# NHSN Healthcare Associated Infection Reports Release 3 Normative Companion Guide
**July 22**

## Table of Contents

## Table of Figures

## Table of Tables

# 1 INTRODUCTION

## 1.1 Purpose

This companion guide titled "NHSN Healthcare Associated Infection Reports Release 3 Normative Companion Guide" (HAI R3N Companion Guide) provides implementer guidance for including confirmed or suspected COVID-19 information. The guidance supplements the specification established in the *HL7 CDA® Implementation Guide: Healthcare Associated Infection (HAI) Reports Release 3 Normative*[1] (HAI R3N Implementation Guide).

This guidance consists of one section-level and one entry-level template that can be optionally included in any of the following HAI reports:

- HAI Bloodstream Infection Report (BSI) (V3)
  [urn:hl7ii:2.16.840.1.113883.10.20.5.32:2018-04-01]

- HAI Surgical Site Infection Report (SSI) (V2) [urn:oid:2.16.840.1.113883.10.20.5.33.2]

- HAI Urinary Tract Infection Numerator Report (UTI)
  [urn:oid:2.16.840.1.113883.10.20.5.34]

- Ventilator Associated Event (VAE) Report
  [urn:hl7ii:2.16.840.1.113883.10.20.5.51:2017-04-01]

These templates are included here to deal with emergent requirements around reporting COVID-19 diagnoses. Future plans are to include these templates in the HL7 implementation guide to be balloted in January 2021 (expected publication Spring 2021).

It is important to note that all guidance provided in the HAI R3N Companion Guide is considered optional.

## 1.2 Prerequisite Information

This document is to be used in conjunction with the HAI R3N Implementation Guide.

## 1.3 Design Considerations

This HAI R3N Companion Guide adds supplemental templates, which are optional to published HAI R3N templates. The expectation is, that once the templates are included in the next version of the balloted HL7 implementation guide (ballot cycle January 2021) they will be changed from optional to required.

## 1.4 Technical Notes: Open and Closed Templates

HAI templates are, with one exception, closed templates. This means that the template constraints specify everything that is allowed. In open templates, by contrast, all of the features of the HL7 CDA® R2 base specification are allowed except as constrained by the templates.

The one open template in HAI reports is `structuredBody`; it may contain sections not specified in the HAI R3N Implementation Guide. The section contained in this Companion Guide is such a section (i.e., an open template).

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[1] http://www.hl7.org/implement/standards/product_brief.cfm?product_id=426

## *1.5  Change Notification Process*

CDC maintains an e-mail list of contacts at organizations interested in or responsible for implementations of the HAI R3N standard for HAI reporting to NHSN. To be added to the list, send a request with your contact information to nhsncda@cdc.gov. CDC uses the list for e-mail notifications of changes, including new data requirements. Changes may apply to this Companion Guide and to other documents such as business rules that are needed to implement and support HAI reporting to NHSN. NHSN Clinical Document Architecture (CDA) related information may be found at https://www.cdc.gov/nhsn/cdaportal/index.html.

## *1.6  Contact Information*

All questions should be addressed to nhsncda@cdc.gov.

# 2   SECTION-LEVEL TEMPLATES

## 2.1  COVID-19 Section

```
[section: identifier urn:hl7ii:2.16.840.1.113883.10.20.5.5.80:2020-08-01
(closed)]
```

*Table 1: COVID-19 Section Contexts*

| Contained By: | Contains: |
|---|---|
| | Confirmed or Suspected COVID-19 (required) |

This section template contains information about whether or not the patient had COVID-19.

This section can optionally be contained in any of the following HAI reports:

- HAI Bloodstream Infection Report (BSI) (V3)
  [urn:hl7ii:2.16.840.1.113883.10.20.5.32:2018-04-01]

- HAI Surgical Site Infection Report (SSI) (V2) [urn:oid:2.16.840.1.113883.10.20.5.33.2]

- HAI Urinary Tract Infection Numerator Report (UTI)
  [urn:oid:2.16.840.1.113883.10.20.5.34]

- Ventilator Associated Event (VAE) Report
  [urn:hl7ii:2.16.840.1.113883.10.20.5.51:2017-04-01]

*Table 2: COVID-19 Section Constraints Overview*

| XPath | Card. | Verb | Data Type | CONF# | Value |
|---|---|---|---|---|---|
| section (identifier: urn:hl7ii:2.16.840.1.113883.10.20.5.5.80:2020-08-01) | | | | | |
| templateId | 1..1 | SHALL | | 4475-20 | |
| @root | 1..1 | SHALL | | 4475-23 | 2.16.840.1.113883.10.20.5.5.80 |
| @extension | 1..1 | SHALL | | 4475-24 | 2020-08-01 |
| code | 1..1 | SHALL | | 4475-21 | |
| @code | 1..1 | SHALL | | 4475-25 | 94721-8 |
| @codeSystem | 1..1 | SHALL | | 4475-26 | urn:oid:2.16.840.1.113883.6.1 (LOINC) = 2.16.840.1.113883.6.1 |
| entry | 1..1 | SHALL | | 4475-19 | |
| observation | 1..1 | SHALL | | 4475-27 | Confirmed or Suspected COVID-19 (identifier: urn:hl7ii:2.16.840.1.113883.10.20.5.6.270:2020-08-01 |

1. Conforms to HAI Section Generic Constraints template (identifier: urn:oid:2.16.840.1.113883.10.20.5.4.26).
2. **SHALL** contain exactly one [1..1] **templateId** (CONF:4475-20) such that it

a. **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.5.5.80" (CONF:4475-23).

b. **SHALL** contain exactly one [1..1] **@extension**="2020-08-01" (CONF:4475-24).

3. **SHALL** contain exactly one [1..1] **code** (CONF:4475-21).

a. This code **SHALL** contain exactly one [1..1] **@code**="94721-8" COVID-19 Evaluation note (CONF:4475-25).

b. This code **SHALL** contain exactly one [1..1] **@codeSystem**="2.16.840.1.113883.6.1" (CodeSystem: LOINC urn:oid:2.16.840.1.113883.6.1) (CONF:4475-26).

4. **SHALL** contain exactly one [1..1] **entry** (CONF:4475-19).

a. This entry **SHALL** contain exactly one [1..1] **Confirmed or Suspected COVID-19** (identifier: urn:hl7ii:2.16.840.1.113883.10.20.5.6.270:2020-08-01) (CONF:4475-27).

*Figure 1: COVID-19 Section Example*

```
<section>
    <templateId root="2.16.840.1.113883.10.20.5.4.26"/>
    <templateId root="2.16.840.1.113883.10.20.5.5.80" extension="2020-08-01"/>
    <code codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" code="94721-8"
        displayName="COVID-19 Evaluation note"/>
    <title>COVID-19 Section</title>
    <text>...</text>
    <entry typeCode="DRIV">
        <observation classCode="OBS" moodCode="EVN" negationInd="false">
            <!-- [C-CDA R1.1] Problem Observation -->
            <templateId root="2.16.840.1.113883.10.20.22.4.4"/>
            <!-- [HAI COMP GUIDE] Confirmed or Suspected COVID-19 -->
            <templateId root="2.16.840.1.113883.10.20.5.6.270" extension="2020-08-
01"/>
            ...
        </observation>
    </entry>
</section>
```

# 3   ENTRY-LEVEL TEMPLATES

## 3.1  Confirmed or Suspected COVID-19

```
[observation: identifier urn:hl7ii:2.16.840.1.113883.10.20.5.6.270:2020-08-01
(closed)]
```

*Table 3: Confirmed or Suspected COVID-19 Contexts*

| Contained By: | Contains: |
|---|---|
| COVID-19 Section (required) | |

This observation records whether the person had confirmed or suspected COVID-19.

If the person:

- **Did not have COVID-19** (confirmed or suspected): set the value of @negationInd to true, and set value to 840539006 |Disease caused by severe acute respiratory syndrome coronavirus 2 (disorder)

- **Had confirmed COVID-19**: set the value of @negationInd to false, and set value to 840539006 |Disease caused by severe acute respiratory syndrome coronavirus 2 (disorder)

- **Had suspected COVID-19** set the value of @negationInd to false, and set value to 840544004 |Suspected disease caused by severe acute respiratory coronavirus 2 (situation)

*Table 4: Confirmed or Suspected COVID-19 Constraints Overview*

| XPath | Card. | Verb | Data Type | CONF# | Value |
|---|---|---|---|---|---|
| observation (identifier: urn:hl7ii:2.16.840.1.113883.10.20.5.6.270:2020-08-01) | | | | | |
| @classCode | 1..1 | SHALL | | 4475-16 | urn:oid:2.16.840.1.113883.5.6 (HL7ActClass) = OBS |
| @moodCode | 1..1 | SHALL | | 4475-17 | urn:oid:2.16.840.1.113883.5.1 001 (HL7ActMood) = EVN |
| @negationInd | 1..1 | SHALL | | 4475-18 | |
| templateId | 1..1 | SHALL | | 4475-1 | |
| @root | 1..1 | SHALL | | 4475-7 | 2.16.840.1.113883.10.20.22.4 .4 |
| templateId | 1..1 | SHALL | | 4475-6 | |
| @root | 1..1 | SHALL | | 4475-14 | 2.16.840.1.113883.10.20.5.6. 270 |
| @extension | 1..1 | SHALL | | 4475-15 | 2020-08-01 |
| id | 1..1 | SHALL | | 4475-2 | |
| @nullFlavor | 1..1 | SHALL | | 4475-8 | NA |
| code | 1..1 | SHALL | | 4475-3 | |
| @code | 1..1 | SHALL | | 4475-9 | 55607006 |
| @codeSystem | 1..1 | SHALL | | 4475-10 | urn:oid:2.16.840.1.113883.6.9 6 (SNOMED CT) = 2.16.840.1.113883.6.96 |
| statusCode | 1..1 | SHALL | | 4475-4 | |
| @code | 1..1 | SHALL | | 4475-11 | urn:oid:2.16.840.1.113883.5.1 4 (HL7ActStatus) = completed |
| value | 1..1 | SHALL | CD | 4475-5 | urn:oid:2.16.840.1.113883.10. 20.5.9.40 (NHSN COVID19 Case Classification) |

1. Conforms to Problem Observation template (identifier: urn:oid:2.16.840.1.113883.10.20.22.4.4).
2. **SHALL** contain exactly one [1..1] **@classCode**="OBS" Observation (CodeSystem: HL7ActClass urn:oid:2.16.840.1.113883.5.6 **STATIC**) (CONF:4475-16).
3. **SHALL** contain exactly one [1..1] **@moodCode**="EVN" Event (CodeSystem: HL7ActMood urn:oid:2.16.840.1.113883.5.1001 **STATIC**) (CONF:4475-17).

If the person did not have COVID-19 (confirmed or suspected) set the value of @negationInd to true and if the person had COVID-19 (confirmed or suspected) set the value of @negationInd to false.

4. **SHALL** contain exactly one [1..1] **@negationInd** (CONF:4475-18).
5. **SHALL** contain exactly one [1..1] **templateId** (CONF:4475-1) such that it
   a. **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.22.4.4" (CONF:4475-7).

6. **SHALL** contain exactly one [1..1] **templateId** (CONF:4475-6) such that it
    a. **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.10.20.5.6.270" (CONF:4475-14).
    b. **SHALL** contain exactly one [1..1] **@extension**="2020-08-01" (CONF:4475-15).
7. **SHALL** contain exactly one [1..1] **id** (CONF:4475-2).
    a. This id **SHALL** contain exactly one [1..1] **@nullFlavor**="NA" (CONF:4475-8).
8. **SHALL** contain exactly one [1..1] **code** (CONF:4475-3).
    a. This code **SHALL** contain exactly one [1..1] **@code**="55607006" Problem (CONF:4475-9).
    b. This code **SHALL** contain exactly one [1..1] **@codeSystem**="2.16.840.1.113883.6.96" (CodeSystem: SNOMED CT urn:oid:2.16.840.1.113883.6.96) (CONF:4475-10).
9. **SHALL** contain exactly one [1..1] **statusCode** (CONF:4475-4).
    a. This statusCode **SHALL** contain exactly one [1..1] **@code**="completed" Completed (CodeSystem: HL7ActStatus urn:oid:2.16.840.1.113883.5.14 **STATIC**) (CONF:4475-11).
10. **SHALL** contain exactly one [1..1] **value** with @xsi:type="CD", where the code **SHALL** be selected from ValueSet **NHSN COVID19 Case Classification** urn:oid:2.16.840.1.113883.10.20.5.9.40 **DYNAMIC** (CONF:4475-5).

*Table 5: NHSN COVID19 Case Classification*

Value Set: NHSN COVID19 Case Classification urn:oid:2.16.840.1.113883.10.20.5.9.40

(Clinical Focus: COVID-19 conditions associated with case status of suspected or confirmed.),(Data Element Scope: Problem Observation code (CDA) or Condition code (FHIR). Used to identify patients with either suspected or confirmed COVID-19.),(Inclusion Criteria: ),(Exclusion Criteria: )

This value set was imported on 7/19/2020 with a version of Latest.
Value Set Source:
**https://vsac.nlm.nih.gov/valueset/2.16.840.1.113883.10.20.5.9.40/expansion**

| Code | Code System | Code System OID | Print Name |
|------|-------------|-----------------|------------|
| 840539006 | SNOMED CT | urn:oid:2.16.840.1.113883.6.96 | Disease caused by severe acute respiratory syndrome coronavirus 2 (disorder) |
| 840544004 | SNOMED CT | urn:oid:2.16.840.1.113883.6.96 | Suspected disease caused by severe acute respiratory coronavirus 2 (situation) |

*Figure 2: Confirmed or Suspected COVID-19 Example - Had Suspected COVID-19 Example*

```
<observation classCode="OBS" moodCode="EVN" negationInd="false">
    <!-- [C-CDA R1.1] Problem Observation -->
    <templateId root="2.16.840.1.113883.10.20.22.4.4"/>
    <!-- [HAI COMP GUIDE] Confirmed or Suspected COVID-19 -->
    <templateId root="2.16.840.1.113883.10.20.5.6.270" extension="2020-08-01"/>
    <id nullFlavor="NA"/>
    <code code="55607006"
        displayName="Problem"
        codeSystem="2.16.840.1.113883.6.96"
        codeSystemName="SNOMED CT"/>
    <statusCode code="completed"/>
    <value xsi:type="CD" code="840544004"
        codeSystem="2.16.840.1.113883.6.96"
        codeSystemName="SNOMED CT"
        displayName="Suspected disease caused by severe acute respiratory coronavirus
2"/>
</observation>
```

*Figure 3: Confirmed or Suspected COVID-19 Example - Had Confirmed COVID-19 Example*

```
<observation classCode="OBS" moodCode="EVN" negationInd="false">
    <!-- [C-CDA R1.1] Problem Observation -->
    <templateId root="2.16.840.1.113883.10.20.22.4.4"/>
    <!-- [HAI COMP GUIDE] Confirmed or Suspected COVID-19 -->
    <templateId root="2.16.840.1.113883.10.20.5.6.270" extension="2020-08-01"/>
    <id nullFlavor="NA"/>
    <code code="55607006"
        displayName="Problem"
        codeSystem="2.16.840.1.113883.6.96"
        codeSystemName="SNOMED CT"/>
    <statusCode code="completed"/>
    <value xsi:type="CD" code="840539006"
        codeSystem="2.16.840.1.113883.6.96"
        codeSystemName="SNOMED CT"
        displayName="Disease caused by severe acute respiratory syndrome coronavirus
2"/>
</observation>
```

***Figure 4: Confirmed or Suspected COVID-19 Example - Did not have COVID-19 Example***

```
<observation classCode="OBS" moodCode="EVN" negationInd="true">
    <!-- [C-CDA R1.1] Problem Observation -->
    <templateId root="2.16.840.1.113883.10.20.22.4.4"/>
    <!-- [HAI COMP GUIDE] Confirmed or Suspected COVID-19 -->
    <templateId root="2.16.840.1.113883.10.20.5.6.270" extension="2020-08-01"/>
    <id nullFlavor="NA"/>
    <code code="55607006"
        displayName="Problem"
        codeSystem="2.16.840.1.113883.6.96"
        codeSystemName="SNOMED CT"/>
    <statusCode code="completed"/>
    <value xsi:type="CD" code="840539006"
        codeSystem="2.16.840.1.113883.6.96"
        codeSystemName="SNOMED CT"
        displayName="Disease caused by severe acute respiratory syndrome coronavirus
2"/>
</observation>
```

# 4    TEMPLATE IDS IN THIS GUIDE

*Table 6: Template List*

| Template Title | Template Type | templateId |
|---|---|---|
| COVID-19 Section | section | urn:hl7ii:2.16.840.1.113883.10.20.5.5.80:2020-08-01 |
| Confirmed or Suspected COVID-19 | entry | urn:hl7ii:2.16.840.1.113883.10.20.5.6.270:2020-08-01 |

*Table 7: Template Containments*

| Template Title | Template Type | templateId |
|---|---|---|
| COVID-19 Section | section | urn:hl7ii:2.16.840.1.113883.10.20.5.5.80:2020-08-01 |
| Confirmed or Suspected COVID-19 | entry | urn:hl7ii:2.16.840.1.113883.10.20.5.6.270:2020-08-01 |

# 5   VALUE SETS IN THIS GUIDE

*Table 8: Value Sets*

| Name | OID | URL |
|------|-----|-----|
| NHSN COVID19 Case Classification | urn:oid:2.16.840.1.113883.10.20.5.9.40 | https://vsac.nlm.nih.gov/valueset/2.16.840.1.113883.10.20.5.9.40/expansion |

# 6 CODE SYSTEMS IN THIS GUIDE

*Table 9: Code Systems*

| Name | OID |
| --- | --- |
| HL7ActClass | urn:oid:2.16.840.1.113883.5.6 |
| HL7ActMood | urn:oid:2.16.840.1.113883.5.1001 |
| HL7ActStatus | urn:oid:2.16.840.1.113883.5.14 |
| LOINC | urn:oid:2.16.840.1.113883.6.1 |
| SNOMED CT | urn:oid:2.16.840.1.113883.6.96 |