HL7 and the Value Proposition for the U.S. Centers for Disease Control and Prevention’s (CDC’s) Surveillance of Healthcare Associated Infections

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Congratulations and All the Best for the Next 25 Years!

- HL7 has been a boon for electronic data exchanges in public health and between public health and healthcare information systems.
- CDC and its partners at the local, state, federal, and international levels and in the private sector look forward to even greater success in the years ahead.
- My presentation will focus on use of Clinical Document Architecture (CDA) as the HL7 standard in the U.S. Realm for reporting healthcare associated infections (HAIs) to CDC.

Celebrating 25 years of HL7: Improving health and healthcare around the world
The HAIs that Matter Most in Terms of Morbidity, Mortality, and Healthcare Costs

- Central line associated bloodstream infection (CLABSI)
- Surgical site infection (SSI)
- Ventilator associated pneumonia (VAP)
- Catheter associated urinary tract infection (CAUTI)
- Clostridium difficile infection (CDI)
HAI: Processes of Care

- Central line insertion practices (CLIP)
- Influenza vaccination coverage
- Antimicrobial use and resistance (AUR)
HAIs have emerged as a public issue throughout the world.
Countries use different tools and processes for HAI prevention.
Publication of HAI rates is important, both to increase HAI awareness and to evaluate countermeasures.
Although HAI rates are increasingly reported, particularly in the developed world, the U.S. is unique in the extent to which hospital-specific HAI rates are **publicly reported**.

States required to publicly report some healthcare-associated infections

CDC Vital Signs March 1, 2011
Plan attacks traffic, but relief piecemeal

Advocates say even if tax initiative can't satisfy all, it delivers options, hope.

By Ariel Hart
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Just how much congestion relief will $6.14 billion buy?
The Atlanta region went transportation shopping this summer, and its cart is now full. Suburban and urban elected officials came to historic agreement last week on a first draft of a $6.14 billion shopping list for roads, mass transit and other projects to submit to voters in a referendum next year.

If voters agree to pay for the projects with a 1 percent sales tax, it will be the biggest single transportation investment in the region in 40 years or more.
NHSN in a Nutshell

- A national system launched by CDC in 2005 for surveillance of HAIs, other adverse healthcare events, and adherence to prevention practices
- State and federal HAI reporting requirements account for rapid growth in participation from ~300 hospitals initially to over 4500 hospitals in 2011
- Primary users are healthcare facilities, state and federal agencies, and prevention collaboratives
- Hospitals and other healthcare facilities have immediate access to data they submit
- CDC uses aggregate data for national reports and to provide benchmarks for comparisons
- Technical design enables manual data entry via a web interface or electronic reporting via CDA

www.cdc.gov/nhsn
Why CDA?

- It is built on the HL7 Version 3.0 RIM
- HL7 V3 has a reputation for being too complex
- CDA has a secret weapon for dealing with V3 complexity: templates
- Templates are pre-defined specifications for expressing the structure of a particular element of clinical data (e.g. blood pressure, HAI bloodstream infection report), the structure of a textual section in a CDA document, or the structure of the CDA header
- The HL7 CDA Implementation Guide (IG) for HAI reporting, U.S. Realm, is essentially a collection of templates and associated vocabulary for creating valid CDA records for hospitals and other healthcare facilities to submit electronically to CDC’s NHSN
Use of CDA for HAI Reporting to NHSN – Leveraging Electronic Data Sources

Data for NHSN are processed and packaged as CDA files*.

*HL7 Clinical Document Architecture (CDA) files are used to submit HAI data to NHSN, obviating the need for manual data entry into the NHSN web interface.
How CDC’s NHSN Works With Healthcare Information Technology Vendors

**NHSN:**
- Seeks vendor participation in developing, pilot testing, and updating the CDA IG for HAI reporting
- Submits the CDA IG to HL7 for its approval
- Specifies and maintains standard vocabulary for HAI reporting to NHSN
- Commits resources to tools for accessing NHSN vocabulary and validating CDA file imports
- Provides a dedicated resource for all vendor issues and questions
- Works with vendor-neutral organizations that publish lists of vendors who assert CDA readiness
Electronic Reporting to NHSN via CDA – Sept 2011

NHSN and CDA Capability

- Currently accepting CDA files for:
  - Central line associated bloodstream infection (CLABSI)
  - Catheter associated urinary tract infection (CAUTI)
  - Surgical site infection (SSI)
  - Multi-drug Resistant Organism and *C. difficile* laboratory identified (LabID) events
  - Central line insertion practices (CLIP)
- Capable of receiving CDA files for antimicrobial use
- Will be capable of accepting CDA files for dialysis events and antimicrobial resistance in October 2012

NHSN and CDA in Use

- Over 450 hospitals are reporting to NHSN via CDA
- CDC has received over 160,000 CDA records, including CLABSI, CAUTI, and SSI records (numerator and denominator files)
Use of greenCDA and supporting transformation tools shows great promise as an approach for reducing the effort required to implement fully normative CDA.

CDC worked with the Lantana Consulting Group to develop a greenCDA for central line insertion practices (CLIP) and is exploring the usability of greenCDA for CLIP in vendor systems.
Summing Up

- NHSN has emerged as the primary system for HAI reporting mandates in the U.S. and, as a result, participation in NHSN has increased 15-fold since the system’s inception in 2005.
- CDC opted to use CDA as the technical lynchpin for interoperably connecting hospitals and other healthcare facilities that use vendor systems for HAI data collection and reporting.
- For CDC, the main opportunities and challenges are to meet rising expectations for public HAI reporting in the U.S. while helping to expedite a transition from manual to electronic surveillance methods.
Thank You!

Please contact me at dpollock@cdc.gov

Information about NHSN is at www.cdc.gov/nhsn

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