# Summary of specifications, value sets, and rules logic

* Condition = Measles
* Organism = Measles virus
* SNOMED Code = 14189004 | Measles (disorder)
* NNDSS Event Code = 10140 | Measles (rubeola)
* RCKMS Authoring Tool Version = 5.0 Release 20250228

Release History

|  |  |  |
| --- | --- | --- |
| **Release Date** | **Release** | **Latest Revision Date** |
| 12/12/2018 | 20181212 | 9/19/2018 |
| 01/10/2020 | 20200110 | 01/02/2020 |
| 6/9/2021 | 20210609 | 3/29/2021 |
| 1/28/2022 | 20220128 | 9/19/2021 |
| 4/5/2024 (Emergent) | 20240405 | 4/3/2024 |
| 2/28/2025 | 20250228 | 6/4/2025 |

Revision History

|  |  |  |
| --- | --- | --- |
| **Implemented**  **By** | **Revision**  **Date** | **Reason** |
| Natalie Raketich | 11/01/2019 | During a review of Measles RS in preparation for the January 2020 RCKMS release, the RCKMS team made the following changes to the Measles RS:  Criteria & logic sets   * Updated Snapshot of logic table to editable version * Added “(Not implemented)” note for epidemiologic criteria   Value set table   * Updated formatting for value sets that are not currently implemented * Added “not currently implemented” note for Measles (Tests for measles virus IgG Antibody) and Measles (Tests for measles virus IgG Antibody [Quantitative] in Serum) value sets   Logic rules   * Updated logic rule 3 (Rash AND epidemiologic link to Measles) to include details about not being currently implementable * Updated logic rule 7 from Lab test ordered for identification of Measles virus in a clinical specimen by **organism-specific** culture method, including identification tests performed on an isolate to Lab test ordered for identification of Measles virus in a clinical specimen by culture method, including identification tests performed on an isolate * Added note about value sets that are not currently implementable and gray shading where necessary to logic rules 7 (Lab test ordered for identification of Measles virus in a clinical specimen by culture method, including identification tests performed on an isolate), 9 (Lab test ordered for detection of Measles virus antigen in a clinical specimen by any method), and 10 (Koplik spots (for Measles)) * Added note about criteria that is not currently implementable and gray shading where necessary to logic rule 12 (Rash AND Detection of 4-fold or greater increase in Measles virus IgG antibody titer between paired acute and convalescent serum specimens (collected at least 10 days but no more than 180 days apart) by any method); updated rule to reference lab test result instead of lab test order. |
| Emily Augustini | 11/25/2019 | Value set table   * Added “N/A – not currently implemented in logic sets” note for Measles (Tests for measles virus IgG Antibody) and Measles (Tests for measles virus IgG Antibody [Quantitative] in Serum) value sets in “Include in Trigger set” column   Value Set Updates   * Added the following codes:   “Measles (Tests for measles virus by Culture and Identification Method)” (2.16.840.1.113762.1.4.1146.296)  91780-7 Measles virus [Presence] in Lower respiratory specimen by Organism specific culture  91786-4 Measles virus [Presence] in Upper respiratory specimen by Organism specific culture   * Removed the following codes:   “Measles (Tests for measles virus IgG Antibody)” (2.16.840.1.113762.1.4.1146.781)  52986-7 Rubella virus IgG Ab avidity [Ratio] in Serum by Immunoassay |
| Natalie Raketich | 12/20/2019 | Criteria & logic sets   * Added “(Not implemented)” note for Detection of 4-fold or greater increase in Measles virus IgG antibody titer between paired acute and convalescent serum specimens (collected at least 10 days but no more than 180 days apart) by any method criteria   Logic rules   * Updated logic rule 12 (Rash AND Detection of 4-fold or greater increase in Measles virus IgG antibody titer between paired acute and convalescent serum specimens (collected at least 10 days but no more than 180 days apart) by any method) to include additional details about not being currently implementable |
| Natalie Raketich | 01/02/2020 | Value set table   * Changed trigger status of "Measles (Koplik spots) (ICD10CM)," “Measles (Test Panels for Measles virus by Culture and Identification Method),” and “Measles (Test Panels for Measles virus Antigen)” value set entries to N/A because value sets do not exist. |
| Gib Parrish | 3/29/2021 | Criteria & logic sets   * Removed “(Preliminary “status” of results is not yet implemented)” from “Identification of Measles virus...” because preliminary status is available.   Logic rules   * Removed “Note: Reporting of preliminary results is not currently operational.” from logic rule 4 because preliminary status is available. |
| Natalie Raketich | 9/1/2021 | Based on Content Team discussions with eCR Team, a new reporting criterion, default logic set, value set, and logic rule are being added to 19 immediately notifiable conditions, including Measles.  Criteria & logic sets   * Added Suspected Measles (as a diagnosis or active problem) as default diagnosis criterion     Value set table   * Added value sets:   + Measles [Suspected] (Disorders) (SNOMED)   + Measles [Suspected] (Disorders) (ICD10CM)     Logic rules   * Added new default logic rule and renumbered subsequent logic rules accordingly:   + Suspected Measles (as a diagnosis or active problem) |
| Susan Downer | 9/19/2021 | Value set table  • Added Measles [Suspected] (Disorders) (SNOMED) 2.16.840.1.113762.1.4.1146.1436 |
| Natalie Raketich | 3/28/2024 | Performed QA on all criteria, value sets, and logic rules to bring the RS in alignment with the current templates. Added SNOMED-CT and NNDSS Event Code to document.  Criteria & logic sets   * Added the timeboxing details to the Measles, Suspected Measles, and Koplik spots (for Measles) criteria. * Updated logic rule numbering and logic set labels. * Added two new Epidemiologic criteria for use in the Default, CLIN + EPI logic set:   + Exposure to Measles   + Increased risk for exposure to Measles   Value set table   * Removed the following value sets:   + Viruses (Tests by Culture and Identification Method)   + Measles (Tests for measles virus IgG Antibody)   + Measles (Tests for measles virus IgG Antibody [Quantitative] in Serum) * Added the following value sets:   + Organisms (Tests by Culture and Identification)   + Organisms (Tests by Unspecified Method)   + Exposure to Measles (SNOMED)   + Exposure to Measles (ICD10CM)   + Increased Risk for Exposure to Measles (SNOMED)   + Increased Risk for Exposure to Measles (ICD10CM) * Removed Lab Order Test Name Trigger label from the Measles (Tests for measles virus IgG Antibody [Ratio] in Serum) value set.   Logic rules   * Added timeboxing logic to logic rules 1, 2, and 11. * Removed not implemented notation and added new Epidemiologic criteria to logic rule 4. * Removed Viruses value set and added Organisms value sets to logic rule 5. * Updated 4-fold or greater rise template in logic rule 13. |
| Susan Downer | 3/29/2024 | Value set table  Created the following:   * Exposure to Measles (SNOMED), 2.16.840.1.113762.1.4.1146.2341 * Increased Risk for Exposure to Measles (SNOMED), 2.16.840.1.113762.1.4.1146.2342 |
| Natalie Raketich | 4/3/2024 | Criteria & logic sets   * Updated default CLIN + LAB logic set to make both criteria N. |
| Sam Spoto | 1/14/2025 | Value Sets:   * Added Fever (SNOMED) 2.16.840.1.113762.1.4.1146.670 * Added Fever (ICD10CM) 2.16.840.1.113762.1.4.1146.671 * Added Body Temperature (Vital Sign) 2.16.840.1.113762.1.4.1146.1306   Criteria & Logic rules:   * Removed previous optional logic rule 13 and combined “Detection of 4-fold or greater increase in Measles virus IgG antibody titer between paired acute and convalescent serum specimens (collected at least 10 days but no more than 180 days apart) by any method (Not implemented)” into default logic rule 3. * Added criterion for fever and new optional logic rules 13 and 14 based on ticket request. * Updated wording of logic rule 4 to include individual epidemiologic criteria. |
| Sam Spoto | 1/22/25 | Removed the following wording from logic rules 3 and 13 as it is not represented in the snapshot of logic:  “(Conversion from ‘negative’ to ‘positive’ IgG antibody against Measles virus between paired acute and convalescent serum specimens (collected at least 10 days but no more than 180 days apart) by any method) - NEED TO CREATE LOGIC RULE)  OR  (Patient has lab result with test name of [VS: Measles (Tests for measles virus IgG Antibody [Ratio] in Serum)] AND  lab result value of ≤ 1/4) - Not yet implemented” |
| Sam Spoto | 2/19/25 | Added back “(Patient has lab result with test name of [VS: Measles (Tests for measles virus IgG Antibody [Ratio] in Serum)] AND lab result value of ≤ 1/4)” to logic rules 3 and 13 as it is another method of evaluating for a four-fold rise between specimens. |
| Natalie Raketich | 6/4/2025 | Added tool version to file name and top of document. Updated formatting of snapshot of logic table. |

## Snapshot of logic:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **DEFAULT - LOGIC SETS** | | | | | **OPTIONAL - LOGIC SETS** | | | |
|  | **Lab Reporting \*\*** | **Provider / Facility Reporting** | | | | **Provider / Facility Reporting** | | | |
| *The patient record being evaluated contains evidence of:* |  | **1-2** | **5-10** | **3** | **4** | **11** | **12** | **13** | **14** |
|  | **DX** | **LAB** | **CLIN + LAB** | **CLIN + EPI** | **CLIN** | **LAB 2** | **CLIN + LAB 2** | **CLIN + LAB 3** |
| **Criterion Description** |  |  |  |  |  |  |  |  |  |
| **Clinical** |  |  |  |  |  |  |  |  |  |
| Measles (as a diagnosis or active problem)\* |  | S |  |  |  |  |  |  |  |
| Suspected Measles (as a diagnosis or active problem)\* |  | S |  |  |  |  |  |  |  |
| Koplik spots (for Measles)\* |  |  |  |  |  | S |  |  |  |
| Rash (any) |  |  |  | N | N |  |  |  |  |
| Fever (temperature ≥ 38°C [≥ 100.4°F]) |  |  |  |  |  |  |  | N | N |
| **Laboratory** |  |  |  |  |  |  |  |  |  |
| Identification of Measles virus in a clinical specimen by culture method, including identification tests performed on an isolate - include preliminary results | S |  | S |  |  |  |  |  |  |
| Detection of Measles virus nucleic acid in a clinical specimen by any method | S |  | S |  |  |  |  |  |  |
| Detection of Measles virus antigen in a clinical specimen by any method |  |  |  |  |  |  | S |  |  |
| Detection of Measles virus IgM antibody in a clinical specimen by any method | S |  | S |  |  |  |  |  |  |
| Detection of 4-fold or greater increase in Measles virus IgG antibody titer between paired acute and convalescent serum specimens (collected at least 10 days but no more than 180 days apart) by any method (Not implemented) |  |  |  | O |  |  |  | O |  |
| Lab test ordered for identification of Measles virus in a clinical specimen by culture method, including identification tests performed on an isolate | S |  | S |  |  |  |  |  |  |
| Lab test ordered for detection of Measles virus nucleic acid in a clinical specimen by any method | S |  | S |  |  |  |  |  |  |
| Lab test ordered for detection of Measles virus antigen in a clinical specimen by any method | S |  | S |  |  |  |  |  |  |
| Lab test ordered for detection of Measles virus IgM antibody in a clinical specimen by any method |  |  |  | O |  |  |  | O |  |
| **Epidemiologic** |  |  |  |  |  |  |  |  |  |
| Exposure to Measles |  |  |  |  | O |  |  |  | O |
| Increased risk for exposure to Measles |  |  |  |  | O |  |  |  | O |
| Patient has or had contact with a person diagnosed with Measles (Not implemented) |  |  |  |  | O |  |  |  | O |
| Patient is a member of a risk group as defined by public health authorities during an outbreak of Measles (Not implemented) |  |  |  |  | O |  |  |  | O |
| Patient resides in a geographic area where Measles is endemic or an outbreak of Measles is occurring (Not implemented) |  |  |  |  | O |  |  |  | O |
| Patient travelled during past 21 days to a geographic area where Measles is endemic or an outbreak of Measles is occurring (Not implemented) |  |  |  |  | O |  |  |  | O |

\* This criterion has the option of being timeboxed in the RCKMS authoring tool. For additional information about timeboxing, see: <https://www.rckms.org/rckms-timeboxing/>

\*\* Not Implemented: These reporter types are not available in RCKMS.

## Value sets required:

| **Value Set Name** | **OID** | **Description**  **(informational for drafting rules, but not as explicit as documented in VSAC)** | **Include in Trigger set**  **(Yes/No)** |
| --- | --- | --- | --- |
| **Clinical (Diagnoses, Problems, Symptoms, and Clinical Findings)** | | | |
| Measles (Disorders) (SNOMED) | 2.16.840.1.113762.1.4.1146.127 | SNOMED codes for Measles (as a diagnosis or active problem) | Yes: Diagnosis\_problem |
| Measles (Disorders) (ICD10CM) | 2.16.840.1.113762.1.4.1146.126 | ICD10CM codes for Measles (as a diagnosis or active problem) | Yes: Diagnosis\_problem |
| Measles [Suspected] (Disorders) (SNOMED) | 2.16.840.1.113762.1.4.1146.1436 | SNOMED codes for suspected Measles (as a diagnosis or active problem). | Yes: Suspected\_Disorder |
| Measles [Suspected] (Disorders) (ICD10CM) | Not implemented – No codes available | ICD10CM codes for suspected Measles (as a diagnosis or active problem). | N/A |
| Measles (Koplik Spots) (Disorders) (SNOMED) | 2.16.840.1.113762.1.4.1146.51 | SNOMED codes for condition-specific symptoms and other nominal—non-quantitative—clinical observations that are found only in Measles | Yes: Diagnosis\_problem |
| Measles (Koplik spots) (ICD10CM) | Not implemented – No codes available | ICD10CM codes for condition-specific symptoms and other nominal—non-quantitative—clinical observations that are found only in Measles | N/A |
| Rash (SNOMED) | 2.16.840.1.113762.1.4.1146.668 | SNOMED codes for non-condition-specific symptoms and other nominal—non-quantitative—clinical observations that can be found in multiple conditions | No: Common |
| Rash (ICD10CM) | 2.16.840.1.113762.1.4.1146.669 | ICD10CM codes for non-condition-specific symptoms and other nominal—non-quantitative—clinical observations that can be found in multiple conditions | No: Common |
| Fever (SNOMED) | 2.16.840.1.113762.1.4.1146.670 | SNOMED codes for non-condition-specific symptoms and other nominal—non-quantitative—clinical observations that can be found in multiple conditions | No: Common |
| Fever (ICD10CM) | 2.16.840.1.113762.1.4.1146.671 | ICD10CM codes for non-condition-specific symptoms and other nominal—non-quantitative—clinical observations that can be found in multiple conditions | No: Common |
| Body Temperature (Vital Sign) | 2.16.840.1.113762.1.4.1146.1306 | LOINC codes for measurements of body temperature | No: Common |
| **Laboratory Test Names that are Organism or Substance Specific** | | | |
| Measles (Tests for measles virus by Culture and Identification Method) | 2.16.840.1.113762.1.4.1146.296 | Set of lab test names that may be ordered or ‘observed’ for identification of Measles virus organisms in a clinical specimen by culture method, including identification tests performed on an isolate | Yes: Lab obs test name  Yes: Lab Order Test Name |
| Measles (Tests for measles virus Nucleic Acid) | 2.16.840.1.113762.1.4.1146.297 | Set of lab test names that may be ordered or ‘observed’ for detection of Measles virus nucleic acid in a clinical specimen by any method | Yes: Lab obs test name  Yes: Lab Order Test Name |
| Measles (Tests for measles virus Antigen) | 2.16.840.1.113762.1.4.1146.298 | Set of lab test names that may be ordered or ‘observed’ for detection of Measles virus antigen in a clinical specimen by any method | Yes: Lab obs test name  Yes: Lab Order Test Name |
| Measles (Tests for measles virus IgM Antibody) | 2.16.840.1.113762.1.4.1146.299 | Set of lab test names that may be ordered or ‘observed’ for detection of Measles virus IgM antibody in a clinical specimen by any method | Yes: Lab obs test name  Yes: Lab Order Test Name |
| Measles (Tests for measles virus IgG Antibody [Ratio] in Serum) | 2.16.840.1.113762.1.4.1146.818 | Set of lab test names that may be ordered or ‘observed’ for quantitative measurement of ratio measles virus IgG antibody in acute (1st) serum specimen to convalescent (2nd) serum specimen by any method. | Yes: Lab obs test name |
| **Laboratory Test Panel Names** | | | |
| Measles (Test Panels for Measles virus by Culture and Identification Method) | Not implemented – No codes available | Set of laboratory test panels consisting of two or more tests—often for identification of different organisms or substances—by culture and identification method. The test panels generate two or more code pairs, each pair consisting of a laboratory test for a specific organism and a laboratory test result for that test. | N/A |
| Measles (Test Panels for measles virus Nucleic Acid) | 2.16.840.1.113762.1.4.1146.759 | Set of laboratory test panels consisting of two or more tests for detection of nucleic acid—often for different organisms. The test panels generate two or more code pairs, each pair consisting of a laboratory test for a specific organism’s nucleic acid and a laboratory test result for that test. | Yes: Lab Order Test Name |
| Measles (Test Panels for Measles virus Antigen) | Not implemented – No codes available | Set of laboratory test panels consisting of two or more tests for detection of antigen—often for different organisms. The test panels generate two or more code pairs, each pair consisting of a laboratory test for a specific organism’s antigen and a laboratory test result for that test. | N/A |
| Measles (Test Panels for measles virus IgM Antibody) | 2.16.840.1.113762.1.4.1146.369 | Set of laboratory test panels consisting of two or more tests for detection of antibodies against two or more specific organisms. The test panels generate two or more code pairs, each pair consisting of a laboratory test for antibody against a specific organism and a laboratory test result for that test. | Yes: Lab Order Test Name |
| **Laboratory Test Names that are NOT Organism or Substance Specific** | | | |
| Organisms (Tests by Culture and Identification) | 2.16.840.1.113762.1.4.1146.1041 | Set of lab test names that may be ordered or ‘observed’ for detection and identification of *unspecified* organisms in an *unspecified* clinical specimen by the culture method, including identification tests performed on an isolate | No: Common |
| Organisms (Tests by Unspecified Method) | 2.16.840.1.113762.1.4.1146.1040 | Set of lab test names that may be ordered or ‘observed’ for detection and identification of unspecified organisms in a clinical specimen by unspecified method | No: Common |
| Organisms (Tests for Nucleic Acid) | 2.16.840.1.113762.1.4.1146.994 | Set of lab test names that may be ordered or ‘observed’ for detection of an organism's nucleic acid in a clinical specimen by any method | No: Common |
| **Laboratory (Result Values, Abnormal Interpretation, Specimen Type, or Status)** | | | |
| Measles (Organism or Substance in Lab Results) | 2.16.840.1.113762.1.4.1146.292 | SNOMED codes for condition-specific organisms or substances detected by laboratory tests, such as *Bordetella pertussis,* carbon monoxide, and *Clostridium* *botulinum* toxin. | Yes: Organism\_substance |
| Present or Positive Lab Result Value | 2.16.840.1.113762.1.4.1146.272 | Coded values for positive test results in the OBX-5 field, such as present, detected, positive, and reactive. | No: Common |
| Abnormal Interpretation of an Observation | 2.16.840.1.113762.1.4.1146.295 | Set of HL7 Observation Interpretation codes (OID: [2.16.840.1.113883.5.83) that are indicative of 'abnormal' or 'outside normal range', or intermediate or resistant microbiology susceptibility results, all of which may be reportable. | No: Common |
| **Epidemiological Criteria (Implemented through presence of Diagnoses/Problems)** | | | |
| Exposure to Measles (SNOMED) | 2.16.840.1.113762.1.4.1146.2341 | SNOMED codes for exposure to Measles virus (as a diagnosis or active problem) | Yes: Diagnosis\_problem |
| Exposure to Measles (ICD10CM) | Not implemented – No codes available | ICD10CM codes for exposure to Measles virus (as a diagnosis or active problem) | N/A |
| Increased Risk for Exposure to Measles (SNOMED) | 2.16.840.1.113762.1.4.1146.2342 | SNOMED codes for increased risk for exposure to Measles virus (as a diagnosis or active problem) | Yes: Diagnosis\_problem |
| Increased Risk for Exposure to Measles (ICD10CM) | Not implemented – No codes available | ICD10CM codes for increased risk for exposure to Measles virus (as a diagnosis or active problem) | N/A |

## 

## Default logic:

*The patient record being evaluated contains evidence of:*

1. **Measles (as a diagnosis or active problem)**

**NOTE: If timeboxing is selected in the specifications grid, portions of the logic rule highlighted in blue will be utilized in the determination of reportability.**

**IF**

(

(Patient has a diagnosis of [VS: Measles (Disorders) (SNOMED)] **OR**

Patient has a diagnosis of [VS: Measles (Disorders) (ICD10CM)])

**AND**

Encounter diagnosis effective date is within the timebox window created by the user-defined timebox duration and the eICR document date

)

**OR**

(

((Patient has a problem list entry of [VS: Measles (Disorders) (SNOMED)] **AND** Problem list entry has status of ACTIVE) **OR**

(Patient has a problem list entry of [VS: Measles (Disorders) (ICD10CM)] **AND** Problem list entry has status of ACTIVE))

**AND**

Problem observation effective date is within the timebox window created by the user-defined timebox duration and the eICR document date

)

**THEN** Report

1. **Suspected Measles (as a diagnosis or active problem)**

**NOTE: If timeboxing is selected in the specifications grid, portions of the logic rule highlighted in blue will be utilized in the determination of reportability. Portions of the logic rule not currently implemented are highlighted in gray.**

**IF**

(

(Patient has a diagnosis of [VS: Measles [Suspected] (Disorders) (SNOMED)] **OR**

Patient has a diagnosis of [VS: Measles [Suspected] (Disorders) (ICD10CM)]) Not implemented - No codes

**AND**

Encounter diagnosis effective date is within the timebox window created by the user-defined timebox duration and the eICR document date

)

**OR**

(

((Patient has a problem list entry of [VS: Measles [Suspected] (Disorders) (SNOMED)] **AND** Problem list entry has status of ACTIVE) **OR**

(Patient has a problem list entry of [VS: Measles [Suspected] (Disorders) (ICD10CM)] **AND** Problem list entry has status of ACTIVE))Not implemented - No codes

**AND**

Problem observation effective date is within the timebox window created by the user-defined timebox duration and the eICR document date

)

**THEN** Report

1. **Rash (any) AND (Lab test ordered for detection of Measles virus IgM antibody in a clinical specimen by any method OR Detection of 4-fold or greater increase in Measles virus IgG antibody titer between paired acute and convalescent serum specimens (collected at least 10 days but no more than 180 days apart) by any method)**  
   **NOTE: Portions of the logic rule not currently implemented are highlighted in gray.**

**IF**

(

Patient has a diagnosis of [VS: Rash (SNOMED)] **OR**

Patient has a diagnosis of [VS: Rash (ICD10CM)] **OR**

(Patient has a problem list entry of [VS: Rash (SNOMED)] **AND** Problem list entry has status of ACTIVE) **OR**

(Patient has a problem list entry of [VS: Rash (ICD10CM)] **AND** Problem list entry has status of ACTIVE)

)

**AND**

(

(Patient has a lab test order with test name of [VS: Measles (Tests for measles virus IgM Antibody)] **OR**

Patient has a lab test order with test name of [VS: Measles (Test Panels for measles virus IgM Antibody)])

**OR**

(

Detection of 4-fold or greater increase in Measles virus IgG antibody titer between paired acute and convalescent serum specimens (collected at least 10 days but no more than 180 days apart) by any method - **NEED TO CREATE LOGIC RULE**

**OR**

(Patient has lab result with test name of [VS: Measles (Tests for measles virus IgG Antibody [Ratio] in Serum)] **AND**

lab result value of ≤ 1/4) Not yet implemented

)

)

**THEN** Report

1. **Rash (any) AND (Exposure to Measles OR Increased risk for exposure to Measles OR Patient has or had contact with a person diagnosed with Measles OR Patient is a member of a risk group as defined by public health authorities during an outbreak of Measles OR Patient resides in a geographic area where Measles is endemic or an outbreak of Measles is occurring OR Patient travelled during past 21 days to a geographic area where Measles is endemic or an outbreak of Measles is occurring)  
   NOTE: Portions of the logic rule not currently implemented are highlighted in gray.**

**IF**

(

Patient has a diagnosis of [VS: Rash (SNOMED)] **OR**

Patient has a diagnosis of [VS: Rash (ICD10CM)] **OR**

(Patient has a problem list entry of [VS: Rash (SNOMED)] **AND** Problem list entry has status of ACTIVE) **OR**

(Patient has a problem list entry of [VS: Rash (ICD10CM)] **AND** Problem list entry has status of ACTIVE)

)

**AND**

(

(   
Patient has a diagnosis of [VS: Exposure to Measles (SNOMED)] **OR**

Patient has a diagnosis of [VS: Exposure to Measles (ICD10CM)] **OR** Not implemented - No codes

(Patient has a problem list entry of [VS: Exposure to Measles (SNOMED)] **AND** Problem list entry has status of ACTIVE) **OR**

(Patient has a problem list entry of [VS: Exposure to Measles (ICD10CM)] **AND** Problem list entry has status of ACTIVE) Not implemented - No codes  
)

**OR**

(   
Patient has a diagnosis of [VS: Increased risk for exposure to Measles (SNOMED)] **OR**

Patient has a diagnosis of [VS: Increased risk for exposure to Measles (ICD10CM)] **OR** Not implemented - No codes

(Patient has a problem list entry of [VS: Increased risk for exposure to Measles (SNOMED)] **AND** Problem list entry has status of ACTIVE) **OR**

(Patient has a problem list entry of [VS: Increased risk for exposure to Measles (ICD10CM)] **AND** Problem list entry has status of ACTIVE)   
)  Not implemented - No codes

**OR**

(

Patient has or had contact with a person diagnosed with Measles is TRUE **OR** Not implemented - No codes

Patient is a member of a risk group as defined by public health authorities during an outbreak of Measles is TRUE **OR** Not implemented - No codes

Patient resides in a geographic area where Measles is endemic or an outbreak of Measles is occurring is TRUE **OR** Not implemented - No codes

Patient travelled during past 21 days to a geographic area where Measles is endemic or an outbreak of Measles is occurring is TRUE Not implemented - No codes

)

)

**THEN** Report

1. **Identification of Measles virus in a clinical specimen by culture method, including identification tests performed on an isolate – include preliminary results**

**IF**

(

Patient has lab result with test name of [VS: Measles (Tests for measles virus by Culture and Identification Method)]

**AND**

(lab result value of [VS: Present or Positive Lab Result Value] **OR**

lab result value of [VS: Measles (Organism or Substance in Lab Results)] **OR**

lab result value interpretation of [VS: Abnormal Interpretation of an Observation])

)

**OR**

(

(Patient has lab result with test name of [VS: Organisms (Tests by Culture and Identification)] **OR**

Patient has lab result with test name of [VS: Organisms (Tests by Unspecified Method)])

**AND**

lab result value of [VS: Measles (Organism or Substance in Lab Results)]

)

**THEN** Report

1. **Detection of Measles virus nucleic acid in a clinical specimen by any method**

**IF**

(

Patient has lab result with test name of [VS: Measles (Tests for measles virus Nucleic Acid)]

**AND**

(lab result value of [VS: Present or Positive Lab Result Value] **OR**

lab result value of [VS: Measles (Organism or Substance in Lab Results)] **OR**

lab result value interpretation of [VS: Abnormal Interpretation of an Observation])

)

**OR**

(Patient has lab result with test name of [VS: Organisms (Tests for Nucleic Acid)] **AND**

lab result value of [VS: Measles (Organism or Substance in Lab Results)])

**THEN** Report

1. **Detection of Measles virus IgM antibody in a clinical specimen by any method**

**IF**

Patient has lab result with test name of [VS: Measles (Tests for measles virus IgM Antibody)]

**AND**

(lab result value of [VS: Present or Positive Lab Result Value] **OR**

lab result value of [VS: Measles (Organism or Substance in Lab Results)] **OR**

lab result value interpretation of [VS: Abnormal Interpretation of an Observation])

**THEN** report

1. **Lab test ordered for identification of Measles virus in a clinical specimen by culture method, including identification tests performed on an isolate** **NOTE: Portions of the logic rule not currently implemented are highlighted in gray.**

**IF**

Patient has a lab test order with test name of [VS: Measles (Tests for measles virus by Culture and Identification Method)] **OR**

Patient has a lab test order with test name of [VS: Measles (Test Panels for Measles virus by Culture and Identification Method)] Not implemented - No codes

**THEN** report

1. **Lab test ordered for detection of Measles virus nucleic acid in a clinical specimen by any method**

**IF**

Patient has a lab test order with test name of [VS: Measles (Tests for measles virus Nucleic Acid)] **OR**

Patient has a lab test order with test name of [VS: Measles (Test Panels for measles virus Nucleic Acid)]

**THEN** report

1. **Lab test ordered for detection of Measles virus antigen in a clinical specimen by any method** **NOTE: Portions of the logic rule not currently implemented are highlighted in gray.**

**IF**

Patient has a lab test order with test name of [VS: Measles (Tests for measles virus Antigen)] **OR**

Patient has a lab test order with test name of [VS: Measles (Test Panels for Measles virus Antigen)] Not implemented - No codes

**THEN** report

## Optional Logic

*The patient record being evaluated contains evidence of:*

1. **Koplik spots (for Measles)**

**NOTE: If timeboxing is selected in the specifications grid, portions of the logic rule highlighted in blue will be utilized in the determination of reportability. Portions of the logic rule not currently implemented are highlighted in gray.**

**IF**

(

(Patient has a diagnosis of [VS: Measles (Koplik Spots) (Disorders) (SNOMED)] **OR**

Patient has a diagnosis of [VS: Measles (Koplik spots) (ICD10CM)]) Not implemented - No codes

**AND**

Encounter diagnosis effective date is within the timebox window created by the user-defined timebox duration and the eICR document date

)

**OR**

(

((Patient has a problem list entry of [VS: Measles (Koplik Spots) (Disorders) (SNOMED)] **AND** Problem list entry has status of ACTIVE) **OR**

(Patient has a problem list entry of [VS: Measles (Koplik spots) (ICD10CM)] **AND** Problem list entry has status of ACTIVE))Not implemented - No codes

**AND**

Problem observation effective date is within the timebox window created by the user-defined timebox duration and the eICR document date

)

**THEN** Report

1. **Detection of Measles virus antigen in a clinical specimen by any method**

**IF**

Patient has lab result with test name of [VS: Measles (Tests for measles virus Antigen)]

**AND**

(lab result value of [VS: Present or Positive Lab Result Value] **OR**

lab result value of [VS: Measles (Organism or Substance in Lab Results)] **OR**

lab result value interpretation of [VS: Abnormal Interpretation of an Observation])

**THEN** report

1. **Fever (temperature ≥ 38°C [≥ 100.4°F]) AND (Lab test ordered for detection of Measles virus IgM antibody in a clinical specimen by any method OR Detection of 4-fold or greater increase in Measles virus IgG antibody titer between paired acute and convalescent serum specimens (collected at least 10 days but no more than 180 days apart) by any method)**

**NOTE: Portions of the logic rule not currently implemented are highlighted in gray.**

**IF**

(

Patient has a diagnosis of [VS: Fever (SNOMED)] **OR**

Patient has a diagnosis of [VS: Fever (ICD10CM)] **OR**

(Patient has a problem list entry of [VS: Fever (SNOMED)] **AND** Problem list entry has status of ACTIVE) **OR**

(Patient has a problem list entry of [VS: Fever (ICD10CM)] **AND** Problem list entry has status of ACTIVE) **OR**

(Patient has vital sign result type of [VS: Body Temperature (Vital Sign)] **AND**

(Body Temperature ≥ 38 degC OR Body Temperature ≥ 100.4 degF)

)

**AND**

(

(Patient has a lab test order with test name of [VS: Measles (Tests for measles virus IgM Antibody)] **OR**

Patient has a lab test order with test name of [VS: Measles (Test Panels for measles virus IgM Antibody)])

**OR**

(

Detection of 4-fold or greater increase in Measles virus IgG antibody titer between paired acute and convalescent serum specimens (collected at least 10 days but no more than 180 days apart) by any method - **NEED TO CREATE LOGIC RULE**

**OR**

(Patient has lab result with test name of [VS: Measles (Tests for measles virus IgG Antibody [Ratio] in Serum)] **AND**

lab result value of ≤ 1/4) Not yet implemented

)

)

**THEN** Report

1. **Fever (temperature ≥ 38°C [≥ 100.4°F]) AND (Exposure to Measles OR Increased risk for exposure to Measles OR Patient has or had contact with a person diagnosed with Measles OR Patient is a member of a risk group as defined by public health authorities during an outbreak of Measles OR Patient resides in a geographic area where Measles is endemic or an outbreak of Measles is occurring OR Patient travelled during past 21 days to a geographic area where Measles is endemic or an outbreak of Measles is occurring)  
   NOTE: Portions of the logic rule not currently implemented are highlighted in gray.**

**IF**

(

Patient has a diagnosis of [VS: Fever (SNOMED)] **OR**

Patient has a diagnosis of [VS: Fever (ICD10CM)] **OR**

(Patient has a problem list entry of [VS: Fever (SNOMED)] **AND** Problem list entry has status of ACTIVE) **OR**

(Patient has a problem list entry of [VS: Fever (ICD10CM)] **AND** Problem list entry has status of ACTIVE) **OR**

(Patient has vital sign result type of [VS: Body Temperature (Vital Sign)] **AND**

(Body Temperature ≥ 38 degC OR Body Temperature ≥ 100.4 degF)

)

**AND**

(

(   
Patient has a diagnosis of [VS: Exposure to Measles (SNOMED)] **OR**

Patient has a diagnosis of [VS: Exposure to Measles (ICD10CM)] **OR** Not implemented - No codes

(Patient has a problem list entry of [VS: Exposure to Measles (SNOMED)] **AND** Problem list entry has status of ACTIVE) **OR**

(Patient has a problem list entry of [VS: Exposure to Measles (ICD10CM)] **AND** Problem list entry has status of ACTIVE) Not implemented - No codes  
)

**OR**

(   
Patient has a diagnosis of [VS: Increased risk for exposure to Measles (SNOMED)] **OR**

Patient has a diagnosis of [VS: Increased risk for exposure to Measles (ICD10CM)] **OR** Not implemented - No codes

(Patient has a problem list entry of [VS: Increased risk for exposure to Measles (SNOMED)] **AND** Problem list entry has status of ACTIVE) **OR**

(Patient has a problem list entry of [VS: Increased risk for exposure to Measles (ICD10CM)] **AND** Problem list entry has status of ACTIVE)   
)  Not implemented - No codes

**OR**

(

Patient has or had contact with a person diagnosed with Measles is TRUE **OR** Not implemented - No codes

Patient is a member of a risk group as defined by public health authorities during an outbreak of Measles is TRUE **OR** Not implemented - No codes

Patient resides in a geographic area where Measles is endemic or an outbreak of Measles is occurring is TRUE **OR** Not implemented - No codes

Patient travelled during past 21 days to a geographic area where Measles is endemic or an outbreak of Measles is occurring is TRUE Not implemented - No codes

)

)

**THEN** Report