The Office of the National Coordinator for Health Information Technology

Implementing Consolidated-Clinical Document Architecture (C-CDA)

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Learning Objectives

This course is intended to provide learners with practical use cases for implementing clinical documents that successfully achieve MU2 Objectives (using the *Consolidated-CDA Implementation Guide, July 2012)*.

After completing this course, you will be able to:

- Describe Meaningful Use Stage 2 Standards and Certification Criteria (MU2), its impacts, and an overview of how conformance to the rule can be achieved
- Describe briefly how CDA and the C-CDA IG are used to achieve applicable MU2 objectives
- Demonstrate the implementation of various clinical documents that conform to both MU2 & C-CDA data requirements:
  - Use Case #1: Transition of Care Objective (Primary Care Provider)
  - Use Case #2: View/Download/Transmit Objective (Orthopedist)

Describe Meaningful Use Stage 2 Standards and Certification Criteria (MU2), its impacts, and an overview of how conformance to the rule can be achieved

CMS & ONC Rules: "Meaningful Use"

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Meaningful Use Stage 2 (MU2)

ONC: Standards, Implementation Specifications & Certification Criteria (SI&CC) 2014 Edition

- Specifies the data and standards requirements for certified electronic health record (EHR) technology (CEHRT) needed to achieve "meaningful use"

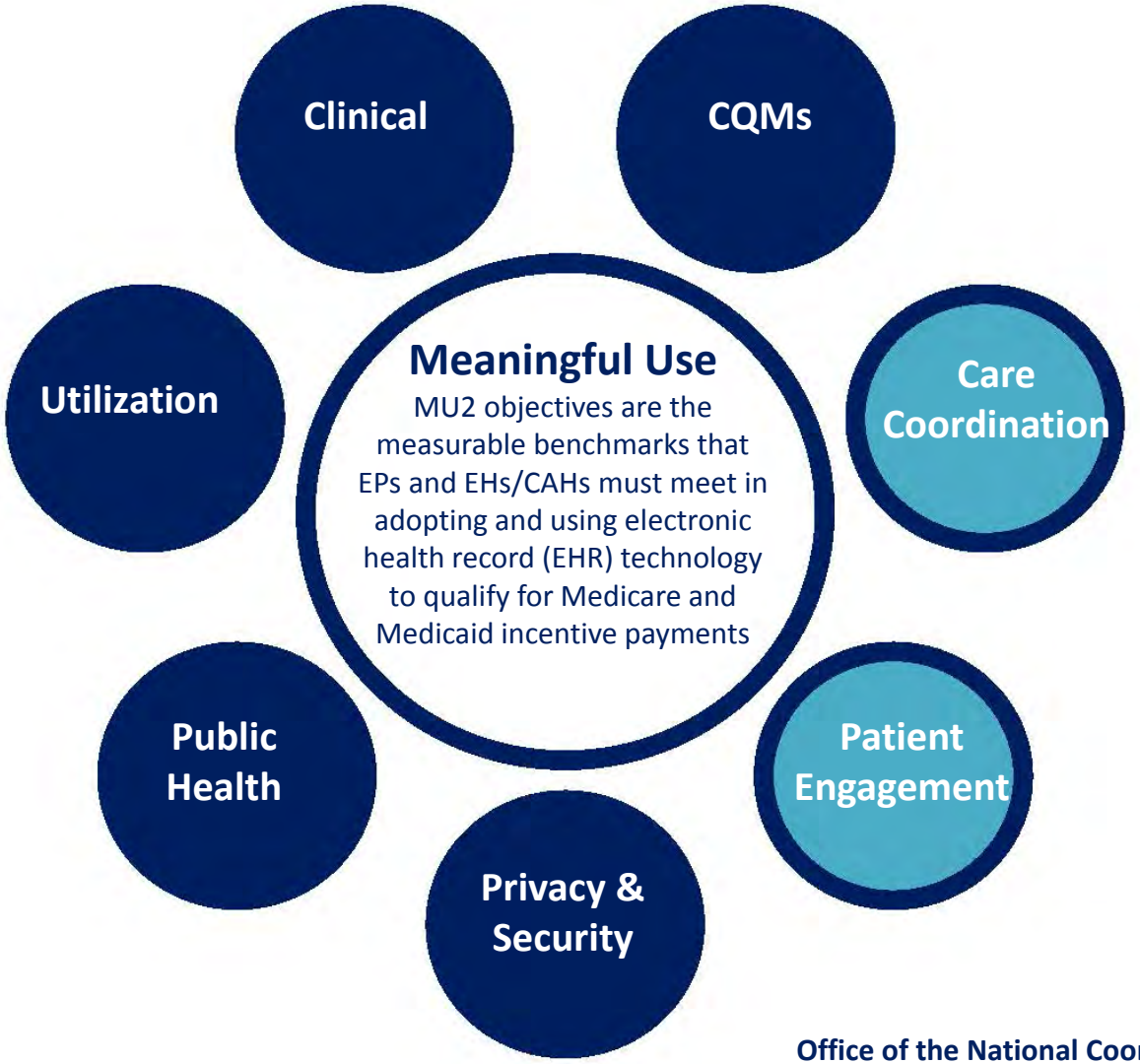
Reference: *ONC Health Information Technology : Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology, 2014 Edition; Revisions to the Permanent Certification Program for Health Information Technology 170.314(b)(*

CMS: Medicare and Medicaid EHR Incentive Programs Stage 2

- outlines incentive payments (+$$$) for early adoption
- outlines reimbursement penalties (-$$$) for late adoption/non-compliance

Reference: *CMS Medicare and Medicaid Programs; Electronic Health Record Incentive Program – Stage 2 Final Rule 495.6*

Meaningful Use Stage 2 Rule (MU2) Overview



MU2 sets measurable objectives (170.314) for Eligible Professionals (EPs) or Eligible Hospitals (EHs) / Critical Access Hospitals (CAHs) to obtain CMS incentives (CMS 495.6)

- MU2 objectives are categorized to reflect Health Outcomes Policy Priorities
- 2 of 7 cert. categories **REQUIRE USE OF CONSOLIDATED-CDA (C-CDA)**

MU2 2014 Certification Categories & Objectives Overview

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Cert. Category	Objective	Description	Req. Summary Type
Care Coordination *MU2 170.314(b)*	**Transition of Care** *170.314(b)(1)&(2)*	when transitioning a patient to another care setting, the EP or EH/CAH should provide a summary care record	**Transition of Care/Referral Summary**
	Data Portability *170.314(b)(7)*	when a patient transitions from provider or setting to another, a medication reconciliation should be preformed	**Export Summary**
Patient Engagement *MU2 170.314(e)*	**View/Download/Transmit** *170.314(e)(1)*	patients must be able to view & download their own medical info & also be able to transmit that info to a 3rd party	**Ambulatory or Inpatient Summary**
	Clinical Summary *170.314(e)(2)*	provide clinical summaries for patients for each office visit	**Clinical Summary**

MU2

MU2 Data Requirements Example: Transition of Care Objective

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Care Coordination
MU2 170.314(b)

Transition of Care
170.314(b)(1)&(2)

when transitioning a patient to another care setting, the EP or EH/CAH should provide a summary care record

Transition of Care/Referral Summary

Common MU2 Data Set

- Patient name
- Sex
- Date of birth
- Race **
- Ethnicity **
- Preferred language
- Care team member(s)
- Allergies **
- Medications **
- Care plan
- Problems **
- Laboratory test(s) **
- Laboratory value(s)/result(s) **
- Procedures **
- Smoking status **
- Vital signs

Objective-Specific Data Requirements

- Provider Name & Office Contact Information (Ambulatory Only)
- Reason for Referral (Ambulatory Only)
- Encounter Diagnoses **
- Cognitive Status
- Functional Status
- Discharge Instructions (Inpatient Only)
- Immunizations **

NOTE: Data requirements marked with a double asterisk (**) also have a defined vocabulary which must be used

MU2 Vocabulary Example: Smoking Status

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Vocabularies are used to assign a **unique value to a clinical concept**

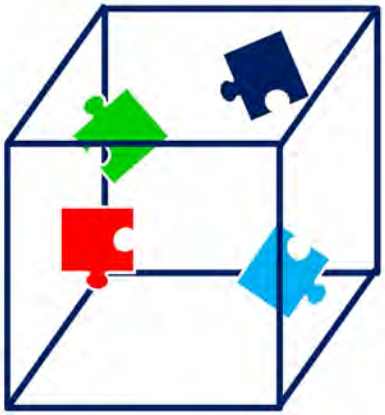
SNOMED-CT values acceptable for "Smoking Status"	
Description	**SNOMED-CT Code**
Current every day smoker	449868002
Current some day smoker	428041000124106
Former smoker	8517006
Never smoker	266919005
Smoker, current status unknown	77176002
Unknown if ever smoked	266927001
Heavy tobacco smoker	428071000124103
Light tobacco smoker	428061000124105

By standardizing a distinct set of codes for a clinical concept, MU2's use of vocabularies promotes the use of common definitions when sharing information across diverse clinical environments.

Describe briefly how the CDA and C-CDA IG are used to achieve applicable MU2 objectives

Clinical Document Architecture (CDA) & Consolidated-CDA (C-CDA) Overview

Clinical Document Architecture (CDA) is the base standard for building electronic clinical documents



Templates provide the "building blocks" for clinical documents

To help simplify implementations, commonly used templates were harmonized from existing CDA implementation guides and "consolidated" into a single implementation guide – the C-CDA Implementation Guide (IG) (07/2012)

MU2 Requirements Achieved via C-CDA

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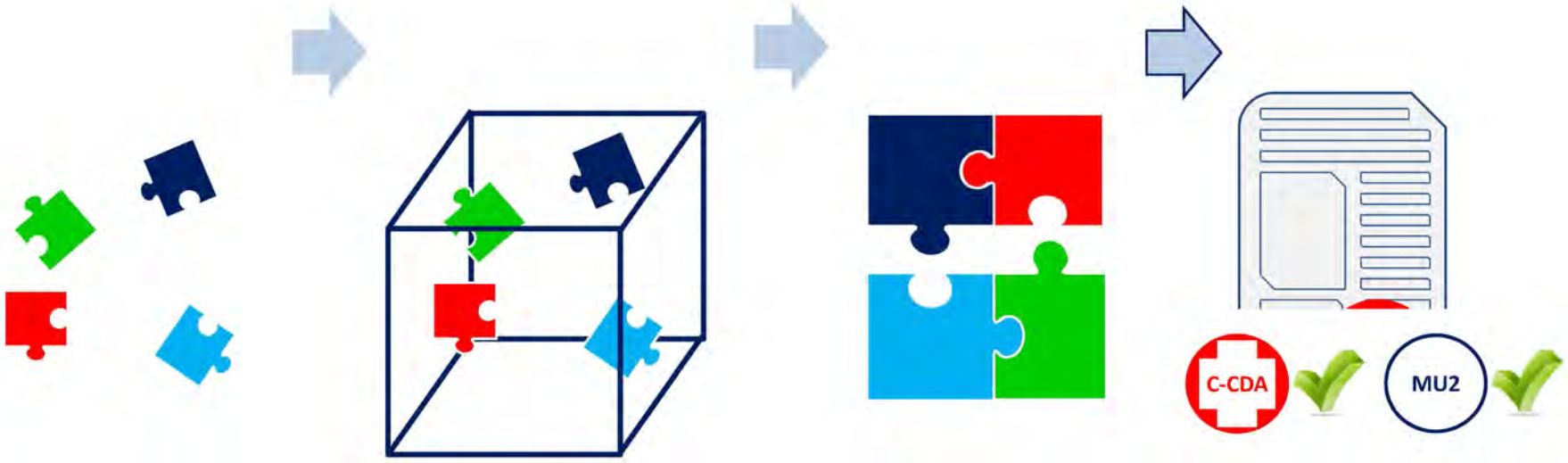
CDA standardizes the expression of clinical concepts which can be used/re-used

Templates are used to specify the 'packaging' for those clinical concepts

Sets of CDA templates are arranged to create a purpose-specific clinical document

MU2 adds data requirements, which can be layered on top of C-CDA document templates by the EP or EH/CAH to achieve MU2 compliance



NOTE: No single C-CDA document template contains all of the data requirements to sufficiently meet MU2 compliance – C-CDA & MU2 guidelines must be implemented together.

C-CDA IG as a Single Source for 9 Key Document Templates

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HL7 Implementation Guide for CDA® Release 2: IHE Health Story Consolidation, Release 1.1 - US Realm

Document Templates: 9

- Continuity of Care Document (CCD)
- Consultation Note
- Diagnostic Imaging Report (DIR)
- Discharge Summary
- History and Physical (H&P)
- Operative Note
- Procedure Note
- Progress Note
- Unstructured Document

Section Templates: 60

Entry Templates: 82

Document Template	Section Template(s)		
Continuity 0f Care Document (CCD)	Allergies Medications Problem List Procedures Results Advance Directives Encounters	Family History Functional Status Immunizations Medical Equipment Payers Plan of Care	Section templates in YELLOW demonstrate CDA's interoperability and reusability.
History & Physical (H&P)	Allergies Medications Problem List Procedures Results Family History Immunizations Assessments	Assessment and Plan Plan of Care Social History Vital Signs History of Present Illness History of Present Illness	Chief Complaint Reason for Visit Review of Systems Physical Exam General Status

C-CDA IG (07/2012) Contents

Chapter 1: Introduction

Chapter 2: General Header Template – defines a template for the header constraints that apply across all of the consolidated document types

Chapter 3: Document-Level Templates – defines each of the nine document types; defines header constraints specific to each and the section-level templates (required and optional) for each

Chapter 4: Section-Level Templates – defines the section templates referenced within the document types described

Chapter 5: Entry-Level Templates – defines entry-level templates, called clinical statements (machine readable data)

Appendices – include non-normative content to support implementers; includes a *Change Appendix summary* of previous and updated templates

Click this link to access more information about the

HL7 Implementation Guide for CDA® Release 2: IHE Health Story Consolidation, Release 1.1 - US Realm

<http://www.hl7.org/implement/standards/product_brief.cfm?product_id=258>

C-CDA IG Template Definitions

Allergies Section with Coded Entries Optional
[section: templateId 2.16.840.1.113883.10.20.22.2.6 (open)]

Each template is identified by a unique ID

The following constraints apply to an Allergies section in which entries are not required.

1. **SHALL** contain exactly one [1..1] **templateId** (CONF:7800) such that it
   a. **SHALL** contain exactly one [1..1] **@root="2.16.840.1.113883.10.20.22.2.6"** (CONF:10378).
2. **SHALL** contain exactly one [1..1] **code** (CONF:15345).
   a. This code **SHALL** contain exactly one [1..1] **@code="48765-2"** Allergies, adverse reactions, alerts (CodeSystem: LOINC 2.16.840.1.113883.6.1) (CONF:15346).
3. **SHALL** contain exactly one [1..1] **title** (CONF:7802).
4. **SHALL** contain exactly one [1..1] **text** (CONF:7803).
5. **SHOULD** contain zero or more [0..*] **entry** (CONF:7804) such that it
   a. **SHALL** contain exactly one [1..1] Allergy Problem Act (2.16.840.1.113883.10.20.22.4.30) (CONF:7805)

Referenced templates are hyperlinked in the C-CDA IG for easier navigation

Template data requirements are listed as "SHALL" (required), "MAY" (optional – not shown here) or "SHOULD" (recommended) statements in the C-CDA IG.

C-CDA Template Types & Uses

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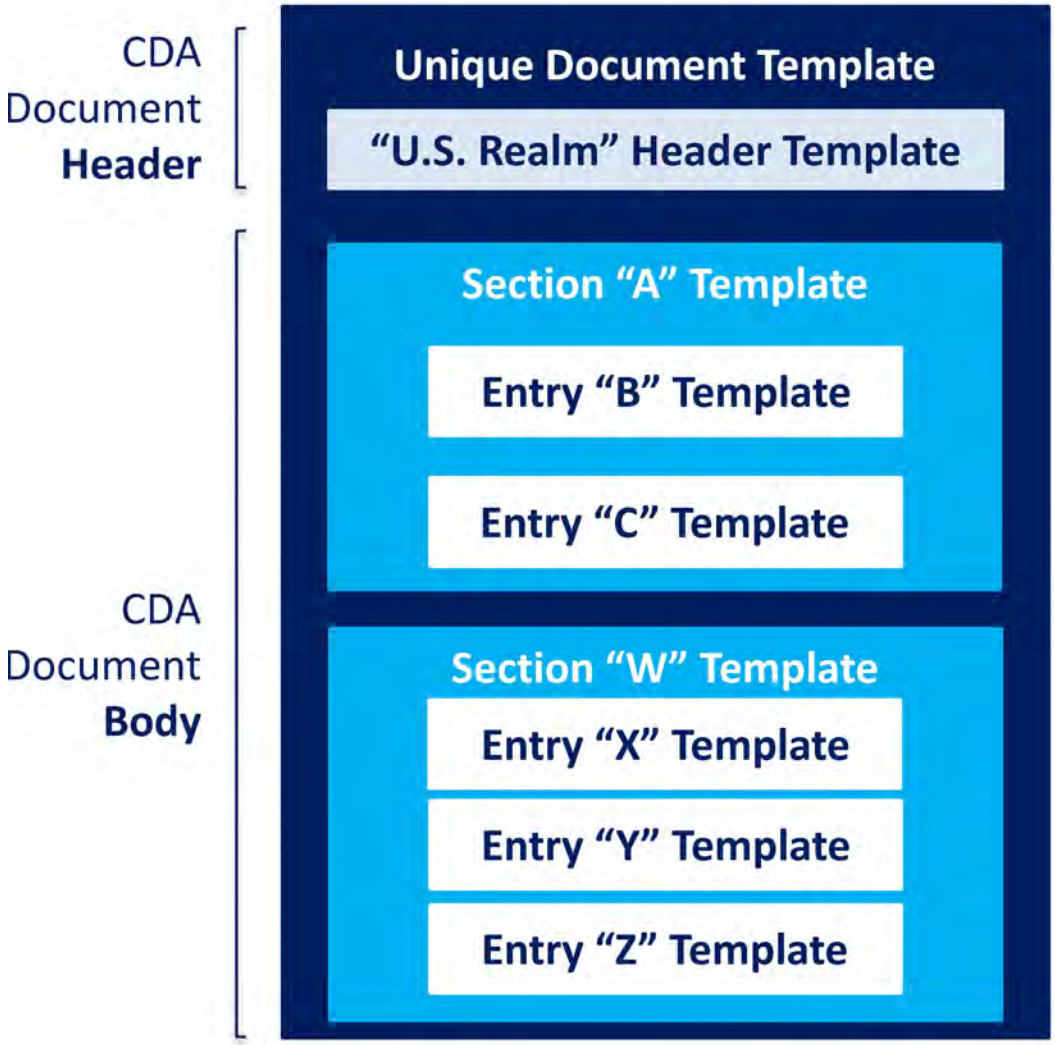
CDA documents are specified by

- A "Document" template, for example:
  - CCD
  - Op Note
  - Discharge Summary, etc.
- "Section" template(s), for example:
  - Allergies
  - Medications
  - Problems, etc.
- "Entry" template(s), for example:
  - Functional Status Result Observation
  - Plan of Care Activity Observation
  - Smoking Status, etc.



Demonstrate the implementation of various clinical documents that meet both MU2 & C-CDA data requirements

How to Implement a MU2 & C-CDA-compliant Document Overview

1. **Choose the C-CDA Document Template that best fits your clinical workflow.**

2. **Include C-CDA components defined by that Document Template**
   a) Required components
   b) Optional components appropriate for the clinical situation

3. **Add C-CDA components required to meet MU2**
   a) Review which data requirements have already been met
   b) Add C-CDA components aligning to data requirements that have not yet been met

Use Case #1:
Transition of Care Objective
(Primary Care Provider)

Use Case #1 Scenario Overview

Scenario: A patient is experiencing severe knee pain and is referred to a Orthopedist by their Primary Care Provider (PCP). The PCP needs to generate a summary document to provide to the Orthopedist.

This use case exhibits the "Transition of Care" MU2 objective in action:

> **§ 170.314 (b)(2) Transitions of care – create and transmit transition of care/referral summaries**

No single C-CDA Document Template includes all of the elements needed to satisfy MU2 data requirements.

NOTE: The Document Templates within C-CDA are considered "open" templates, which means that, in addition to the required and optional Sections defined in the template, an implementer can add to the Document whatever C-CDA Sections are necessary for his purposes.

Step 1:
Pick a Document Template

Document Title	Description
Consultation Note	According to CMS evaluation and management guidelines, a Consultation Note must be generated as a result of a physician or non-physician practitioner's (NPP) request for an opinion or advice from another physician or NPP
Continuity of Care Document (CCD)	The CCD is a core data set of the most relevant administrative, demographic, and clinical information facts about a patient's healthcare, covering one or more healthcare encounters.
Discharge Summary	The Discharge Summary is a document that is a synopsis of a patient's admission to a hospital; it provides pertinent information for the continuation of care following discharge.

The C-CDA IG has 9 documents, but the three likely candidates for this situation are displayed above.

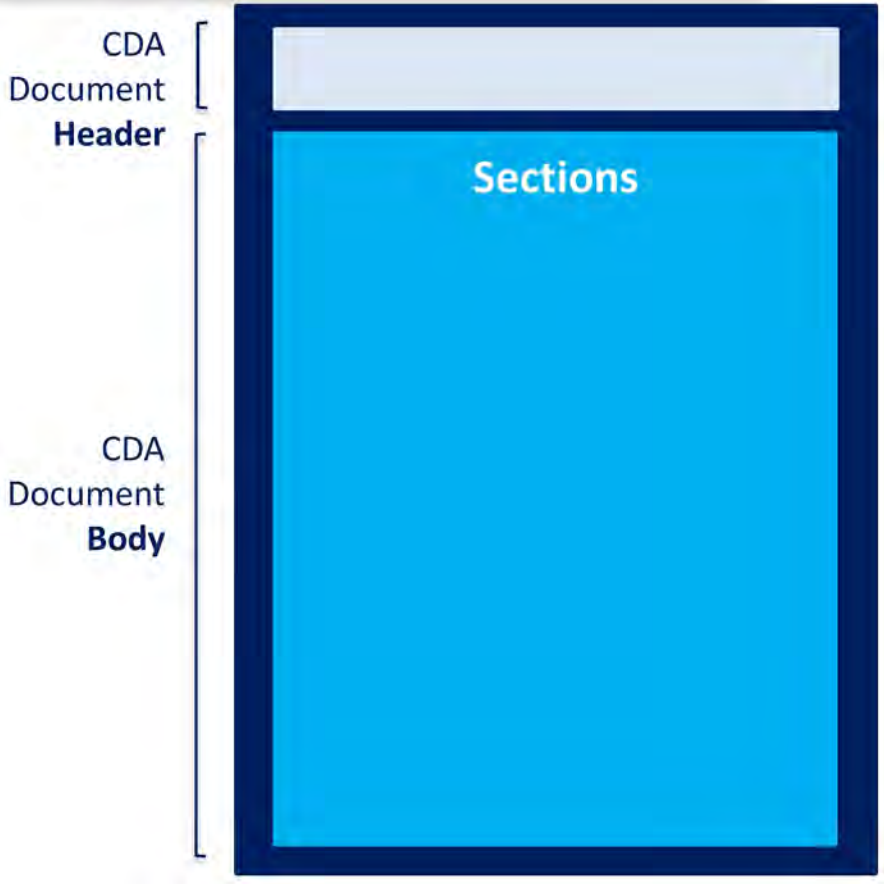
- Each C-CDA Document Template was designed to satisfy a specific information exchange scenario.
- Each document template defines the CDA structures to be used to document the applicable clinical information.

Best Fit Document to Scenario: CCD

Scenario: A patient is experiencing severe knee pain and is referred to a Orthopedist by their Primary Care Provider (PCP). The PCP needs to generate a summary document to provide to the Orthopedist.

In this scenario, treatment has been provided by a PCP:

- Given that this treatment is in an ambulatory setting, a **Discharge Summary** would not be appropriate.
- Since the PCP HAS NOT been providing care at the request of another provider, a **Consultation Note** would not be appropriate.
- Given the **clinical scenario** to be described, a **Continuity of Care Document (CCD)** is the most appropriate C-CDA Document Template to use.



Step 2a: Include C-CDA components defined by the Document Template (REQUIRED)

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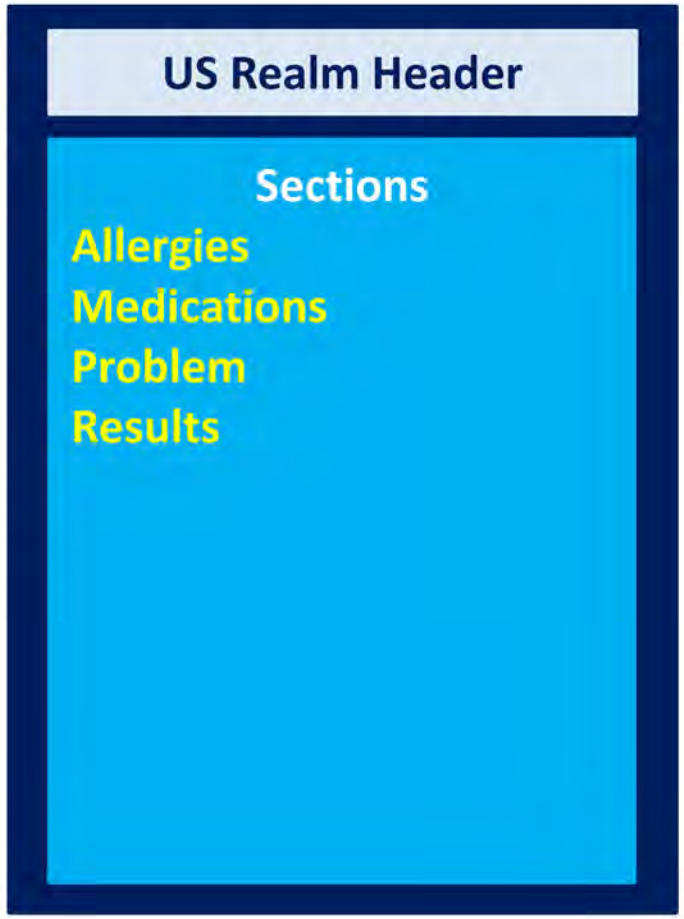
Start with the Sections required by the CCD Template in the C-CDA IG:

- US Realm Header → CDA Document **Header**
- Allergies
- Medications
- Problem
- Results

→ CDA Document **Body**



NOTE: Sections are required for a Document Template when the information contained in those sections will *ALWAYS BE* clinically relevant to the clinical scenario the document template is intended to describe

Step 2b: Include C-CDA components defined by the Document Template (OPTIONAL)

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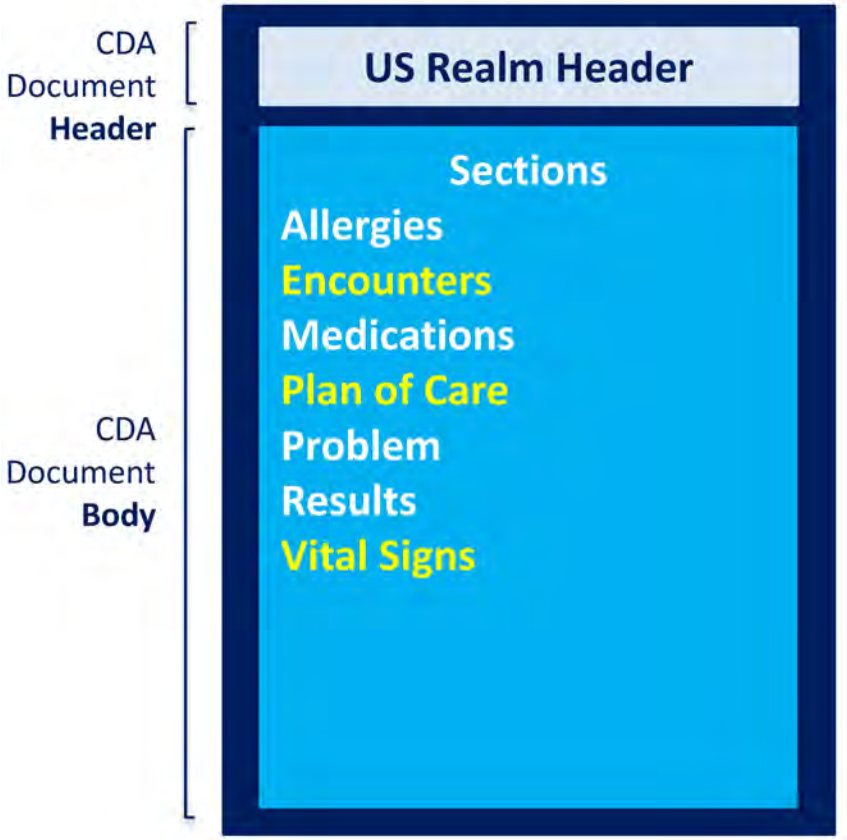
Continue by adding the *clinically relevant* Sections that are optional in the CCD Template in the C-CDA IG:

- Encounters
- Plan of Care
- Vital Signs

- ~~Advance Directives~~
- ~~Family History~~
- ~~Functional Status~~
- ~~Immunizations~~
- ~~Medical Equipment~~
- ~~Payers~~
- ~~Procedures~~
- ~~Social History~~



NOTE: Sections are optional for a Document Template when the information contained in those sections will *SOMETIMES BE* clinically relevant to the clinical scenario the document template is intended to describe

Step 3:
Add Data Required by MU2

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Cert. Category	Objective	Description	Summary Type
Care Coordination *MU2 170.314(b)*	Transition of Care *MU2 170.314(b)(1)&(2)*	when transitioning a patient to another care setting, the EP or EH/CAH should provide a summary care record	Transition of Care/Referral Summary

Common MU2 Data Set

- Allergies **
- Care plan
- Care team member(s)
- Date of birth
- Ethnicity **
- Laboratory test(s) **
- Laboratory value(s)/result(s) **
- Medications **
- Patient name
- Preferred language
- Problem **
- Procedures **
- Race **
- Sex
- Smoking status **
- Vital signs

Objective-Specific Data Requirements

- Provider Name & Office Contact Information (Ambulatory Only)
- Reason for Referral (Ambulatory Only)
- Encounter Diagnoses **
- Cognitive Status
- Functional Status
- Discharge Instructions (Inpatient Only)
- Immunizations **

NOTE: Data requirements marked with a double asterisk (**) also have a defined vocabulary which must be used

Step 3a: Review data requirements that have already been met

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Some of the data requirements have already been met through use of the C-CDA Document Template; some may also not apply to the care setting

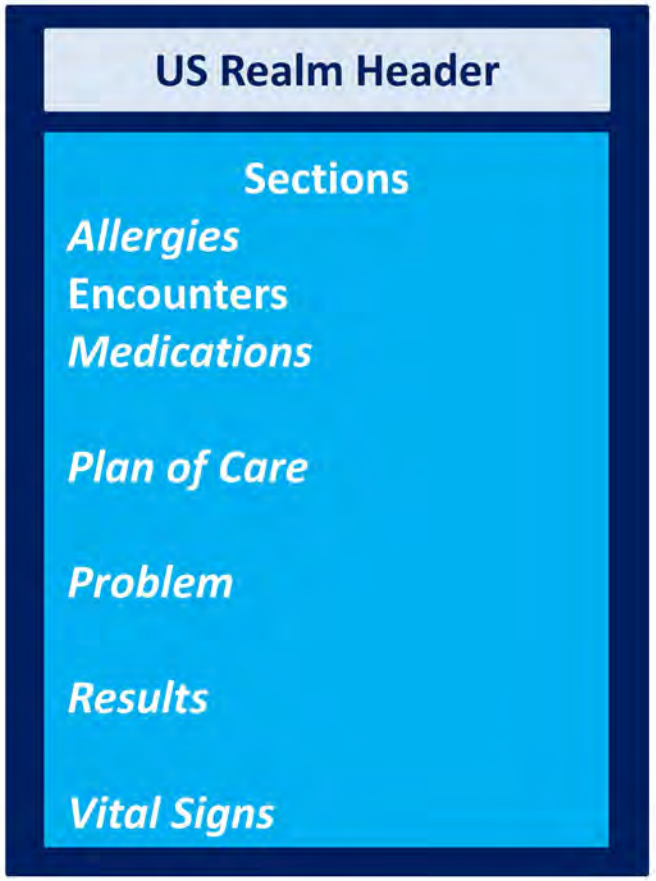
CDA Document **Header**

- Care team member(s)
- Date of birth
- Ethnicity **
- Patient name
- Preferred language
- Provider Name & Office Contact Information (Ambulatory Only)
- Race **
- Sex

- Allergies **

CDA Document **Body**

- Medications **
- Care Plan
- Reason for Referral (Ambulatory Only)
- Problems **
- Encounter Diagnoses **
- Laboratory test(s) **
- Laboratory value(s)/result(s) **
- Vital Signs



Step 3b: Add C-CDA components for remaining data requirements

C-CDA Sections are added to the CCD to address the outstanding MU2 data requirements.

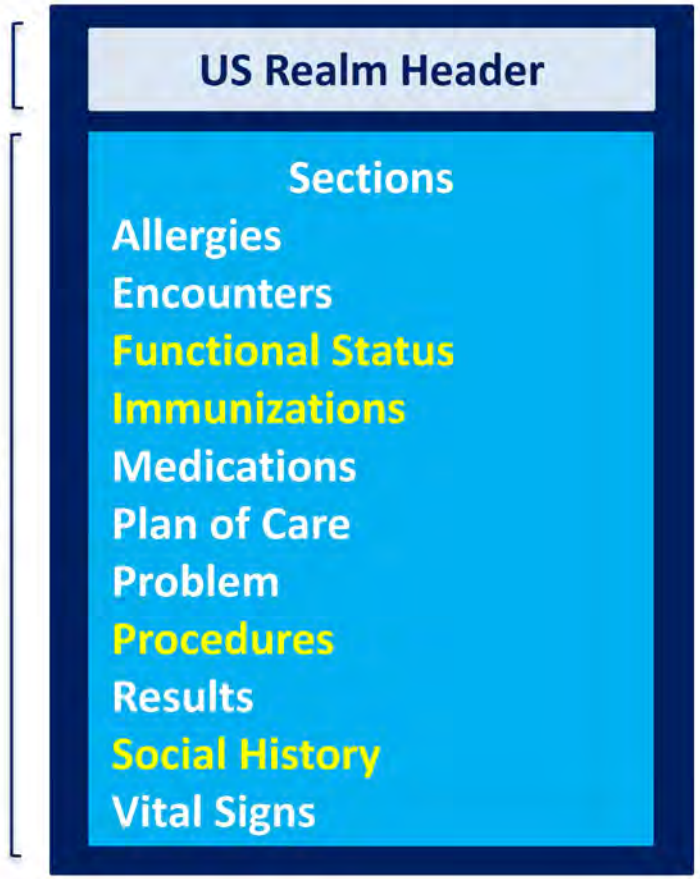
CDA Document **Header**

- ~~Hospital Discharge Instructions (Inpatient Only)~~

- Cognitive Status
- Functional Status
- Immunizations **

CDA Document **Body**

- Procedures **
- Smoking Status **



Use Case #1 Scenario Summary

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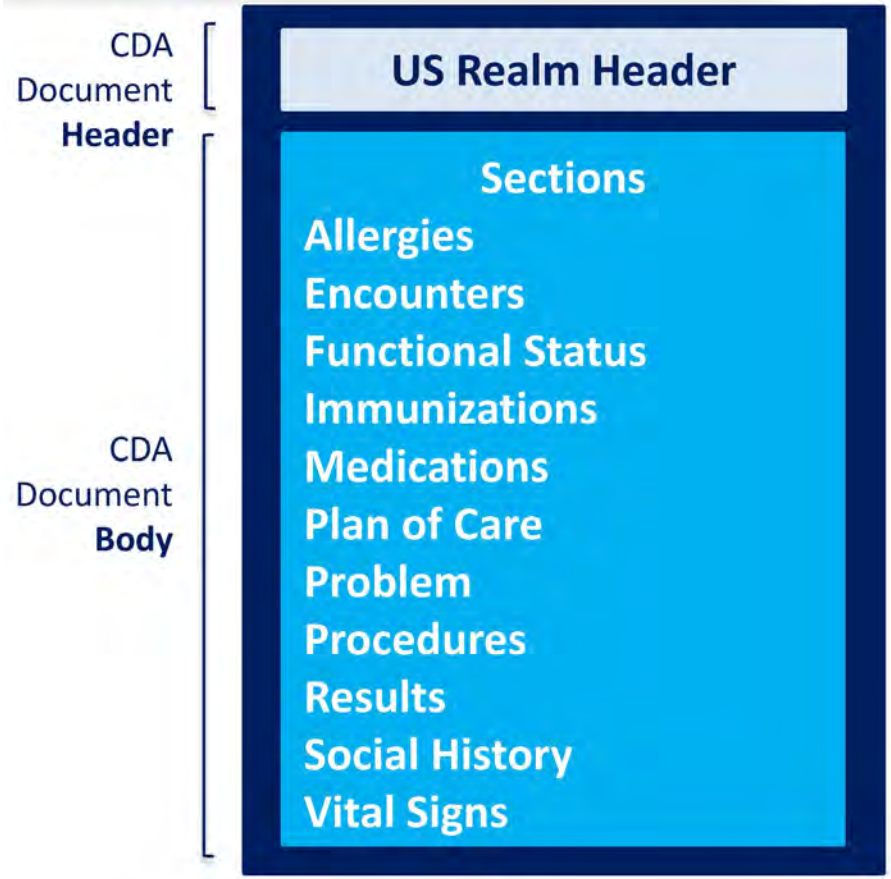
Scenario: A patient is experiencing severe knee pain and is referred to a Orthopedist by their Primary Care Provider (PCP). The PCP needs to generate a summary document to provide to the Orthopedist.

- The Continuity of Care Document (CCD) Document Template was the **best fit for the clinical workflow** in this scenario
- Many of the Transition of Care Objective data requirements were met using the C-CDA document template.
- Additional sections were added as necessary to meet outstanding MU2 data requirements.



Rendered CCD Example

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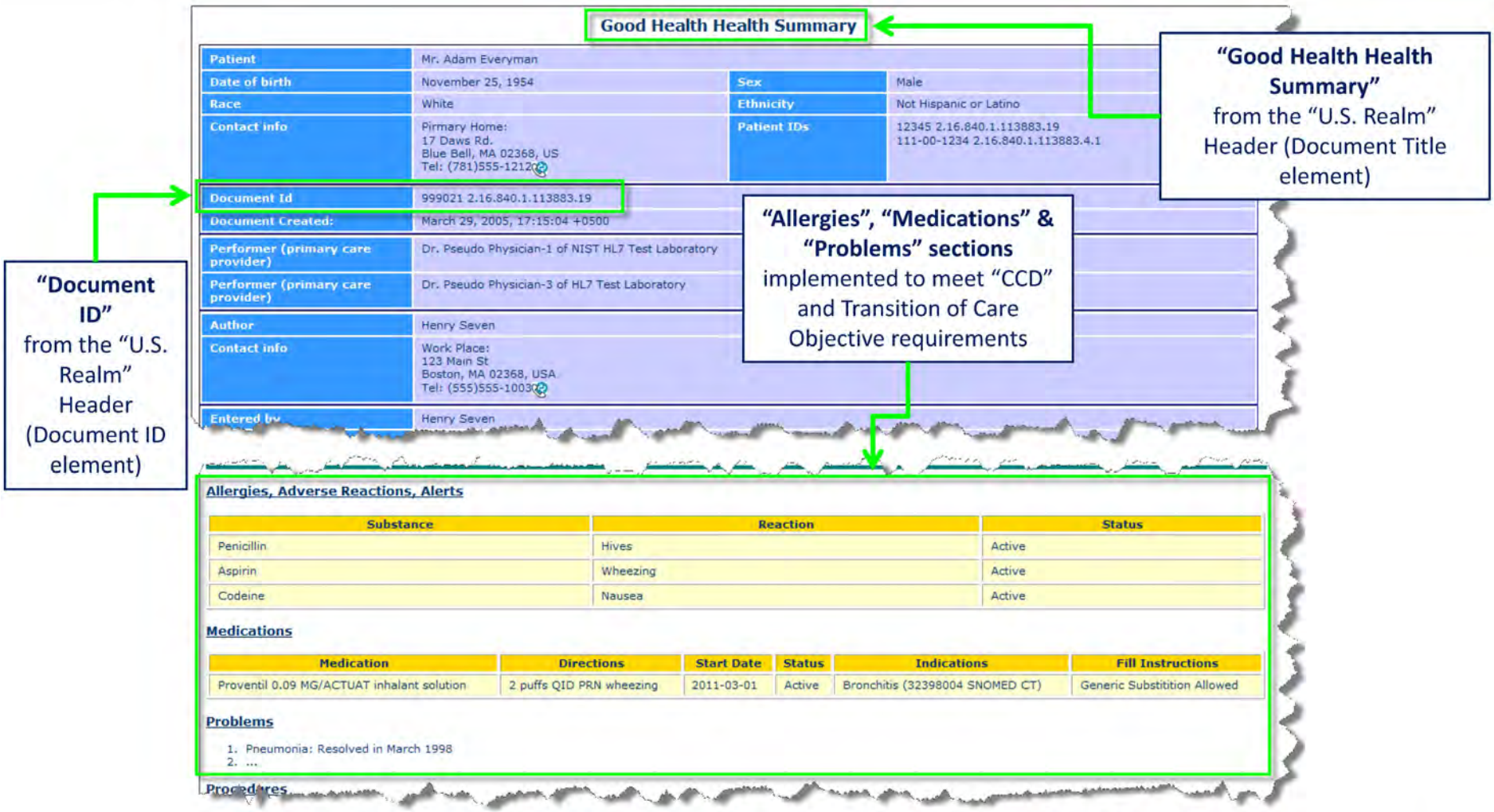

"Good Health Health Summary" – Sample CCD. "CCD.sample.xml" file. C-CDA R2 July 2012 via HL7.

Use Case #2: View/Download/Transmit Objective (Orthopedist)

Use Case #2 Scenario Overview

Scenario: The Orthopedist, after consulting with the patient, schedules surgery to be performed and provides an ambulatory summary to the patient including the care plan to be followed leading up to the surgery.

This use case exhibits the "View/Download/Transmit" MU2 objective in action:

§ 170.314 (e)(1)(i) Electronically transmit the ambulatory summary or inpatient summary

No single C-CDA Document Template covers all of the MU2 data requirements to successfully achieve this objective using only the template's baseline required components.

NOTE: The Document Templates within C-CDA are considered "open" templates, which means that, in addition to the required and optional Sections defined in the template, an implementer can add to the Document whatever C-CDA Sections are necessary for his purposes.

Step 1:
Pick a Document Template

Document Title	Description
Consultation Note	According to CMS evaluation and management guidelines, a Consultation Note must be generated as a result of a physician or non-physician practitioner's (NPP) request for an opinion or advice from another physician or NPP
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The C-CDA IG has 9 documents, but the three likely candidates for this situation are displayed above.

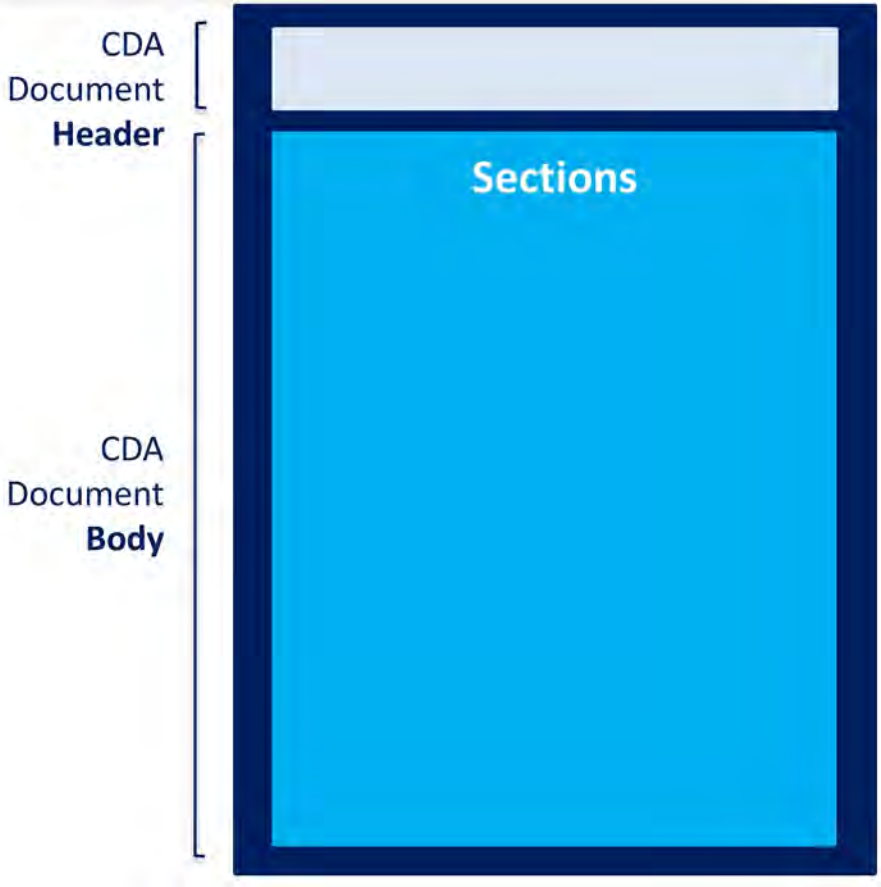
- Each C-CDA Document Template was designed to satisfy a specific information exchange scenario.
- Each document template defines the CDA structures to be used to document the applicable clinical information.

Best Fit Document to Scenario: Consultation Note

Scenario: The Orthopedist, after the consultation with the patient, schedules surgery to be performed and provides an ambulatory summary to the patient including the care plan to be followed leading up to the surgery.

In this scenario, treatment has been provided by a PCP:

- Given that this treatment is in an ambulatory setting, a **Discharge Summary** would not be appropriate.
- The **Continuity of Care Document (CCD)** is intended to summarize a full episode of care, and as such may be too cumbersome for this scenario.
- Since the Orthopedist is providing care at the request of the PCP, a **Consultation Note** is the best fit for the clinical workflow

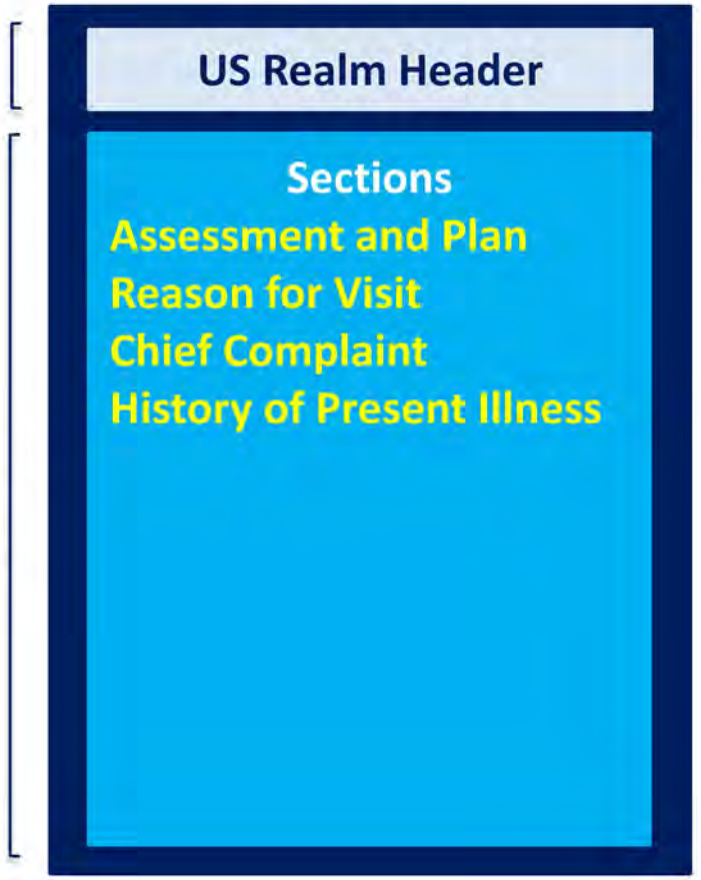


Step 2a: Include C-CDA components defined by the Document Template (REQUIRED)

Start with the Sections required by the CCD Template in the C-CDA IG:

- US Realm Header → CDA Document **Header**
- Assessment and Plan
- Reason for Visit
- Chief Complaint
- History of Present Illness

→ CDA Document **Body**



NOTE: Sections are required for a Document Template when the information contained in those sections will *ALWAYS BE* clinically relevant to the clinical scenario the document template is intended to describe

Step 2b: Include C-CDA components defined by the Document Template (OPTIONAL)

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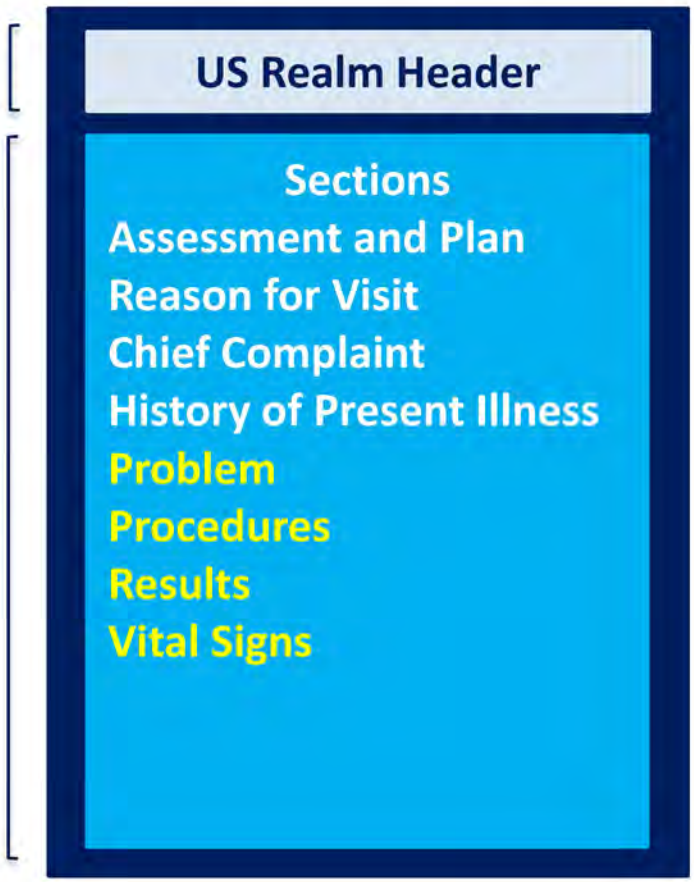
Continue by adding the *clinically relevant* Sections that are optional in the Consultation Note Template in the C-CDA IG:

CDA Document **Header**

- ~~Allergies~~
- ~~Family History~~
- ~~General Status~~
- ~~History of Past Illnesses~~
- ~~Immunizations~~
- ~~Medications~~
- ~~Review of Systems~~
- ~~Social History~~
- ~~Physical Exam~~

CDA Document **Body**

- Problem
- Procedures
- Results
- Vital Signs



NOTE: Sections are optional for a Document Template when the information contained in those sections will *SOMETIMES BE* clinically relevant to the clinical scenario the document template is intended to describe

Step 3:
Add Data Required by MU2

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Cert. Category	Objective	Description	Summary Type
Patient Engagement *MU2 170.314(e)*	View/Download/Transmit *MU2 170.314(e)(1)*	patients must be able to view & download their own medical info & also be able to transmit that info to a 3rd party	Ambulatory or Inpatient Summary

Common MU2 Data Set

- Allergies **
- Care plan
- Care team member(s)
- Date of birth
- Ethnicity **
- Laboratory test(s) **
- Laboratory value(s)/result(s) **
- Medications **
- Patient name
- Preferred language
- Problems **
- Procedures **
- Race **
- Sex
- Smoking status **
- Vital signs

Objective-Specific Data Requirements

- Admission & Discharge Dates (Inpatient Only)
- Admission & Discharge Locations (Inpatient Only)
- Discharge Instructions (Inpatient Only)
- Provider Name & Office Contact Information (Ambulatory Only)
- Reason(s) for Hospitalization (Inpatient Only)

NOTE: Data requirements marked with a double asterisk (**) also have a defined vocabulary which must be used

Step 3a: Review data requirements that have already been met

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Some of the data requirements have already been met through use of the C-CDA Document Template; some may also not apply to the care setting

- Care team member(s)
- Date of birth
- Ethnicity **
- Patient name
- Preferred language
- Provider Name & Office Contact Information (Ambulatory Only)
- Race **
- Sex

→ CDA Document **Header**

- Care Plan

→

- Problems **

→

- Procedures **

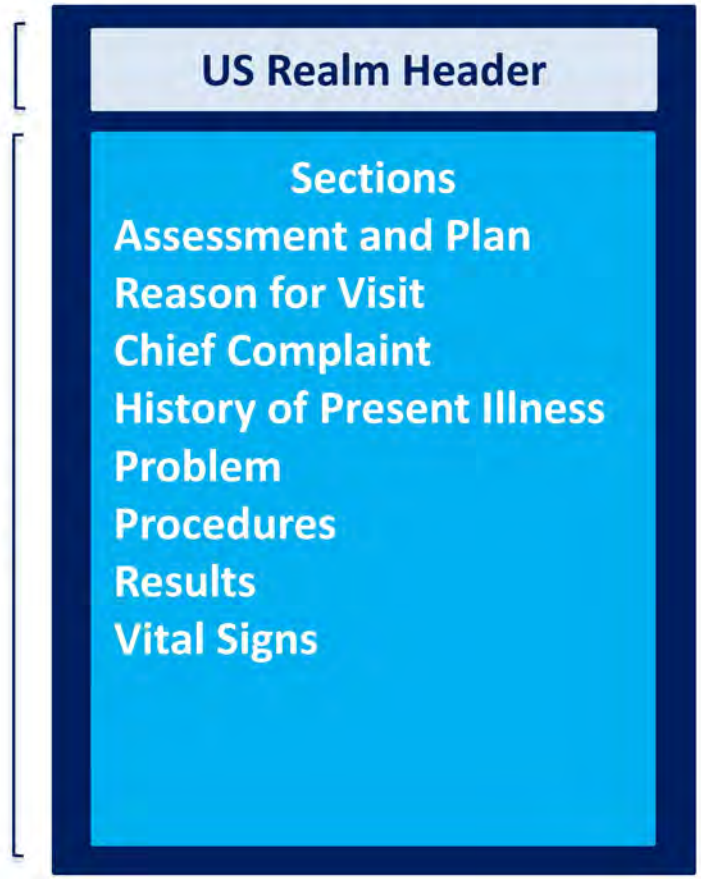
→

- Laboratory test(s) **
- Laboratory value(s)/result(s) **

→

- Vital Signs

→ CDA Document **Body**



Step 3b: Add C-CDA components for remaining data requirements

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C-CDA Sections are added to the Consultation Note to address the outstanding MU2 data requirements.

- ~~Admission & Discharge Dates (Inpatient Only)~~
- ~~Admission & Discharge Locations (Inpatient Only)~~
- ~~Discharge Instructions (Inpatient Only)~~
- ~~Reason(s) for Hospitalization (Inpatient Only)~~

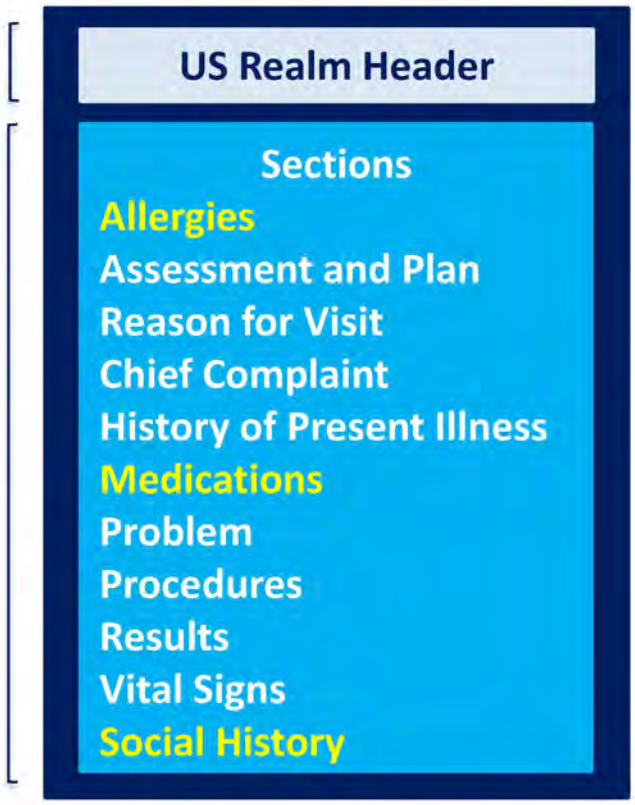
- Allergies **

CDA Document **Header**

- Medications **

CDA Document **Body**

- Smoking Status **



Use Case #2 Scenario Summary

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Scenario: The Orthopedist, after the consultation with the patient, schedules surgery to be performed and provides an ambulatory summary to the patient including the care plan to be followed leading up to the surgery.

- The Consultation Note Document Template was the **best fit for the clinical workflow** in this scenario
- Many of the View/Download/Transmit Objective data requirements were met using the C-CDA document template.
- Additional sections were added as necessary to meet outstanding MU2 data requirements.

CDA Document **Header**

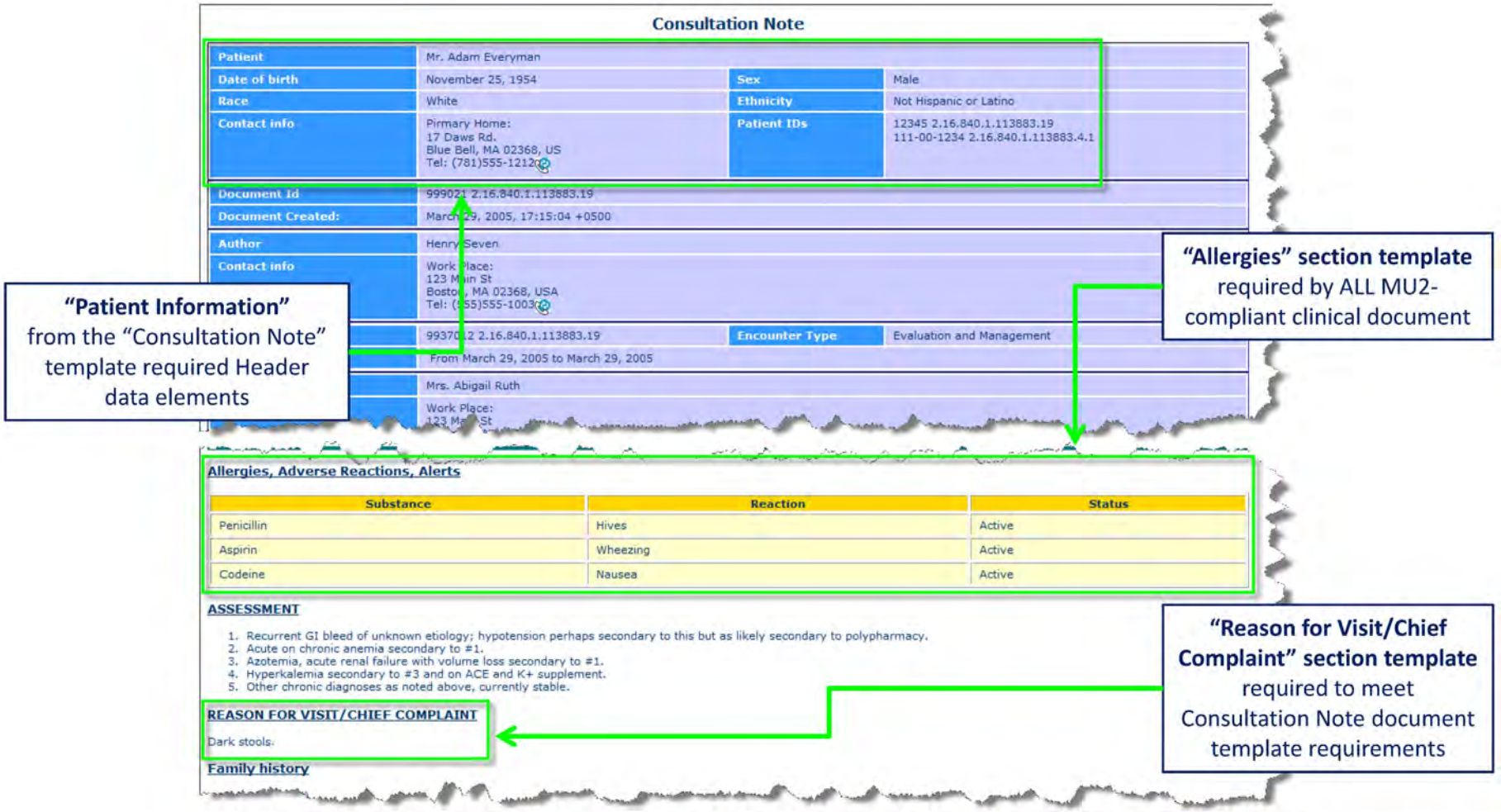
CDA Document **Body**

US Realm Header

Sections

- Allergies
- Assessment and Plan
- Reason for Visit
- Chief Complaint
- History of Present Illness
- Medications
- Problem
- Procedures
- Results
- Vital Signs
- Social History

Rendered Consultation Note Example



"Consultation Note" – Sample Consultation Note. "Consults.sample.xml" file. C-CDA R2 July 2012 via HL7.

Learn More about C-CDA

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www.HealthIT.gov

Join the Implementation Guidance SWG, Transitions of Care Initiative for weekly meetings on Monday from 5:00-6:00pm EDT

http://wiki.siframework.org/TOC+Implementation+Guidance+SWG

Access the S&I Framework Wiki for the latest version of the Companion Guide to Consolidated-CDA for Meaningful Use Stage 2

http://wiki.siframework.org/Companion+Guide+to+Consolidated+CDA+for+MU2

Q & A

Thank you for your participation

This concludes today's training concerning "Implementing CDA".

For more information about these and other related topics, visit the ONC website

http://www.healthit.gov