week) | User Submitted Reports | Recently Rated

Alerts Now Showing

Source	Date	Summary	Disease	Location	Cases	Deaths	Significance	Related
	17 May	Providence En Español - Posible brote de E. coli en 4 estados	E. coli	United States			0 votes	»
	17 May	Possible outbreak of E. coli in four states - Providence in Spanish	E. coli	United States			0 votes	»
	17 May	TB: On the SPOT, the test that uncovers the bacillus silent - Health ...	Tuberculosis	United States			0 votes	»

English About Mobile Partners Blog

Last update: 17 May 2010 14:10 | Next update: 17 May 2010 15:10

http://healthmap.org

By Clark Freifeld and John Brownstein. Copyright ©2007.
This site necessarily relies on publicly available third-party information.
We assume no responsibility for its accuracy or completeness.

Social Media for SA

ADVANTAGES

- Immediacy
- Simplicity & ease of use
- Heavy use by public
- Data richness

DISADVANTAGES

- Trustworthiness of source
- Security concerns (IT)
- A lot of noise!
- Lack of caution
- Low usage by some population groups

Pilot project: H1N1 + school closure monitoring using Twitter

This project proposes to surveil open source mentions of public and non-public school closings in the United States in order to monitor the health and well-being of school-aged children related to H1N1.

Why this population?

- 2009 H1N1 pandemic influenza strain disproportionately affected children and young adults.
- School-aged children spend a significant portion of each day in high-density environments that allow for the more successful transfer of infectious agents from one person to the other.
- School closures on a massive scale posed a threat to the national economy by requiring that parents of school-aged children remain away from the work place to care for their children.

H1N1 + School closures

- School closures not reportable to state/fed govts
- Schools do not like to announce they are closed
- 15,000 school districts & approximately 100,000 schools in the US
- Inconsistent reporting of closures & reason why
- Time consuming to scan school websites for official closure announcements

How

- **How to monitor school closures in the US?**
- Not sufficient to scan school system websites in search of officially announced closures (passive surveillance)

<u>Collect & analyze data from:</u>

- Twitter > parents, older students (middle/high school)
- Google > search news, blog postings, websites for closures

How

- **Twitter** > use saved search w/RSS feed for updates
  - Search: school closed swine flu OR h1n1
- **Google** > use saved search w/RSS feed for updates
  - Search: schools closed swine h1n1

Google search of archived Tweets

Google

school closed swine flu OR h1n1 | Search

Advanced search

- Everything
- News
- Images
- Videos
- Maps
- Shopping
- Books
- Blogs
- Updates
- Discussions
- Fewer

Any time
Latest

2010 Now

babjohn: RT @HealthFit2Day: **Swine flu closing schools** | health-virus-h1n1-**swine flu** symptoms
Swine flu closing schools | health-virus-h1n1-swine flu symptoms - blogspot.com
Twitter - May 01, 2010 6:24:36 am

timelines: 1 yr ago today, Ft Worth **closed** all **schools** due to **Swine Flu** #H1N1
Forth Worth School District Closes All Schools Due to Swine Flu ... - timelines.com
Twitter - Apr 29, 2010 7:11:08 pm

roadcrosser: H1N1 (**swine flu**) infiltrated **school** numerous times. **Closed** from Wednesday to Tuesday the next week. Mass amount of homework given. :(
Twitter - Apr 28, 2010 11:50:20 pm

MyDreamDogs: My oldest is home from **school** today--- has something **close** to **swine flu**-- think it's called history testiphobia..
Twitter - Apr 28, 2010 2:03:34 pm

nicolatwilley: Bronze statue honours "'kid zero' of the 2009 **swine flu** pandemic" (still alive, called "virus boy" in **school**):
La Gloria, swine flu's ground zero, is left with legacy of anger ... - guardian.co.uk
Twitter - Apr 24, 2010 10:39:20 am

What we learned

- Requires time to sift and sort through the “noise” for the useful information
- Still requires verification by official source if possible
- A more robust and powerful system is needed
- Collaboration with Department of Education & CDC

Role for librarians

- Do what we do best – find, verify, organize & make available important tools, resources & information
- Push out information to our users dependent on their roles, needs & technologies available
- Teach how to use different SM & the pros/cons of each type

Patricia Anderson's iGoogle H1N1 page

iGoogle

Advanced Search
Language Tools

Google Search | I'm Feeling Lucky

Make iGoogle my homepage

Change theme from Influenza 1

Home
Washington
Swine Flu
Fusion
Web 2.0 & P...

H1N1/Swi...
View National Flu...
ekly Flu Activity M...
plic Health Data a...
tional Environme...
C Emergency Te...
C H1N1 Flu Upd...
itter / CDCemerg...
itter / AIDigest
vine flu" OR "swin...
tch the Spread of...
ylogeny of Avian I...
.gov RSS Feed fo...
.gov RSS Feed fo...
itter / healthmap
itter / Veratect
C Flu Prevention ...
C Influenza Videos

Twitter / healthmap

- healthmap: 1st Dengue Case Confirmed Since 2003 in New Providence: http://www.thenassauguardian.com/national_local/329275148235693.php
- healthmap: WHO investigates Tajikistan polio outbreak. 128 cases, 10 dead. European Region = polio free in 2002. http://bit.ly/ar54cw #healthmap
- healthmap: Cambodia Reports 1st Death from Bird Flu in 3 Years: http://balita.ph/2010/04/21/bird-flu-kills-another-virus-still-threat-to-cambodia-who/

Twitter / Veratect

- Veratect: Russia: National Authorities Identify Suspected Pandemic (H1N1) 2009 Infections In Pigs #h1n1
- Veratect: New BioVINE Post: "Highlight: Advisories Contributed By Veratect Regarding Impact of..." http://bit.ly/5TWTww
- Veratect: Switzerland: First Tamiflu-Resistant Pandemic (H1N1) 2009 Cases Documented #h1n1

CDC Flu Prevention Tips

- Avoid close contact with people who are sick
- Stay home when you are sick

CDC Influenza Videos

« Prev Next »

Want to make your own gadget? Get started.

"swine flu" OR "swine influenza" OR h1n1 OR a/h1n1 - Google News

- One year later, H1N1 could return - AsiaOne
- Free clinics offer H1N1 shots to Tulare County residents - Visalia Times-Delta
- Q1 2010: A Good First Quarter - MarketWatch (press release)

FluView National Flu Activity Map

Flu.gov RSS Feed for News Releases

- State-Specific Seasonal Flu Vaccination Interim Results - August 2009-January 2
- Weekly FluView Map and Surveillance R Week ending April 24, 2010
- WHO Updates International H1N1 Flu Si

CDC H1N1 Flu Updates

- UPDATE: 2009 H1N1 Flu International S Update
- UPDATE: Weekly FluView Map and Sur Report for Week Ending April 24, 2010
- UPDATE: 2009 H1N1 Flu International S Update

Twitter / CDCemergency

- CDCemergency: Prepare for winter flood about health threats associated w/ expo weather & cold water: http://is.gd/aP1GV
- CDCemergency: Last Chance! Help us i Twitter profile! Click here to complete a s http://is.gd/a8F8L (OMB# 09200735)
- CDCemergency: Flooding expected: Re MN). During flood warning gather emerge supplies, turn off utilities: http://is.gd/aK

Public Health / Health Administration

A section of the Medical Library Association

PH/HA News

DELICIOUS

- Influenza virus resource / H1N1 influenza swine flu resources NCBI USA
- Ovid Resources on H1N1 Flu (Swine Flu) / H1N1 influenza swine flu OVID resources vendor
- FightFlu.ca - Combattezlagrippe.ca / H1N1 influenza swine flu PHAC
- Health News Blog / H1N1 influenza swine flu
- CHSI - Community Health Status Indicators / publichealth public health healthstatus indicators CDC NIH American
- University of Illinois at Chicago School of Public Health Illinois Public Health Preparedness Center / public health s/b training academic Illinois
- Mid America Public Heath Training Center - Public Health Training & Practice Group - UIC / public health s/b training Illinois
- University of Illinois at Chicago School of Public Health Rural Public Health Institute / public health s/b training academic Illinois
- University of Illinois at Chicago School of Public Health Center for Public Health Practice / public health s/b academic Illinois
- Library of the Health

Swine Flu Resources

May 01 2009

Published by Emily Vardell at 9:02 am under Resources

Many public health librarians have been working to keep their users abreast of all swine flu information updates. Here are some of the sites that have been created by librarians in the past few days:

Bernard Becker Medical Library, Washington University in St. Louis http://becker.wustl.edu/services/news/swineflu.html

Community Uplink, Greater Brooklyn Health Coalition http://www.communityuplink.net/email/050109/4.pdf

Ebling Library, University of Wisconsin-Madison http://researchguides.library.wisc.edu/2009-H1N1

Health Science Center Library, University of Florida http://libguides.library.health.ufl.edu/swineinfluenza

Health Sciences and Human Services Library, University of Maryland http://www.hshsl.umaryland.edu/resources/sitesbysub/Swineflu.html

Health Sciences Library, UNC Chapel Hill http://www.hsl.unc.edu/swineflu.cfm

Indiana University School of Medicine Library http://granite.medlib.iupui.edu/iaims/

Morris Library, Southern Illinois University Carbondale http://libguides.lib.siu.edu/swine_flu

Perry-Castaneda Library, University of Texas Libraries http://www.lib.utexas.edu/maps/swine_flu.html

Sheldon Margen Public Health Library, UC Berkeley http://www.lib.berkeley.edu/PUBL/swine.html

Specialized Information Services, National Library of Medicine http://sis.nlm.nih.gov/enviro/swineflu.html

University of Iowa Libraries http://guides.lib.uiowa.edu/content.php?hs=a&pid=43862

Please leave a comment if you would like to add your library's link to this page!

In addition, Patricia Anderson at University of Michigan created an iGoogle tab with various RSS feeds related to swine flu. Try this out here:

http://mblog.lib.umich.edu/hsl/archives/2009/04/swine_flu_infor.html

One Response to "Swine Flu Resources"

msholinb on 01 May 2009 at 11:00 am

Many libraries created LibGuides or portals collecting relevant information on H1N1

http://www.phha.mlanet.org/blog/?p=75

Web 2.0 for Emergency Response: Emerging Opportunities for Greater Situational Awareness

Alicia Livinski, MPH, National Institutes of Health Library, Office of Research Services, NIH, HHS

LT Dina Passman, MPH, Office of the Assistant Secretary for Preparedness & Response, Office of the Secretary, HHS