BRIDGING PEOPLE AND TECHNOLOGY
Why Population Health Matters

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What is Population Health?

“...The health outcomes of a group of individuals, including the distribution of such outcomes within the group...”

Why population health matters
Atlantis, Fla. -- About 6:30 a.m. Oct. 2, 2001—an infectious disease specialist at JFK Memorial Hospital in Atlantis, received a call...a gravely ill patient just come into the emergency room.

Source: http://www.ph.ucla.edu/epi/bioter/floridadoctorfirstclue.html
The final diagnosis was inhalation anthrax, a highly lethal but very rare illness not seen in the United States since 1976.

Only 18 known cases had been reported in the past 100 years.
Three days before anthrax was first detected in Florida, a Manhattan doctor called the New York City Department of Health to report a suspicion: one of his patients might have contracted anthrax.

The doctor, Richard P. Fried, said his concern was based on the irritating skin lesion that his patient, Erin O'Connor, an NBC employee, had developed on her chest after powder from an envelope had spilled on her at work.

"I expressed my concerns about what this could be" to the health department, Dr. Fried said. He stated those concerns, he said, first on Oct. 1 and in later conversations with a health department epidemiologist, but the department did not notify the Centers for Disease Control and Prevention or send specimens there.
Fear of anthrax rattles nation -- new case reported in N.Y. / Hundreds tested for deadly spores

Chuck Squattrigilia, Marc Sandalow, Margaret A. Woodbury, Chronicle Staff Writers  Published 4:00 am, Saturday, October 13, 2001

Syndromic Surveillance

Today, this system now detects a much wider range of health threats—from opioid overdoses to chemical spills to outbreaks.
Moving the dial:
National Syndromic Surveillance
More reporting, improved response

- **2.6 Million**
  Number of electronic health messages received each day from emergency room visits

- **65 Percent**
  Percent of all emergency room visits reported to health departments—up from 45% in 2014

- **48 Hours**
  Hours to report most emergency room visits to health departments

Source: National Syndromic Surveillance System, DOI, June, 2017
The road to population health

The Evolution of BioSense to The National Syndromic Surveillance Program

Source: National Syndromic Surveillance System, DOI, June, 2017

* States do not always have strong data representativeness or broad coverage.
Population health connects the little yellow pill and the big outbreak


June, 2017
Connectivity can save lives

- June 4-13, 2017
- Macon, Georgia
- 27 reported cases
- 1 death

"That outbreak, instead of killing hundreds, was quickly stopped. So that is the importance of local public health."

CDC Director, Dr. Brenda Fitzgerald
(Carrollton) Times-Georgian, August 27, 2017

Source: MMWR: https://www.cdc.gov/mmwr/volumes/66/wr/mm6641a6.htm
SO...

We’re connected to technology
We have lots of data...
What’s missing?

Right data
Right time
Right place
Right person
Right format
...to make effective decisions
Leveraging the Power of Data
On August 8, 2014 the World Health Organization (WHO) declared the current Ebola outbreak a Public Health Emergency of International Concern.
Ebola Outbreak Response:

Regional confirmed and probable cases as of 29 August 2014 in Guinea, Sierra Leone and Liberia

Estimated impact of delaying intervention* on daily number of Ebola cases, with and without correction for underreporting† — Ebola Response modeling tool, Liberia, 2014–2015

Source: MMWR, September 26, 2014 / 63(03);1-14
When data prompts action

On December 16, 2014, $5.4 billion in emergency funding was allocated to support the U.S. government’s response to the Ebola outbreak in West Africa.

By the end of December 2015, Liberia, Sierra Leone and Guinea had been declared by WHO to be free of Ebola virus transmission after 42 days.
Opportunity: We have mountains of data—but are they the right data, and accessible to those who need it?
Leading with expertise... when expertise is not enough
There are 100+ surveillance systems at CDC

32-55% of extramural grant funds have surveillance component

18-21% of IT system capital planning dollars at CDC are devoted to surveillance

5-11% of active CDC workforce involved in surveillance

Surveillance is a foundational data activity in public health.

Source: www.cdc.gov/stitpublichealth/publichealthservices/pdf/Ten_Essential_Services_and_SDOH.pdf
CDC Surveillance Challenges
Proliferation

- >100 surveillance systems or activities at CDC
Silos

- Interconnections, interdependencies, efficiencies unrealized
- Local/state health departments: many systems/requirements
Innovation and Resources

- Slow adoption of new technologies
- Insufficient workforce with the right skills in the right places
Emerging Health Care Policies

- Electronic Health Records and Meaningful Use Standards
- Interoperability requirements
Calls for Enhancements to CDC Surveillance Systems

- Congressional FY 2015 budget language requires CDC to “develop a timeline for a cloud-based and flexible IT public health data reporting platform for CDC programs”
- Council of State and Territorial Epidemiologists and other partners have asked CDC to evaluate which data elements are truly needed for surveillance and to coordinate across CDC programs to harmonize and standardize data elements
- CDC Director and Advisory Committee to Director charged Office of Public Health Scientific Services to lead the CDC surveillance strategy
In response to recommendations to transform and modernize CDC’s surveillance systems and approaches, we are:

- Improving availability and timeliness of data
- Adopting new technologies to improve accuracy and speed
- Reducing reporting burden on health departments
- Maximizing performance of agency resources

Public health surveillance is defined as the regular collection, analysis, use, and sharing of data to prevent and control disease and injury.

# Pulse Check: Our Progress So Far

## System Improvements in Public Health Surveillance*

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<thead>
<tr>
<th></th>
<th>2014</th>
<th>Now</th>
<th>Impact</th>
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<tbody>
<tr>
<td>Mortality records collected electronically from states within 10 days</td>
<td>7%</td>
<td>55%</td>
<td>Faster notification of cause of death</td>
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<tr>
<td>Notifiable diseases and conditions with modernized electronic messages—an important first step in fostering efficient electronic exchange of health data</td>
<td>&lt;1%</td>
<td>78%</td>
<td>Easier for states to report to CDC</td>
</tr>
<tr>
<td>Emergency department visits reported electronically to health departments</td>
<td>45%</td>
<td>65%</td>
<td>Faster understanding of emerging health threats</td>
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<tr>
<td>Laboratory reports received electronically at state health departments**</td>
<td>54%</td>
<td>80%</td>
<td>More timely lab reporting to expedite tracking disease</td>
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* Percentage change furthered by CDC Surveillance Strategy since 2014
** Approximately 20 million laboratory reports are received annually at health departments—80% are now received electronically.
Digital Bridge: a step in the right direction

Sharing data to improve clinical care and public health

- **A Partnership with** bi-directional flow between health care and public health
- **A Forum** to discuss challenges and implement solutions
- **An Incubator** to cultivate effective information sharing
- **Initial focus:** electronic case Reporting (eCR)

Funded by the Robert Wood Johnson Foundation and the de Beaumont Foundation. Program management by Deloitte and the Public Health Informatics Institute
The Value of Electronic Case Reporting

- **Diminishes the burden** on health care provider to report cases
- **Improves outbreak detection** by lessening manual work processes
- **Links health care** directly to population health
- **Responds directly** to local and state partner needs
- **Allows for earlier intervention** and reduced disease transmission with timely detection
- **Creates more complete** and accurate data in real time for action
- **Empowers clinicians and public health professionals** through more collaboration and information sharing

**Learn more:**
www.digitalbridge.us | info@digitalbridge.us
Expertise isn’t enough
Partners matter
Stop Hospital Infections
Staph, VRE, C.Diff & MRSA
aka: “The Hospital Super Bugs”
CDC collaboration with patient advocates

CDC published guidance on public reporting of healthcare-associated infections. Consumers Union patient advocates worked with states to implement public reporting legislation in 36 states and Washington, D.C.
Opportunity: Partners are crucial. Are we listening to them and pushing for progress alongside them?
What’s missing?
Barriers to Health IT as a solution to population health

- One-offs
- Lack of standards
- Interruptions in workflow
- Insufficient responsiveness to clinician and consumer needs
- Interoperability/connectivity
Laying the conditions for broad interoperability
Opportunity: We have new health IT needs at CDC. What skills does the next generation workforce need?
In conclusion

*Data is here...connect it*
*Connected data...leverage it*
*Lead with expertise...know what you are good at*
*Partner, partner, partner*
*Broad interoperability...think workforce*
What will tomorrow look like?
Newer. Faster. Smarter...Better
More connected
Discussion

For more information, contact CDC
1-800-CDC-INFO (232-4636)

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.