

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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Division of Healthcare Quality Promotion



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



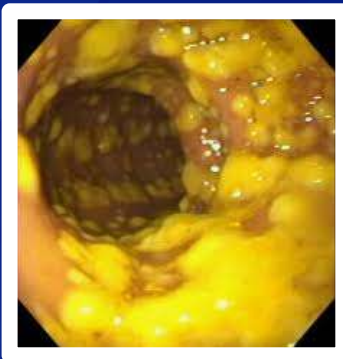
Central line associated
bloodstream infection
(CLABSI)

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)

“Healthcare-Associated Infections: Think Globally, Act Locally”*



- 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**

*Marcel J-P, et al. *Clin Microbiol Infect* 2008;14:895-907

Aug. 21, 2011

The Atlanta Journal-Constitution

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Atlanta Forward >>

How do we get there from here?
The future of regional transportation

Plan attacks traffic, but relief piecemeal

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

By **Artel Hart**
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Just how much congestion relief will \$6.34 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 \$6.34 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.



HEALTH CARE

Georgia's infection tracking falls short

Several states give consumers access to hospital information.

Georgia law has no such reporting requirements.

By **Carrie Teegardin**
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When Dr. Marion Kainer wants to track the life-threatening infections running through Tennessee's hospitals, she simply taps into her computer at the state health department's office in Nashville.

Kainer can search to see where bloodstream infections are attacking vulnerable adults and sick babies in ICUs and where heart bypass patients are contracting infections after operations. As she leads Ten-



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

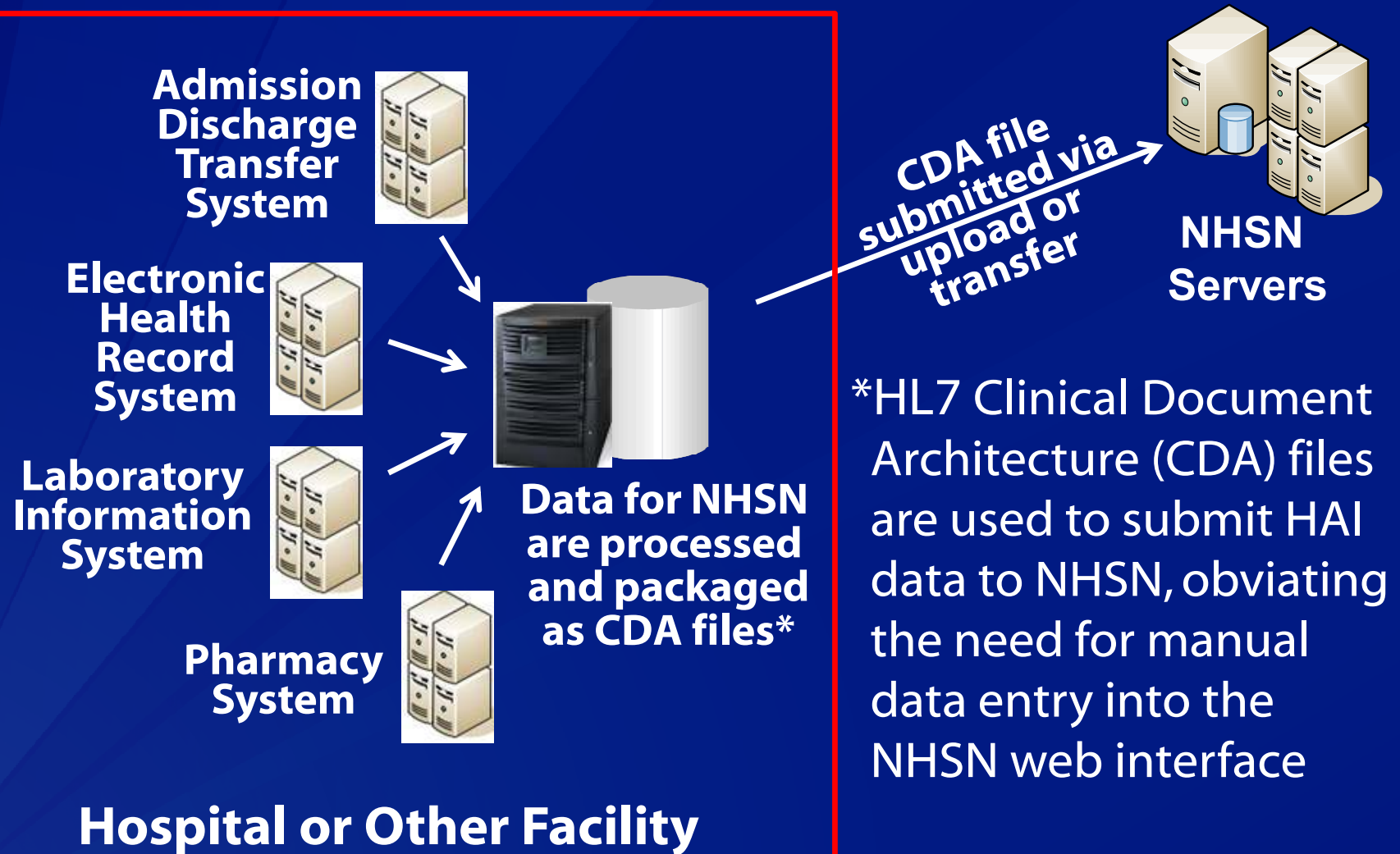
www.cdc.gov/nhsn



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



*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

Acknowledgements

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NHSN Users in >450 hospitals who submit CDA records to NHSN

