Templated CDA and CDA Consolidation Project

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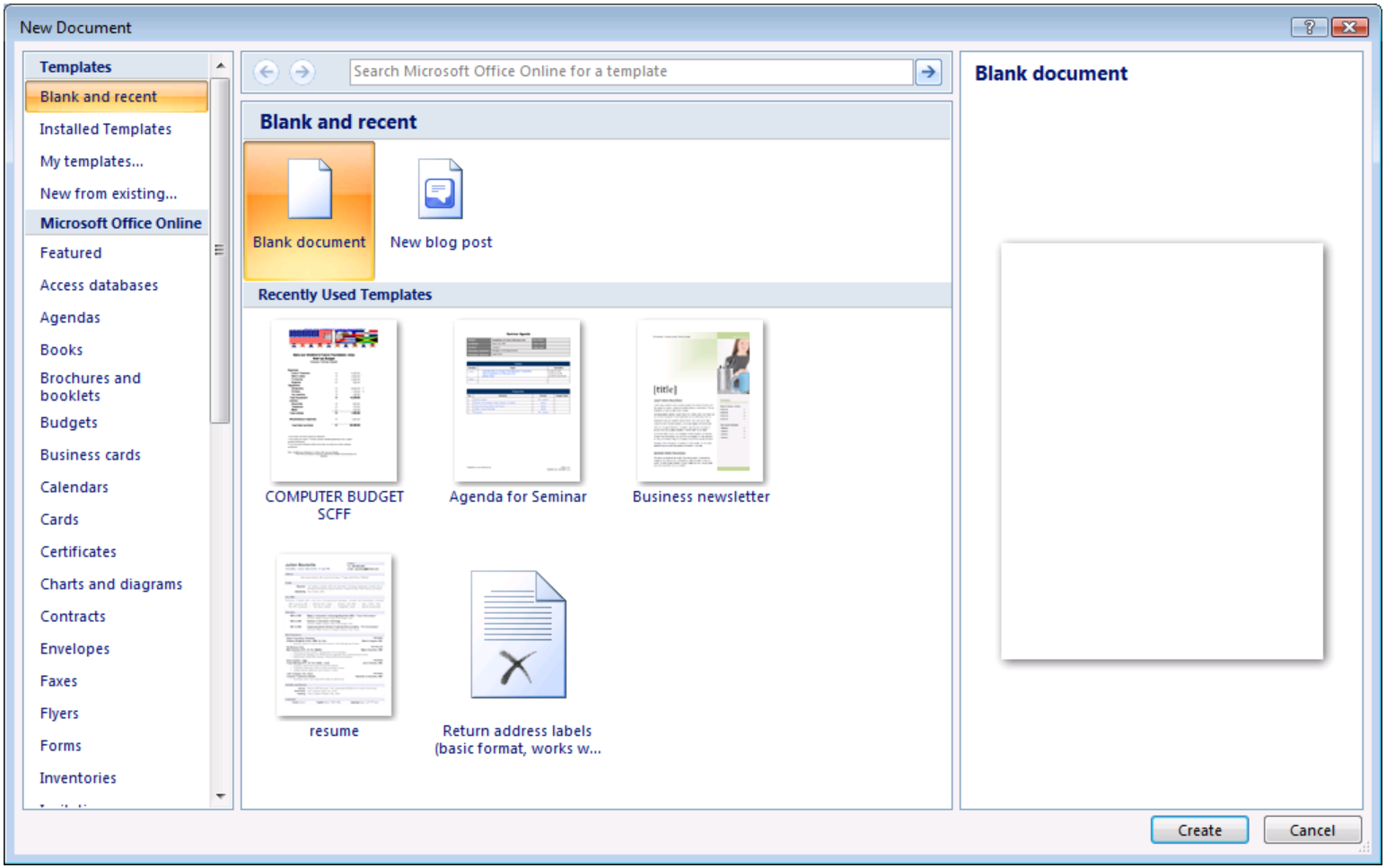
What is templated CDA?



What is templated CDA?

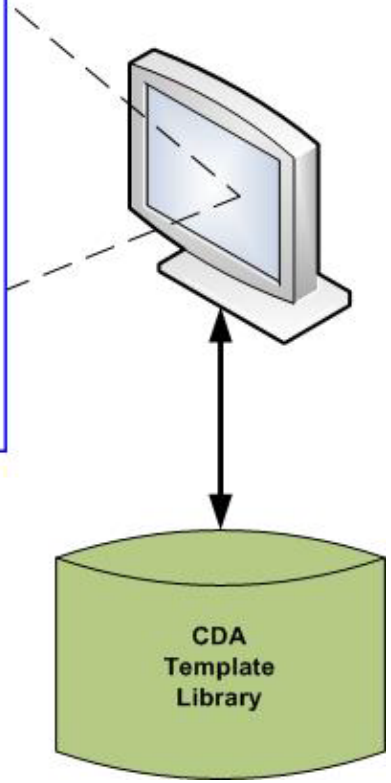
History
Frequency of wheezing:
- ❑Daily and continual.
- ❑Daily but not continual.

Episodes per week :: _____

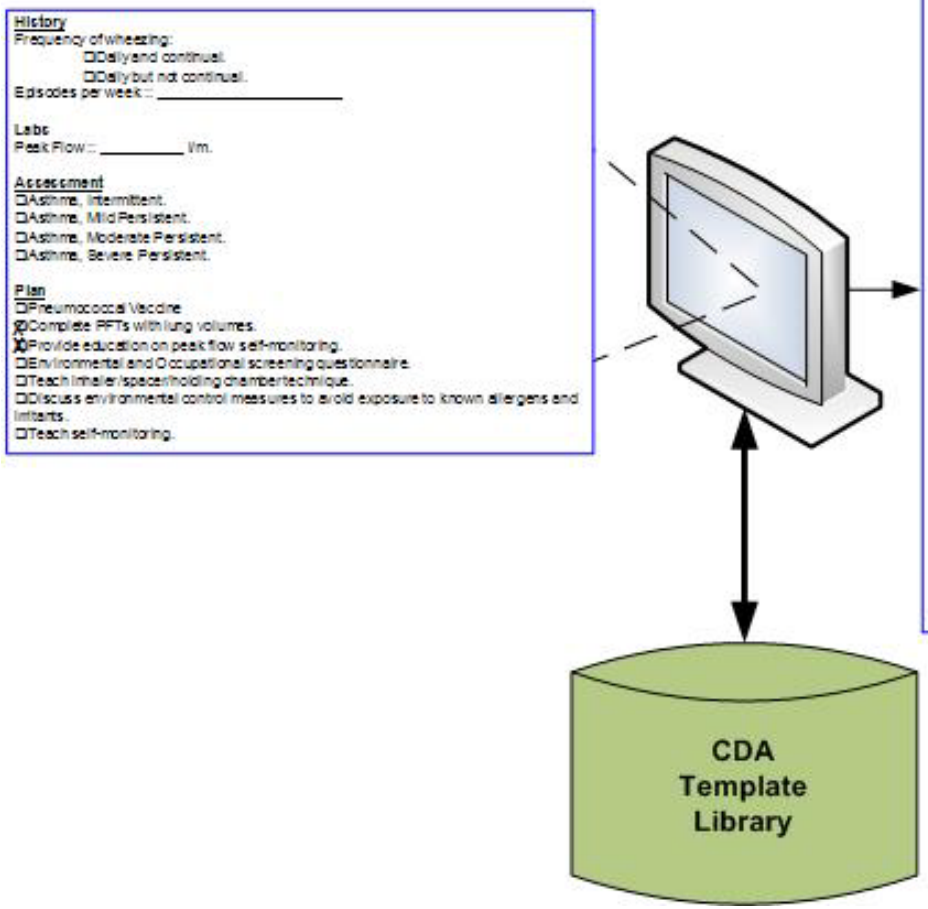
Labs
Peak Flow :: _____ l/m.

Assessment
- ❑Asthma, Intermittent.
- ❑Asthma, Mild Persistent.
- ❑Asthma, Moderate Persistent.
- ❑Asthma, Severe Persistent.

Plan
- ❑Pneumococcal Vaccine
- ❑Complete PFTs with lung volumes.
- ❑Provide education on peak flow self-monitoring.
- ❑Environmental and Occupational screening questionnaire.
- ❑Teach inhaler/spacer/holding chamber technique.
- ❑Discuss environmental control measures to avoid exposure to known allergens and irritants.
- ❑Teach self-monitoring.



What is templated CDA?




```
<section>
  <templateId root="2.16.840.1.113883.3.27.354"/>
  <title>Plan</title>
  <text>Complete PFTs with lung volumes; Provide education
    on peak flow self-monitoring; ...</text>
  <entry>
    <observation classCode="OBS" moodCode="INT">
      <code code="23426006" codeSystem="&SNOMEDCT;"
        displayName="Pulmonary function test"/>
    </observation>
  </entry>
  <entry>
    <act classCode="ACT" moodCode="INT">
      <code code="223468009" codeSystem="&SNOMEDCT;"
        displayName="Teaching of skills">
        <qualifier>
          <name code="363702006" displayName="has focus"/>
          <value code="29893006" displayName="Peak flow
            rate measurement"/>
        </qualifier>
      </code>
    </act>
  </entry>
</section>
```

Templated CDA business case

- **Streamlined standards development**
  - Reusable building blocks.
- **Streamlined standards implementation**
  - Implement once, deploy often.
- **Modular and reusable**
  - Templates (e.g., blood pressure, discharge diagnosis) can be repackaged with other templates in any number of CDA implementation guides.
- **Core component of CDA's "incremental interoperability" strategy**
  - Begin with simple CDA, and add templates as they are prioritized.

Templates are computable artifacts

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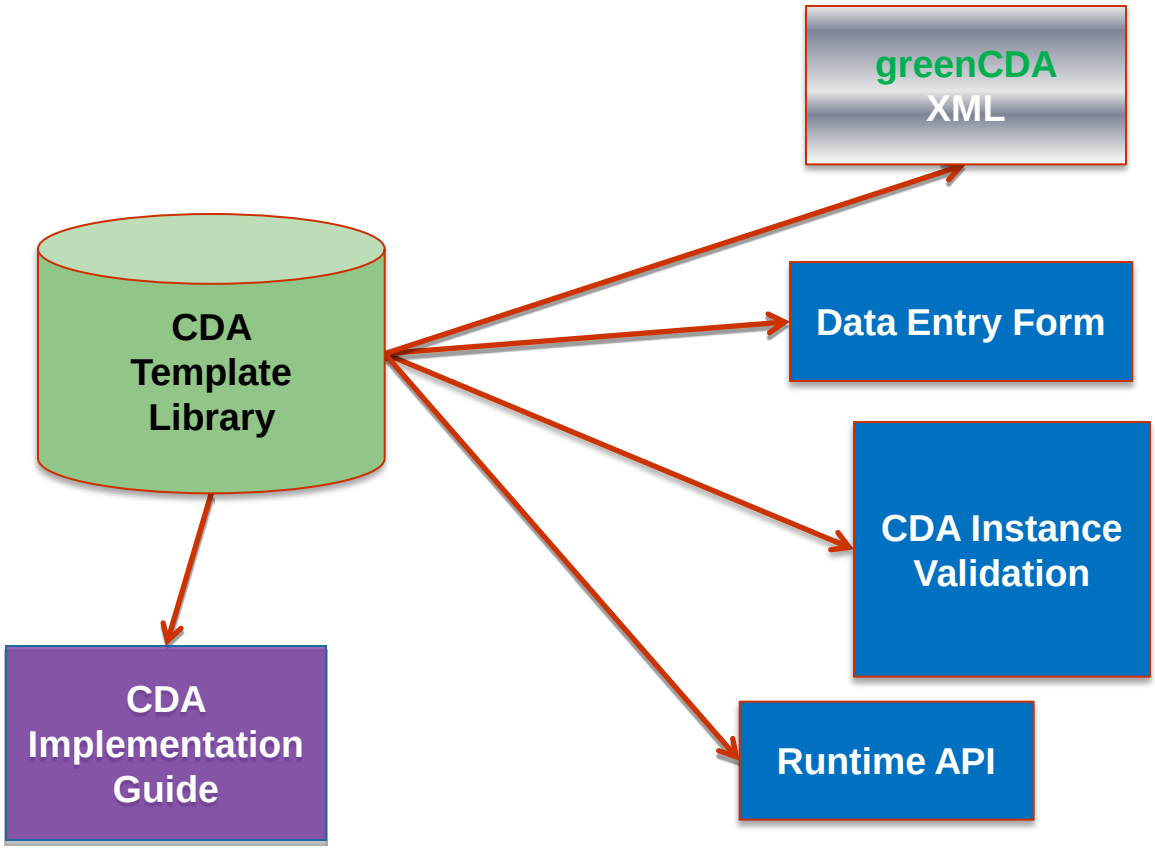
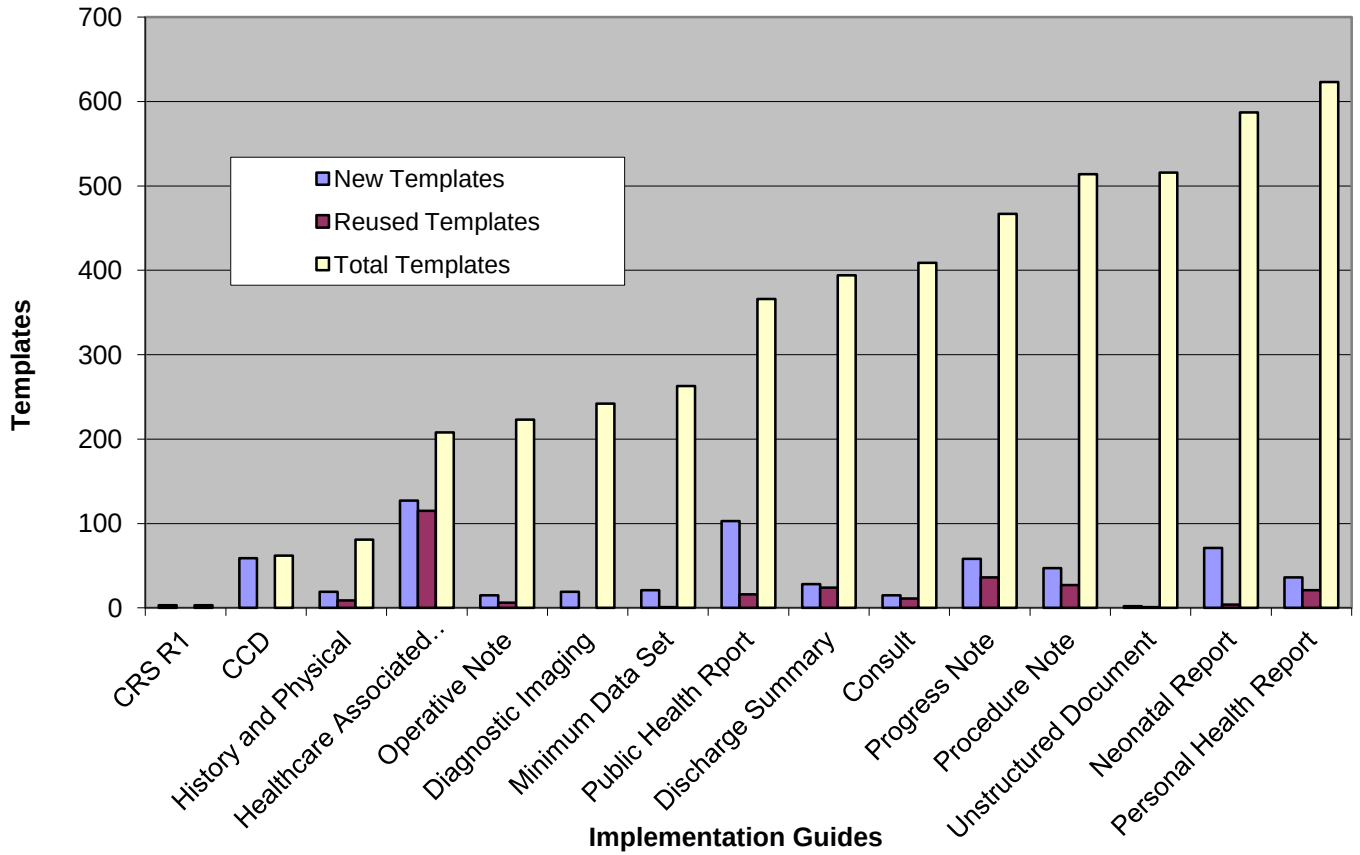
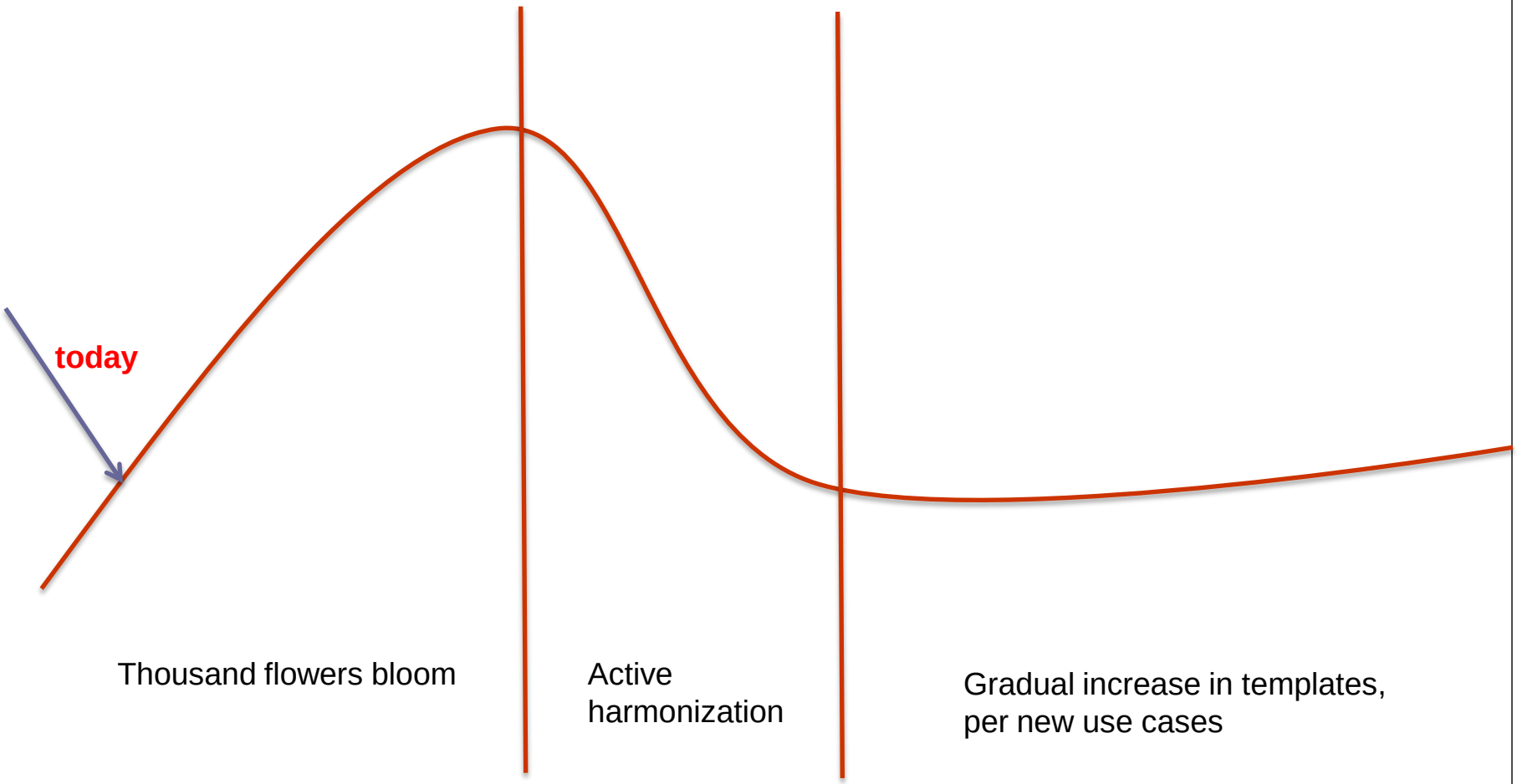


Standards Development

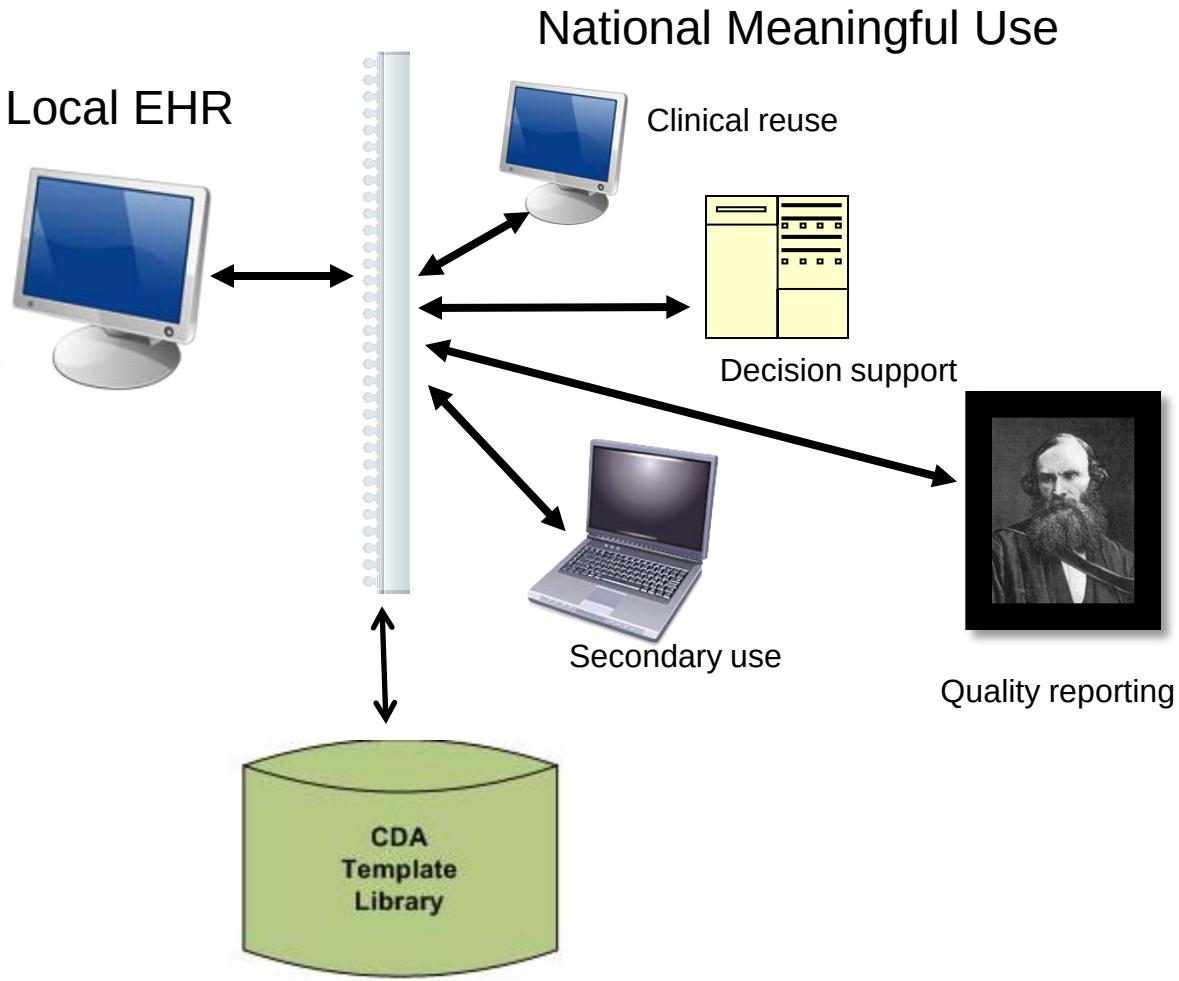
- ~ 42 templates per guide: 24 new, 18 reused.



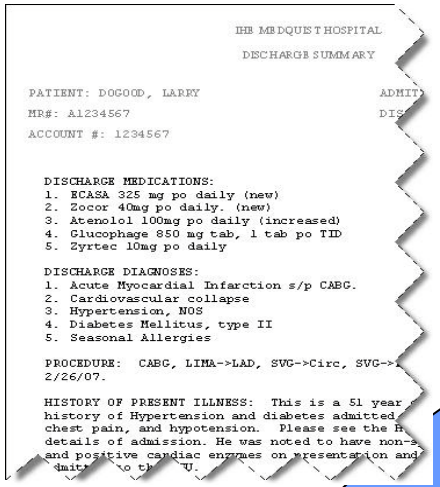
Standards Harmonization



Standard EHR Interface



Templated CDA Interoperability Roadmap


IHE MEDQUEST HOSPITAL

DISCHARGE SUMMARY

PATIENT: DOGOOD, LARRY

MR#: A1234567

ACCOUNT #: 1234567

DISCHARGE MEDICATIONS:
1. ECASA 325 mg po daily (new)
2. Zocor 40mg po daily. (new)
3. Atenolol 100mg po daily (increased)
4. Glucophage 850 mg tab, 1 tab po TID
5. Zyrtec 10mg po daily

DISCHARGE DIAGNOSES:
1. Acute Myocardial Infarction s/p CABG.
2. Cardiovascular collapse
3. Hypertension, NOS
4. Diabetes Mellitus, type II
5. Seasonal Allergies

PROCEDURE: CABG, LIMA->LAD, SVG->Circ, SVG->
2/26/07.

HISTORY OF PRESENT ILLNESS: This is a 51 year
history of Hypertension and diabetes admitted
chest pain, and hypotension. Please see the H
details of admission. He was noted to have non-s
and positive cardiac enzymes on presentation and
admitted to the CU.

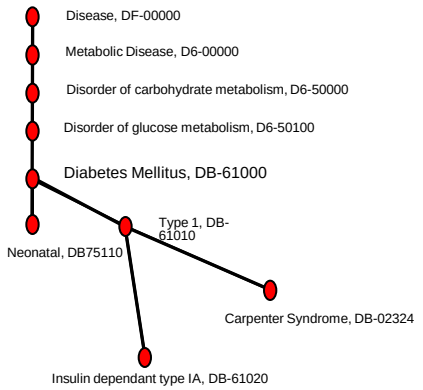
Narrative Text

HL7 CDA Structured Documents


<componentOf>
<encompassingEncounter classCode="ENC" moodCode="EVN">
<id root="1.3.6.4.1.4.1.2835.12" extension="9937012"/>
<code code="99213" codeSystem="2.16.840.1.113883.6.12" codeSystemName="CPT-4"
displayName="Evaluation and Management"/>
<effectiveTime>
<high value="20070220"/>
<low value="20070220"/>
</effectiveTime>
<dischargeDispositionCode code="01" codeSystem="2.16.840.1.113883.6.21" codeSystemName="UB92"
displayName="Routine Discharge"/>
</encompassingEncounter>
</componentOf>
<component>
<structuredBody>
<templateId root="1.3.6.1.4.1.11050.10" extension="IMPL_CDAR2_LEVEL1-2REF_US_I2_2005SEP"/>
<component>
<section>
<templateId root="1.3.6.1.4.1.19376.1.5.3.1.3.7" extension="HOSPITAL DISCHARGE DX Template"/>
<code code="11535-2" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
displayName="HOSPITAL DISCHARGE DX"/>
<title>DISCHARGE DIAGNOSES</title>
<text>
<paragraph>1. Acute Myocardial Infarction s/p CABG.</paragraph>
<paragraph>2. Cardiovascular collapse</paragraph>

Coded Data Elements via Templates

SNOMED CT

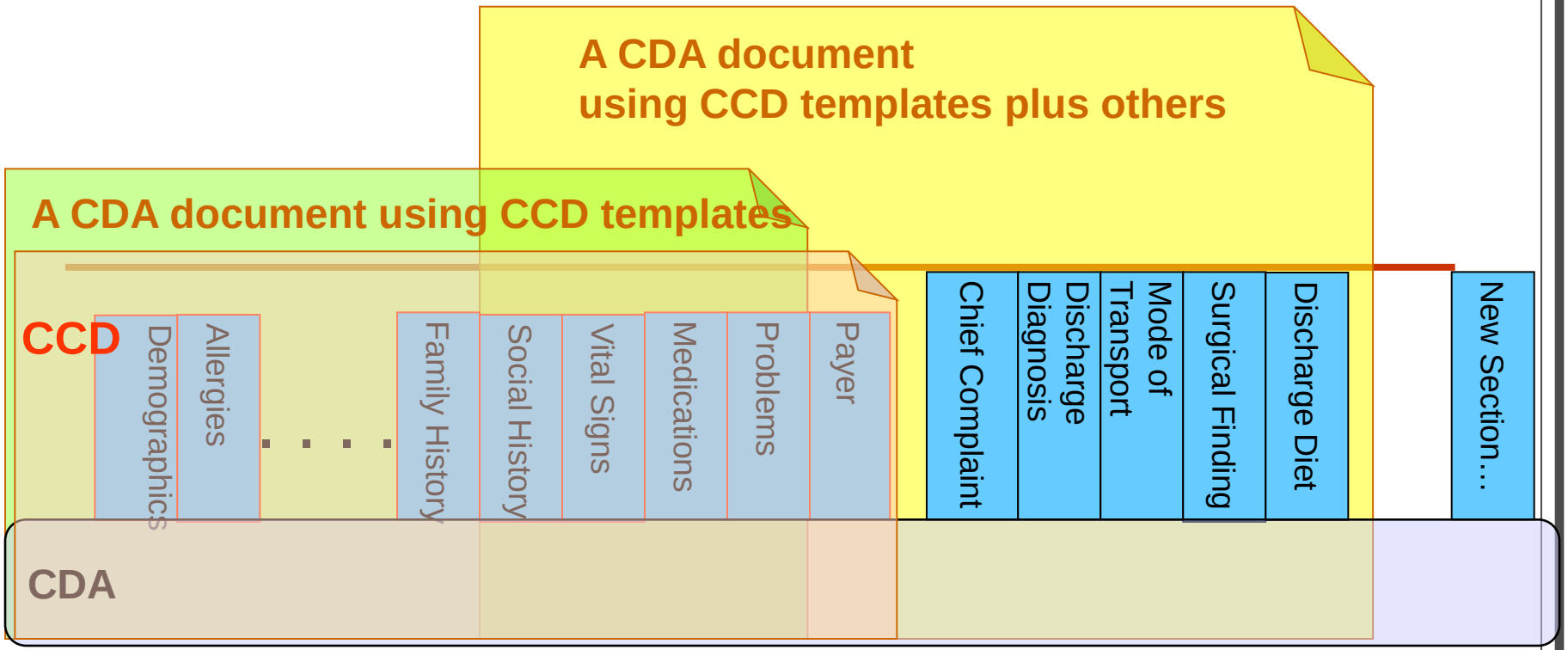


EHR Repository

Clinical Applications

Templated CDA

- Many different kinds of documents.
- A bucket of reusable templates.

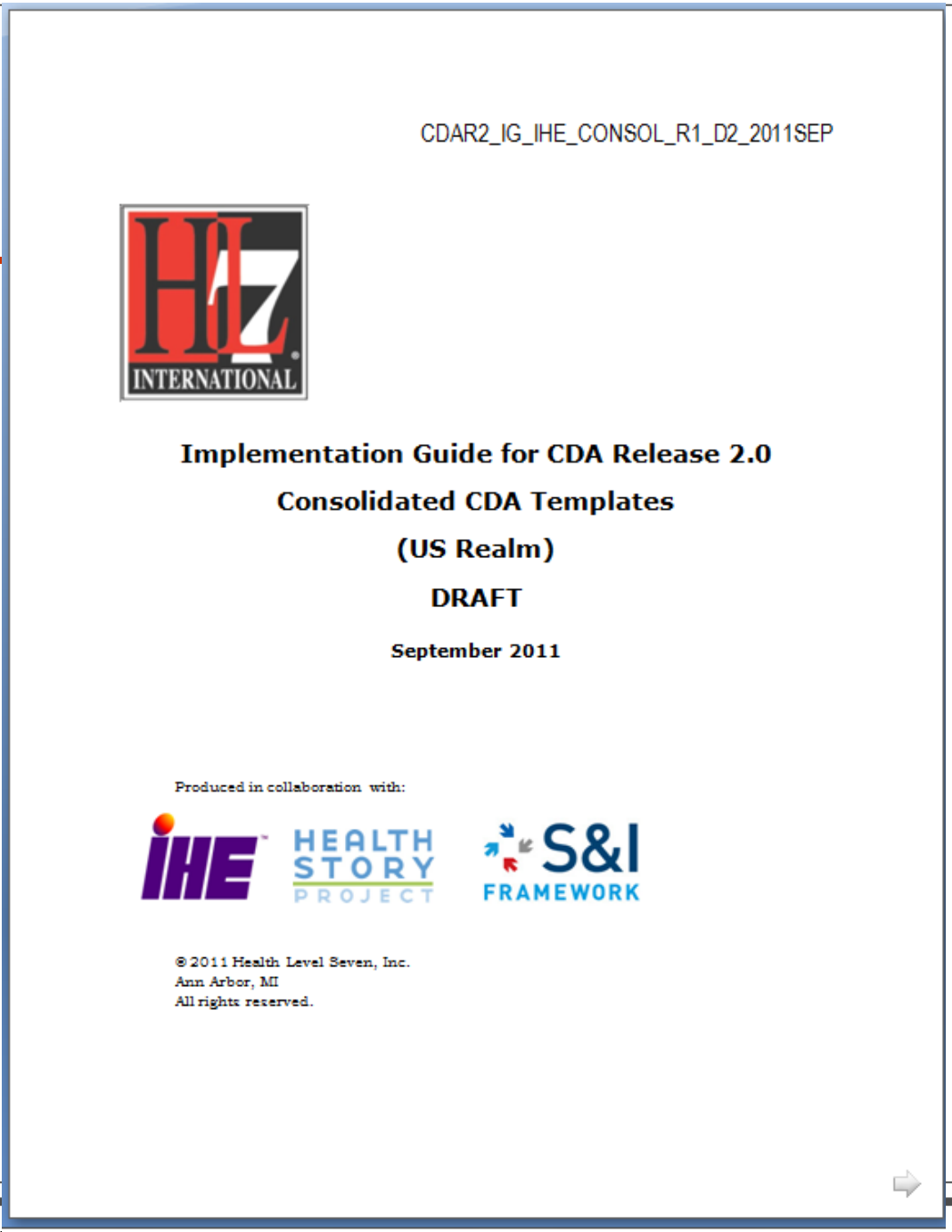


Templated CDA Implementation challenge

- Creation of an instance conforming to a particular CDA Implementation Guide may require knowledge of:
  - CDA R2 base specification;
  - HL7 Version 3 data type specification;
  - CDA templates defined in the particular IG;
  - CDA templates referenced by the particular IG;
  - Terminology code lists defined/referenced by the particular IG;
- Validation of an instance conforming to a particular CDA IG may require:
  - W3C Schema validation;
  - Schematron validation;

One solution = Consolidate!

- Consolidated library of reusable CDA templates and common document types:
  - CCD
  - Consultation Note
  - Diagnostic Imaging Report
  - Discharge Summary
  - H&P
  - Operative Note
  - Procedure Note
  - Progress Note
  - Unstructured Document



CDAR2_IG_IHE_CONSOL_R1_D2_2011SEP

Implementation Guide for CDA Release 2.0

Consolidated CDA Templates

(US Realm)

DRAFT

September 2011

Produced in collaboration with:

Another Solution - greenCDA

- Create an “authoring schema” that simplifies the creation and processing of a particular CDA IG:
  - Clinically meaningful XML element and attribute names;
  - 100% transformable into conformant CDA IG;
  - Hides certain CDA complexities (such as moodCodes, fixed attributes, etc).
- We call this strategy: **greenCDA**
  - **greenCDA** schemas are modular, corresponding to CDA templates.

An example – build the **greenCDA** module

Requirements

CDA Data Location	HITSP Data Element Identifier and Name
cda:observation[cda:templateId/@root = '2.16.840.1.113883.10.20.1.31']	Result Event Entry
cda:id	15.01 - Result ID
cda:effectiveTime	15.02 - Result Date/Time
cda:code/@code	15.03 - Result Type
cda:statusCode	15.04 - Result Status
cda:value	15.05 - Result Value
cda:interpretationCode/@code	15.06 - Result Interpretation
cda:referenceRange	15.07 - Result Reference Range

greenCDA schema

```
<result>
  <resultID>
  <resultDateTime>
  <resultType>
  <resultStatus>
  <resultValue>
  <resultInterpretation>
  <resultReferenceRange>
</result>
```

An example – create a conformant instance

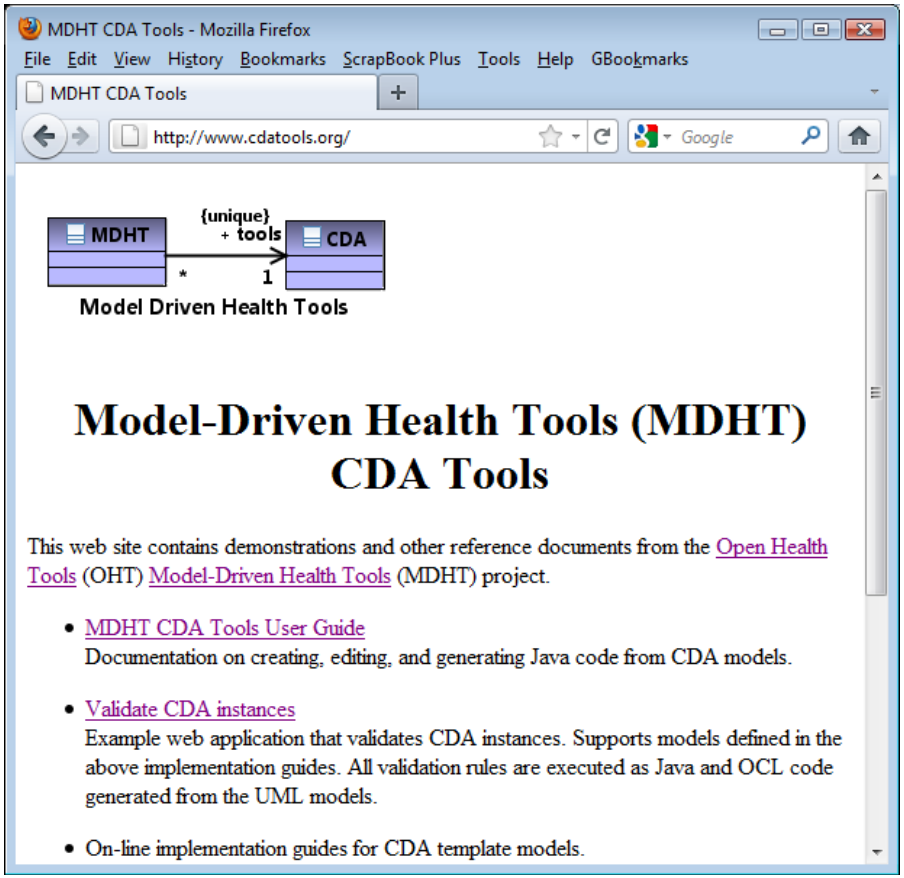
greenCDA instance

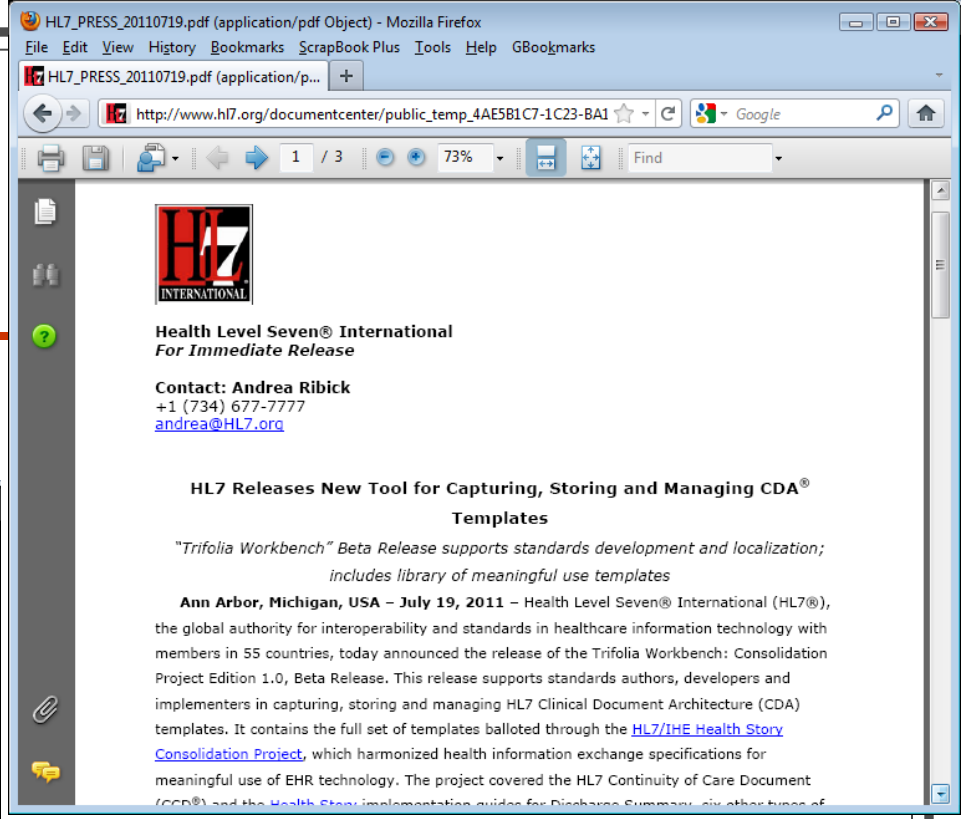
```
<result>
  <resultID>
  <resultDateTime>
  <resultType>
  <resultStatus>
  <resultValue>
  <resultInter
  <resultRefer
</result>
```

Conformant CDA instance

```
<!-- These examples assume the default namespace is 'urn:hl7-org:v3' -->
<observation classCode='OBS' moodCode='EVN'>
     <templateId root='2.16.840.1.113883.10.20.1.31'/>
     <templateId root='2.16.840.1.113883.3.88.11.83.15'/>
     <templateId root='1.3.6.1.4.1.19376.1.5.3.1.4.13'/>
     <code code='...' displayName='...'  codeSystem='2.16.840.1.113883.6.1'
codeSystemName='LOINC'/>
     <effectiveTime low value='...'/>
     <statusCode value='N'/>
     <value xsi:type="PQ" value="100" unit="g/dl"/>
   <interpretationCode code="N" codeSystem="2.16.840.1.113883.5.83"/>
     <referenceRange>
          <observationRange>
               <text>M 13-18 g/dl; F 12-16 g/dl</text>
          </observationRange>
     </referenceRange>
</observation>
```

CDA template tools





Thank you!