2017 ANNUAL REPORT

CDC Health Information Innovation Consortium

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Centers for Disease Control and Prevention
Office of Public Health Scientific Services

Message from the Office of Public Health Scientific Services' Chief Public Health Informatics Officer

We are pleased to release the 2017 CDC Health Information Innovation Consortium (CHIIC) Report. The report reflects progress in accomplishing goals 1 and 2 as outlined in the CDC Surveillance Strategy. These goals are: 1) to foster and promote creative solutions to surveillance challenges within CDC and states, territory, local, and tribal agencies, and 2) accelerate the utilization of emerging tools and approaches to improve surveillance data. The surveillance innovation project awards are a direct means of sponsoring small activities independent of the major initiatives going on within the agency, and increasing the rate of adoption and reuse within CDC and public health.

Since 2014, CHIIC funded a total of 16 innovative projects: 9 projects in 2014, 5 projects in 2015 and 2 in 2016; and provided a forum to 14 public health innovators to present lessons learned from informatics. In 2017, 2 completed projects from the CDC Surveillance Strategy Innovation Project Awards and 3 additional projects shared their results during a CHIIC quarterly forum. In addition, CHIIC facilitated a Blockchain Vendor Showcase. These projects demonstrated an increased rate of adoption of new informatics and IT approaches within CDC systems and an increased efficiency of existing systems and faster time to market for new systems, and the emergence of reused shared services (i.e. business and IT).

CDC is moving toward a culture of innovation that enables partnership and improvement in public health surveillance. Since its inception, CHIIC funding has enabled projects that have improved timeliness and accuracy of data collection through the use of electronic versus manual data entry, reduced the collection burden on healthcare providers to deliver surveillance data, enhanced an existing web service by providing a standards-based, configurable, re-useable and secure interoperable solution, and provided insights and tools that can be reused or extended to other surveillance systems or activities. While CHIIC is no longer providing direct funding to programs, it continues to build bridges, connect, and highlight innovative practices within public health and help programs use effectively find solutions to hard public health challenges.

Thank you for your support of the innovation consortium and the CDC Surveillance Strategy. We look forward to another year of project ideas that serve as opportunity areas for innovation with CDC and public health partners.

Brian Lee
Chief Public Health Informatics Officer

"Promoting creative solutions to surveillance challenges."

CHIIC Overview

CDC recognizes and is committed to the call for innovative solutions. In 2014, the Office of Public Health Scientific Services (OPHSS) created the CHIIC to foster and promote creative solutions to improve public health surveillance.

The goal of the consortium is to encourage innovative projects with Public Health Informatics and Health IT activities across the agency, make them available as reproducible tools and models, and share lessons learned openly with programs and projects within CDC and its public health partners. CHIIC serves as a channel for innovative projects in CDC programs and collaborates with State, Tribal, Local, and Territorial agencies.

MISSION
• Identify and accelerate emerging tools and approaches to improve the availability, quality, and timeliness of surveillance data as well information and data of use for public health, improving the information that surveillance needs. • To get the right new technology into our systems faster.

Summary

This report highlights the overall impact CHIIC's funding has had in advancing innovation within the agency and in partnership with key stakeholders, specifically in the adoption of application programming interfaces, reusing analytical tools, open data release, and data visualization . This report highlights the results from completed projects that presented at the forum during 2017, as well additional projects and speakers who presented during the year.

CHIIC Quarterly Forums

This year, 2 projects from the 2016 project portfolio presented at the CHIIC quarterly forum from two CDC Centers: National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP) and National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention (NCHHSTP).

During the forum, presenters described a specific surveillance challenge or question and proposed a small, short method to build, test, or experiment to create validated learning toward helping their immediate challenge as well as connecting to other activities across CDC.

The forum is open to the public health community, and the intended audience includes: informaticians, epidemiologists, health scientists, statisticians, information technology specialists, data scientists, and anyone interested in innovative ways to help public health practice.

CHIIC Reach

During the year, CHIIC hosted 4 quarterly forums with a total combined attendance of 406 people attending in person or via webinar. Sixteen people requested to be added to the CHIIC Listserv, for a total of 91 Listserv members. For more information on CHIIC events, follow the instructions on the CHIIC web site to subscribe to the listserv for updates.

Date	Attendance	New to CHIIC Listserv
Tuesday, February 14, 2017 @ 10 am	66 participants	4
Tuesday, May 2, 2017 @ 10 am	75 participants	7
Tuesday, August 1, 2017 @ 10 am	99 participants	4
Tuesday, October 25, 2017 @ 10am	166 participants	1
	406 participants	16

Participants were from numerous areas within CDC programs as well as from health departments, health IT developers, and other federal organizations.

CDC Centers, Institutes and Offices

CDC OD
- Office of the Associate Director for Communication (OADC)
- Office of the Associate Director for Science (OADS)
- Office of the Chief Information Officer (OCIO)
    - Information Technology Services Office (ITSO)
    - Management Information Systems Office (MISO)

Office of Financial, Administrative, and Information Services (OFAIS)

Office of Infectious Diseases (OID)
- National Center for Emerging and Zoonotic Infectious Diseases (NCEZID)
- National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention (NCHHSTP)

Office of Noncommunicable Diseases, Injury, and Environmental Health (ONDIEH)
- National Center for Environmental Health / Agency for Toxic Substances and Disease Registry (NCEH/ATSDR)
- National Center on Birth Defects and Developmental Disabilities (NCBDDD)
- National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP)
- National Center for Injury Prevention and Control (NCIPC)

Office for State, Tribal, Local, and Territorial Support (OSTLTS)

Center for Global Health (CGH)
- Division of Global and HIV and TB (DGHT)
- Division of Global Health Protection (DGHP)
- Division of Parasitic Diseases and Malaria (DPDM)

Office of Public Health Scientific Services (OPHSS)
- Center for Surveillance, Epidemiology, and Laboratory Services (CSELS)

- o   Division of Health Informatics and Surveillance (DHIS)
- o   Division of Public Health Information Dissemination (DPHID)
- o   Division of Scientific Education and Professional Development (DSEPD)
- National Center for Health Statistics (NCHS)

Other Organizations

CACI	New Hampshire Registrar
California DOH	Northrop Grumman
Cerner	Rimidi
Deloitte	St. David's Medical Center
Emory University	University of Roehampton
Georgia Tech	Utah DOH
NACCHO	Westat

Project Presentations

2 completed projects from the Surveillance Strategy Innovation Project Portfolio presented project findings during 2017 quarterly forums:

1. A SMART App To Track and Report Stroke Cases To Reduce Readmissions (NCCDPHP)
2. Innovative Surveillance and Assessment Techniques to Inform STD and HIV Prevention Action (NCHHSTP)

1. **A SMART App To Track and Report Stroke Cases To Reduce Readmissions (NCCDPHP)**
   Presenters: Arunkumar Srinivasan, Asha Krishnaswamy, Sridevi Wilmore, and Fayaz Adam

   Purpose: To evaluate creation of flexible and effective alternative to the Quintiles solution, solving the double-data-entry, and providing scalable solution to support future stroke care workflow and surveillance across a wider population of hospitals within each grantee jurisdiction.

   Results:
   - Gap analysis of HL7 FHIR resources and Coverdell Reporting Data Elements
   - Evaluation of SMART platform to meet the Coverdell Reporting Workflow
   - Design document with wireframes of a SMART APP for Coverdell reporting

   More Info:
   - View Full Project Description.
   - View Project Presentation from May 2 Forum

2. **Innovative Surveillance and Assessment Techniques using Social Media to Inform STD and HIV Prevention Action**
   Presenters: Matthew Hogben, Karen Kroeger

   Purpose: This project serves to evaluate Reddit, an on-line social media community, as a novel, untapped data source to monitor attitudes and behaviors among men who have sex with men (MSM) related to uptake and use of PrEP (pre-exposure prophylaxis for HIV) and PrEP use in the context of STD prevention

Results:

- Exploration of Reddit posts based on a typology of relevant search terms to gain insight into aspects of PrEP uptake and use (e.g. stigma, provider communication, side effects, specific STDs)
- A dashboard to facilitate visualization of mentions of PrEP and STIs in terms of timing, volume, distribution across digital spaces, and relationships among topics.

More Info:

- View Full Project Description.
- View Project Presentation from August 1 Forum.

Non- funded Project Presentations

In addition, four innovative projects that did not receive funding shared the results and plans for their projects:

1. Prioritizing Pipelines in Data Management (DPDM)
2. Public Health Informatics on Fast Healthcare interoperability Resources (FHIR) (NCHS) (Georgia Tech)
3. Bioinformatic Reconstruction of the 2015 HIV Outbreak in Indiana
4. Precision Public Health at the Point of Care and for Patients at Home

1. Prioritizing Pipelines in Data Management (DPDM)
Presenter: Nishant Kishore

Purpose: Malaria Zero has one bold goal: to eliminate malaria from the island of Hispaniola, which includes Haiti and the Dominican Republic, by 2020. This presentation discussed the data pipelines developed for the project and their role in increasing user and partner interaction with the system. These include mobile data collection, real time feedback systems, quality assurance and analytic dashboards.

More Info:

- View Project Presentation from February 14 Forum.

2. Public Health Informatics on Fast Healthcare Interoperability Resources (NCHS) (Georgia Tech)
Presenters: Paula Braun, Mark Braunstein

Description: Health Level Seven International (HL7), a standards development organization for the health industry, is developing a more facile, easier-to-implement standard—called FHIR—to share electronic health information across silos, to engage and empower patients, and to integrate decision support tools into physicians' workflows at the point-of-care. Pronounced "fire", FHIR stands for Fast Healthcare Interoperability Resources. FHIR uses widely accepted technologies that are ideal for web applications and mobile devices. This increases the attractiveness of health informatics—and by extension public health informatics—to innovators who bring significant reevaluation and novel approaches to existing problems, systems, and tools.

More Info:

- View Project Presentation from May 2 Forum.

3. **Bioinformatic reconstruction of the 2015 HIV Outbreak in Indiana (NCHHSTP)**
Presenters: Ellsworth Campbell

Description: The Microbial Transmission Network Analytic Platform (MTNAP) is the result of an AMD-funded project that leverages computational tools to simplify the integration, analysis, and visualization of disparate data by public health experts with little-to-no programming expertise. Through the use of simple web browser interfaces, MTNAP enables laboratorians and epidemiologists to readily implement cutting-edge machine learning algorithms with a few clicks.

More Info:
- View Project Description from August 1 Forum.

4. **Precision Public Health at the Point of Care and for Patients at Home (Harvard Medical School)**
Presenters: Dr. Kenneth Mandl

Description: Dr. Mandl shared his experience in using informatics to digest, distill and disseminate vast streams of public health data tailored to individual health needs. The health IT landscape is rapidly changing and converging toward standardized ways of sharing information. This transformation is fostering innovations that are making it easier for CDC and our public health partners to share insights with healthcare providers at the point they are providing care to patients.

More Info:
- View Project Presentation from October 25 Forum.

CHIIC Advisory Group

The advisory group consists of informaticians and public health practitioners from CDC centers, institutes and offices with subject matter expertise in public health surveillance, informatics and cross-cutting policy concern. The advisory group reviews and provides insight for CHIIC focus areas, identify potential projects and review project award criteria and project output. The group composition was selected based on input from the CDC Surveillance Leadership Board (SLB).

Over the years the, advisory group members have contributed to the process of establishing annual priority areas for the CHIIC project portfolio, made recommendations for awarded projects, attended brainstorming sessions with project teams, and much more. We appreciate the dedication of each member. The members include:

Tom Savel, **MD** Director, Informatics Innovation Unit, Center for Surveillance, Epidemiology and Laboratory Services (CSELS)

Cyrus Shahpar, **MD** Medical Officer, Center for Global Health (CGH)

Thom Sukalac, Associate Director for Informatics, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention (NCHHSTP)

Visit the CHIIC web site to

- Learn more about proposed and awarded projects
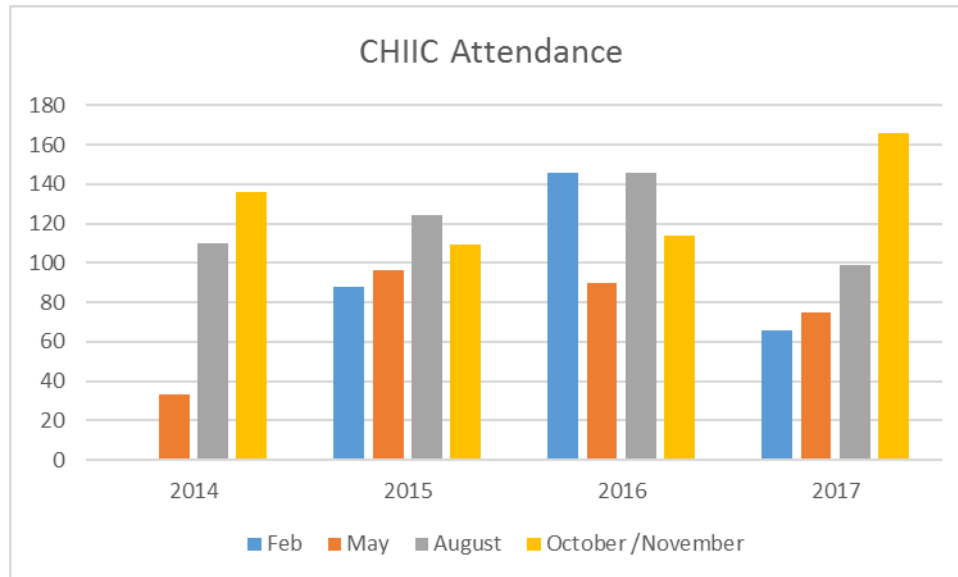- View upcoming forum dates
- Join the CHIIC listserv

Internet site: http://www.cdc.gov/ophss/chiic/

Appendix

2014- 2017 Attendance

Communication channels

CHIIC's project proposals and quarterly forums are promoted through the following communication channels:

1. CDC Today announcements
2. CHIIC Internet site, http://www.cdc.gov/ophss/chiic/
3. CHIIC Intranet site (Internal to CDC only), http://intranet.cdc.gov/ophss/chiic/
4. CHIIC Listserv, CDCL-CHIIC@LISTSERV.CDC.GOV
5. Connects article (optional, post presentation)
6. Calendar invitation sent out through Outlook
7. OPHSS lobby monitor (CDC Atlanta, Century Center campus, building 2500)
8. Posters and flyers
9. Peer network referrals

CHIIC Staff

Brian Lee
Chief Public Health Informatics Officer
brian.lee@cdc.gov

Briana Hill
CACI Contractor
lsj7@cdc.gov

Glossary

API	Application Programming Interface
CDS	Clinical Decision Support
CGH	Center for Global Health
CHIIC	CDC Health Information Innovation Consortium
CIOs	CDC Centers, Institutes, and Offices
CSELS	Center for Surveillance, Epidemiology, and Laboratory Services
DEO	Division of Emergency Operations
DGHA	Division of Global HIV/AIDS
DGHP	Division of Global Health Protection
DHIS	Division of Health Informatics and Surveillance
DHQP	Division of Healthcare Quality Promotion
DPDM	Division of Parasitic Diseases and Malaria
DSHEFS	Division of Surveillance, Hazard Evaluations, and Field Studies
EHDI	Early Hearing Detection & Intervention Interoperability
EMR	Electronic Medical Record
EHR	Electronic Health Record
EIP WS	Emerging Infection Program Web Service

FOOD	Foodborne Outbreak Online Database
HHS	Health and Human Services
ITSO	Information Technology Services Office
NARMS	National Antimicrobial Resistance Monitoring System
NCBDDD	National Center on Birth Defects and Developmental Disabilities
NCCDPHP	National Center for Chronic Disease Prevention and Health Promotion
NCEH/ATSDR	National Center for Environmental Health / Agency for Toxic Substances and Disease Registry
NCEZID	National Center for Emerging and Zoonotic Infectious Diseases
NCHHSTP	National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention
NCHS	National Center for Health Statistics
NCIPC	National Center for Injury Prevention and Control
OADP	Office of the Associate Director for Policy
OADS	Office of the Associate Director for Science
OCIO	Office of the Chief Information Officer
OCOO	Office of the Chief Operating Officer
OID	Office of Infectious Diseases
ONDIEH	Office of Noncommunicable Diseases, Injury, and Environmental Health
OPHPR	Office of Public Health Preparedness and Response
OPHSS	Office of Public Health Scientific Services
OSTLTS	Office for State, Tribal, Local, and Territorial Support
PHII	Public Health Informatics Institute
SLB	Surveillance Leadership Board
STLT	State, Tribal, Local, and Territorial