



13-SI-03

**Committee:** Surveillance

**Title:** Improving Public Health Practice by Enhancing the Public Health Community's Capability for Electronic Information Exchange using HL7 CDA

**I. Statement of the Problem:**

The Council of State and Territorial Epidemiologists (CSTE) supports adoption of standardization policies that enable effective public health surveillance and epidemiologic practice. Existing Health Level Seven (HL7) standards provide an array of standardization platforms that facilitate reporting to public health, including but not limited to HL7 2.x messages and Clinical Document Architecture (CDA) documents.

CDA has emerged as the “lingua franca” of electronic health record (EHR) systems, and it is essential that public health learn to speak that language. A public health case report represented as a CDA document, generated by an electronic health record system and consumed by public health information systems can facilitate the case reporting and investigation workflow. The purpose of this position statement is to identify HL7 CDA as a primary option for data exchange for cases between clinical care and public health and among public health jurisdictions, and to enable the steps necessary to make that goal a reality.

The application of CDA in clinical and public health information systems is growing. In the Office of the National Coordinator (ONC) Final Rule, 45 Code of Federal Regulations [CFR] 170.205, in Stage 2 of Meaningful Use identified named HL7 CDA, Release 2 for use by ambulatory healthcare providers for reporting to central cancer registries. In addition, the administrative law for certification criteria of EHR systems identified HL7 CDA Release 2, Continuity of Care Document as a standard to electronically display in human readable format the data included in transition of care/referral summaries (45 CFR 170.314). Furthermore, Centers for Disease Control and Prevention's (CDC) National Healthcare Safety Network has made CDA the standard for reporting hospital acquired infections.

More recently, the ONC Standards and Interoperability (S&I) Public Health Report Initiative (PHRI) (1) began to harmonize data elements across two use cases: for adverse event reporting, and for communicable disease case reporting from an EHR system to local, state and territorial public health departments. One key goal of these efforts is to inform Stage 3 of Meaningful Use and complementary ONC initiatives (e.g., Structured Data Capture (2)).

Public health has an opportunity to leverage current national efforts on data harmonization and CDA implementation to streamline the information flow for all infectious and non-infectious conditions reportable from EHR systems in clinical settings to local/state/territorial public health departments. However, as public health agencies move forward they face programmatic and technical challenges, including representation of public health community in the development of health information technology standards that need to be addressed.

In 2006, CSTE proposed that all state/local health departments, the CDC, laboratories, hospitals, and other parties who report to public health establish HL7 version 2.5 as the national standard for reporting, inbound and outbound, public health information messages. (1) Since then, most jurisdictions have made substantial progress in building and sustaining the capacity of their electronic disease surveillance systems to process, route, and consume electronic laboratory results reports (ELR) and to send electronic case notifications to CDC. As CDA and similar XML-based approaches continue to be central to health information technology practice, and included in federal administrative rules, jurisdictions will need to further enhance their surveillance systems and, in some cases, their entire IT infrastructure, to enable them to receive and consume structured documents. This will require continuing effort to provide education to the public health surveillance



and information technology community about XML-based approaches including CDA, building on existing public health tools, and providing technical assistance to local, state, and territorial health departments.

## **II. Statement of the desired action(s) to be taken:**

CDC, in collaboration with CSTE, in order to identify HL7 CDA as a primary option for data exchange for cases between clinical care and public health and among public health jurisdictions, and to enable the steps necessary to make that goal a reality, to:

- Establish a working group with stakeholders to address programmatic and technical issues associated with implementing public health case reporting; and develop guidance documents and/or recommendations to CSTE's executive board.
- Develop and document an information model and a reference implementation that provides models and demonstrates best practice in establishing information flows between electronic health systems and public health systems, and among public health information systems.
- Provide education, training, tools, and technical assistance to ensure that all jurisdictions can participate fully in the current health information ecosystem (e.g., be able to understand, receive, consume and produce XML documents, including CDA).
  - Ensure the existing tools and resource to implement HL7 2.x for electronic laboratory result reporting and case notification continue to be made available.
- Provide financial support for dedicated resources of at least one full-time public health informatician leader dedicated to act as a representative of the public health community in the development of health information technology standards. This representative will:
  - Understand the technical aspects of standards development, as well as the implications for public health policy and practice.
  - Commit to actively represent the public health community, including regularly and systematically collecting input from and providing information back to varied constituencies at all levels of public health.
  - Participate actively in standards development working groups including but not limited to those that are part of ONC's Standards and Interoperability Framework, HL7 (Health Level 7) and IHE (Integrating the Healthcare Enterprise).

## **III. Public health impact:**

Use of CDA as a primary option for data exchange for cases between clinical care and public health, and among public health jurisdictions, is expected to reduce the reporting burden on clinicians and hospitals and improve public health surveillance and response by:

- Enhancing the clinical workflow by providing clinicians with a jurisdiction-specific structured case report form pre-populated with patient data available in the EHR
- Providing higher quality and more complete contextual data to public health agencies
- Establishing channels for future bi-directional communication, such as information about public health aspects relevant to patient care, and receipt of follow-up reports

In addition, the benefits of using CDA include:

- The CDA standard requires that a document contain a human-readable representation of any machine-processable content, so every CDA document can read by a human being as well as being processed by a public health information system.

- The underlying CDA specification can be constrained by templates, so a single public health case reporting implementation guide can point to other information resources that allow customization of reports by condition, and (if necessary) by jurisdiction.
- CDA is based upon the principle of incremental interoperability, which allows for implementation to begin with a simple (or generic) CDA and then add structured data elements over time. Thus, the CDA approach enables reusability.
  - May minimize future development and operations and maintenance costs of clinical and public health information systems.

If the desired actions are accomplished, the public health community will be provided with information about best practices, based on experience learned at CDC in the process of establishing a reference implementation (a fully operational environment including the NEDSS Base System as a representative public health information system, and an open source system like openMRS as a representative EHR). In addition, this development activity will allow CDC to better understand the types of tools, education, and technical assistance necessary to receive, process, and consume CDA in any public health information system.

Finally, having a dedicated public health informatics representative will assist the public health community at large by helping to ensure that the public health perspective is vigorously and expertly represented in the development of health information technology standards. Many dedicated volunteers help to represent public health in those venues today, but the volume and complexity of activities is ever-increasing, and public health's effectiveness would be enhanced by having additional specialized representation.

#### IV. References

1. <http://wiki.siframework.org/Public+Health+Reporting+Initiative>
2. <http://wiki.siframework.org/Structured+Data+Capture+Initiative>
3. CSTE Position Statement 06-Executive Committee-02, "Setting a goal of implementing Health Level 7 version 2.5 (HL7 v2.5) for public health electronic reporting by January 1, 2008", CSTE, 2006

#### V. Coordination

##### Agencies for Response:

- (1) Centers for Disease Control and Prevention  
Thomas R. Frieden, MD, MPH  
CDC Director  
1600 Clifton Road  
Atlanta, GA 30329  
404-639-7000  
Thomas.Frieden@cdc.hhs.gov

##### Agencies for Information:

- (1) Office of the National Coordinator for Health Information Technology  
Farzad Mostashari, MD, ScM  
National Coordinator for Health Information Technology  
200 Independence Avenue S.W.  
Suite 729-D  
Washington, D.C. 20201  
202-690-7151  
Farzad.Mostashari@hhs.gov



- (2) Association of State and Territorial Health Officials  
Paul E. Jarris, MD, MBA  
Executive Director  
2231 Crystal Drive  
Suite 450  
Arlington, VA 22202  
202-371-9090  
pjarris@astho.org
  
- (3) National Association of County and City Health Officials  
Robert M. Pestronk, MPH  
Executive Director  
1100 17th Street, NW  
Seventh Floor  
Washington, DC 20036  
202-783-5550  
rpestronk@naccho.org
  
- (4) Association of Public Health Laboratories  
Scott J. Becker, MS  
Executive Director  
8515 Georgia Avenue  
Suite 700  
Silver Spring, MD 20910  
240.485.2747  
scott.becker@aphl.org

**VI. Submitting Author:**

- (1) Rita Altamore, MD, MPH  
Epidemiologist  
Washington State Department of Health  
PO Box 47811  
Olympia, WA 98504  
360-236-4360  
Rita.Altamore@doh.wa.gov

**Co-Author:**

- (1)  Active Member  Associate Member

Janet J. Hamilton, MPH  
Surveillance Section Senior Manager  
Florida Department of Health, Bureau of Epidemiology  
4052 Bald Cypress Way  
Bin A-12  
Tallahassee, FL 32399  
(850) 528-5530  
Janet\_Hamilton@doh.state.fl.us



(2)  Active Member  Associate Member

Lesliann Helmus  
Surveillance Chief  
Virginia Department of Health  
P.O. Box 2448  
Richmond, VA 23218-2448  
804-864-8093  
Lesliann.Helmus@vdh.virginia.gov