CDA Development Using Templates

IHIC

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Instructor

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  - Consultant, Alschuler Associates, LLC
  - CDA for cancer registries and infectious disease reporting
  - Co-editor, Healthcare Associated Infections
  - Extensive EHR vendor experience

Alschuler Associates, LLC

- Consultants in standards-based solutions for healthcare information working with vendors, providers, standards developers
- Clients
  - Military Health System
    - Enterprise-wide documents, files, images (DFIEA, HAIMS)
  - Centers for Disease Control and Prevention
    - Implementation Guide for infectious disease reporting (NHSN HAI)
  - The Health Story Project (CDA4CDT)
    - Co-founder & Project Management
  - North American Association of Central Cancer Registries
    - Implementation Guide for cancer abstracts
  - Department of Health and Human Services
    - Subcontracts on Health IT Standards Panel (HITSP) and Health Information Standards for Privacy and Confidentiality (HISPC)
    - Office of the Assistant Secretary for Planning and Evaluation developing CDA prototypes for the Minimum Data Set
  - American Hospital Association
    - Use case development for healthcare IT standards initiative
  - Private, commercial clients: Providers and vendors including Fortune 100 and startups
- www.alschulerassociates.com
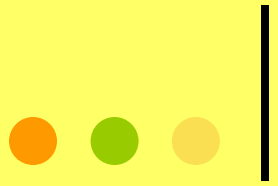
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Outline

- **Template definition**
- Development using templates
    - Reusability
    - Consistency
    - Timely Development
- Future work

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Template definition

- A template identifier (templateId) signals the imposition of a set of template-defined constraints.

- Document-level template:

```
<ClinicalDocument>
  ...
<!-- Conformant to updated NHSN Generic Constraints -->
    <templateId root="2.16.840.1.113883.10.20.5.4"/>
    ...
  <section>
    <templateId root="2.16.840.1.113883.10.20.5.5.6"/>
    ...
  </section>
  …
</ClinicalDocument>
```

Template definition

- Template use particularly relevant for CDA:

  (1) those that constrain the document sections based on the type of document (section-level templates)

  (2) those that constrain the entries within document sections (entry-level templates)

- Section-level template:

```xml
<section>
   <!-- template for Infection details section -->
   <templateId root="2.16.840.1.113883.10.20.5.5.6"/>
   <code codeSystem="2.16.840.1.113883.6.1"
     codeSystemName="LOINC" code="51898-5"
displayName="Risk Factors"/>
...
</section>
```
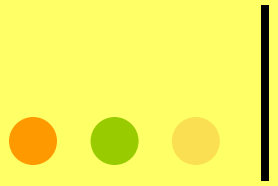
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Development using templates: Reusability

- Reusability means that a template developed to represent one implementation can represent identical semantics and structure within additional implementations.

- HL7 Continuity of Care Document (CCD) templates
  - CCD Problem Observation (2.16.840.1.113883.10.20.1.28)
  - CCD Procedure Activities (2.16.840.1.113883.10.20.1.29)
  - CCD Medication Activities (2.16.840.1.113883.10.20.1.24)
  - CCD Reaction template (2.16.840.1.113883.10.20.1.54)
  - ...

Development using templates: Reusability

- With Story... [obscured]

CCD Pr... [obscured] ...ation used in the IHE ...h is referenced by:
Problem Entry... [obscured] ...tion
ED Diagnosis... [obscured] ...ection
Reason for F... [obscured]
Pre-procedu... [obscured]
Reason for... [obscured]

1.113883.10.20.1.28)
...113883.10.20.1.29)
...113883.10.20.1.24)
...20.1.34)

U.S. Healthcare Interoperability Standards Panel (HITSP) has built upon the template development strategy to create:
HITSP/C28 Emergency Care Summary
HITSP/C32 - Summary Documents Using HL7 Continuity of Care Document (CCD)
HITSP/C84 Consult and History & Physical Note Document
HITSP/C78 Immunization Document

- NHSN I... [obscured]
  – CCD R... ....

Development using templates: Consistency

- Consistency is the use of the same constructs within an implementation.

- Entry-level template:

```
<section>
   <templateId root="2.16.840.1.113883.10.20.5.5.6"/>
...
  <entry typeCode="DRIV">
    <observation classCode="OBS" moodCode="EVN">
      <!-- template for observation: Infection-type Obs-->
      <templateId root="2.16.840.1.113883.10.20.5.6.23"/>
      <id root="4e3ebef2-5892-4291-a126-6c530c93aa6f"/>
       ...
    </observation>
  </entry>
</section>
```

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Development using templates: Consistency

- Health Story common header (2.16.840.1.113883.10.20.3)
- HAI Infection-types Observation (2.16.840.1.113883.10.20.5.6.23)
  - Bloodstream Infection (BSI)
  - Surgical Site Infection (SSI)
  - Urinary Tract Infection (UTI)
  - Pneumonia (PNEU)
  - …

Development using templates: Consistency

Primary Bloodstream Infection (BSI)

OMB No. 0920-0666
Exp. Date: 03-31-2011

NHSN
National Healthcare
Safety Network

Blood Stream Infection Report (BSI)

Patient	Ned Nuclear		
Date of birth	November 25, 1954	Sex	Male
Contact info	address not available Telecom information not available	Patient IDs	12345 (2.16.840.1.113883.19.5)
Document Id	20201810303 (2.16.840.1.113883.3.117.1.1.5.2.1.2)		
Document Created:	August 7, 2008		
Author	anAuthorID (2.16.840.1.113883.3.117.1.1.5.1.1.2)		

Development using templates: Timely Development

- Template Ids support timely development
- Health Story:4 implementation guides in 18 months
- NHSN HAI
  - 2 forms pilot-ready in 4 months
  - Over 12 forms added to DSTU since Spring 2007
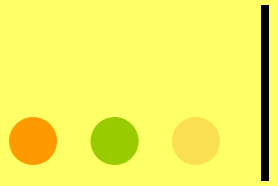
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Future work

- NHSN HAI
  - Go-live planned for fall 2009
  - New forms planned for September
- Health Story
  - 4 DSTUs available for use
  - U.S. HITSP components leveraging History & Physical DSTU
- Template validation

Future work

- Template databases
  - cardinality constraints
  - observation pattern
  - vocabulary and value set constraints
- CDA for Public Health Case Reports
  - The first Implementation Guide (IG) to be derived from a formal template database.
  - The first IG to point to a web site (PHIN VADS) where implementers can get the latest value sets.

Thank you!
Questions?