



## Respiratory and Invasive Bacterial Diseases Message Mapping Guide (RIBD MMG)

Olivia Almendares, MSPH  
Epidemiologist

Al Barskey, MPH  
Epidemiologist

National Center for Immunization & Respiratory  
Diseases, Division of Bacterial Diseases

CSTE Webinar  
March 6, 2018

# Agenda

- MMG overview
- How to use the RIBD MMG to build a message
- Timeline towards MMG implementation
- Goals and processes for MMG review period

# **Respiratory and Invasive Bacterial Diseases Message Mapping Guide (RIBD MMG) Overview**

# Respiratory and Invasive Bacterial Diseases Message Mapping Guide (RIBD MMG) Overview

- Includes a group of nationally notifiable conditions with similar reporting needs
- Includes additional conditions and data elements for sites participating in Active Bacterial Core surveillance (ABCs) via the Emerging Infections Program (EIP)
- Consolidation of duplicative reporting streams
- Similar in design to Foodborne and Diarrheal Diseases (FDD) MMG

# Respiratory and Invasive Bacterial Diseases Message Mapping Guide (RIBD MMG) Overview

- **All states** send data elements via HL7 for multiple nationally notifiable conditions:
    - *Haemophilus influenzae*, meningococcal disease (*Neisseria meningitidis*), invasive pneumococcal disease, legionellosis , psittacosis
  - **Only EIP ABCs\* sites** submit data elements for the following conditions:
    - Group A *Streptococcus*, Group B *Streptococcus*, neonatal expanded infections, and neonatal sepsis
- Designed to be used in conjunction with Generic v2 MMG
  - Excel file with condition-specific tabs



# RIBD MMG Snapshot

	D	F	G	H	I	J	K	M	N	O
1	<b>Data Element (DE) Name</b> Message Profile Identifier	<b>DE Identifier</b> N/A: MSH-21	<b>DE Code system</b> N/A	<b>Data Element Description</b> Message Profile Identifiers provide a literal value to use for the references in MSH-21. MSH-21 will always contain a reference to the notification type in the "PHINProfileID" namespace and a reference to the implemented version of the Generic MMG in the "PHINMsgMapID" namespace. For conditions that have a condition-specific MMG, MSH-21 will also contain a reference to that MMG that is also in the "PHINMsgMapID" namespace.	<b>Data Type</b> Text	<b>CDC Priority</b> R	<b>May Repeat?</b> Y/3	<b>Value Set Name</b> N/A	<b>Value Set Code</b> N/A	<b>HL7 Message Context</b> MSH-21 Message Profile ID
2	Insurance	76437-3	LN	Insurance	Coded	P	Y	Insurance Type		OBX segment with OBX-3.1=76437-3 OBX-5=Value from value set OBX-5.9=string up to 199 characters
3	Weight	3141-9	LN	Subject's weight at diagnosis	Numeric	P	N			OBX segment with OBX-3.1=3141-9 OBX-5.2=numeric value OBX-6=value from value set for Weight

Introduction	EIP ABCs	H. influenzae	N. meningitidis	Invasive pneumococcal disease	Psittacosis	Legionellosis	Lab Template
--------------	----------	---------------	-----------------	-------------------------------	-------------	---------------	--------------

# RIBD MMG includes...

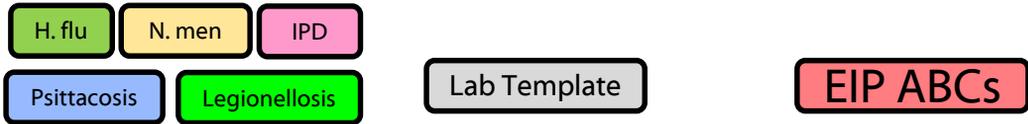


<b>Condition/ Surveillance Project</b>	<b>NNDSS Data Elements (All states)</b>	<b>ABCs Variables (EIP ABCs sites ONLY)</b>
<i>Haemophilus influenzae</i>	✓	✓
Meningococcal disease ( <i>Neisseria meningitidis</i> )	✓	✓
Invasive pneumococcal disease	✓	✓
Legionellosis	✓	
Psittacosis	✓	
Group A <i>Streptococcus</i>		✓
Group B <i>Streptococcus</i>		✓
Neonatal Expanded Infection Surveillance		✓
Neonatal Sepsis Surveillance		✓

# How to use the RIBD MMG

# Message Components

- Each case notification will pull data elements from Gen V2 and RIBD MMG



One HL7 message

## Example *Neisseria meningitidis* Notification

ID, age, sex,  
hospitalized...

Vaccination  
history...

Order Number,  
Test Ordered  
Name...

Core: Pregnancy  
Status, Underlying  
Conditions  
Nmen: College...



One HL7 message

# Supporting Documentation

## Annotated Case Report Forms and Worksheets

- National Surveillance: *Haemophilus influenzae* Surveillance Worksheet, Meningococcal Disease Surveillance Worksheet, *Streptococcus pneumoniae* Surveillance Worksheet, Psittacosis Human Case Surveillance Report Form, Legionellosis Case Report Form
- EIP ABCs Surveillance: Core Case Report Form, GAS Supplemental Form, IPD Form, Neonatal Sepsis Form, Neonatal Infection Expanded Tracking Form
- <https://wwwn.cdc.gov/nndss/case-notification/message-mapping-guides.html>, click “MMGs in Development”

# Annotated Case Report Forms and Worksheets

## Epidemiologic

63. Does this patient: (CHECK ALL THAT APPLY)

Attend a day care\* facility  Yes  No  Unknown Facility name INV615

\*DAY CARE IS DEFINED AS A SUPERVISED GROUP OF 2 OR MORE UNRELATED CHILDREN FOR >4 HOURS PER WEEK.

Reside in a long term care facility?  Yes  No  Unknown Facility name INV636

64. Is this case part of an outbreak?  Yes  No  Unknown Outbreak name 77980-1

Where was this disease acquired? 77982-7

Imported Country: INV153 Imported City: INV155

Imported State: INV154 Imported County: INV156

Generic Version 2  
Message Mapping Guide

RIBD Message  
Mapping Guide

# Sample Test Messages and Scenarios will be Available

- <https://wwwn.cdc.gov/ndss/case-notification/message-mapping-guides.html>,
- “MMGs in Development”

Row	Condition	PHIN Variable	Data Element (DE) Name	Test Record #1
1				<b>Responses for All Data Elements</b>
62	GenV2	INV166	MMWR Year	2017 <or state-assigned value>
63	GenV2	INV176	Date CDC Was First Verbally Notified of This Case	20170731 <or any valid date>
64	GenV2	INV177	Date First Reported to PHD	20170729 <or any valid date>
65	GenV2	NOT109	Reporting State	26=Michigan <or state-assigned value>
66	GenV2	NOT113	Reporting County	26163=Wayne <use state-assigned value>

# Value Sets and Repeating Groups

# Value Sets

- Some data elements are transmitted in the HL7 message according to a pre-defined value set
- Data Type: Coded

INV615	Does this patient attend a day care facility?	Yes No Unknown (YNU)
--------	---	----------------------



Concept Code	Concept Name
<input type="checkbox"/> N	No
<input type="checkbox"/> UNK	unknown
<input type="checkbox"/> Y	Yes

<https://phinvads.cdc.gov/vads/ViewValueSet.action?oid=2.16.840.1.114222.4.11.888>

76437-3	Type of insurance	Insurance Type
---------	-------------------	----------------



Concept Code	Preferred Concept Name
5	Private Health Insurance
1	Medicare
2	Medicaid
331	Indian Health Service
91497007	Incarcerated
OTH	other insurance
424553001	Uninsured
UNK	Unknown

## Repeating Groups

- Capture information where the same group of questions can be answered multiple times
- Value sets are designed flexibly to apply across conditions
- Case report forms, surveillance worksheets, and data dictionaries specify which values within the set are relevant for each condition

### 52. Underlying causes or prior illness: (CHECK ALL THAT APPLY)

- |  |   |   |  |
|--|---|---|--|
| <input type="checkbox"/> Current smoker  | <input type="checkbox"/> Hodgkin disease                    | <input type="checkbox"/> HIV infection  | <input type="checkbox"/> Heart failure / CHF                       |
| <input type="checkbox"/> Multiple myeloma  | <input type="checkbox"/> Asthma                             | <input type="checkbox"/> AIDS or CD4 count <200                                 | <input type="checkbox"/> Obesity                                   |
| <input type="checkbox"/> Sickle cell anemia  | <input type="checkbox"/> Emphysema / COPD                   | <input type="checkbox"/> Cochlear implant                                       | <input type="checkbox"/> CSF leak                                  |
| <input type="checkbox"/> Splenectomy / asplenia  | <input type="checkbox"/> Systemic lupus erythematosus (SLE) | <input type="checkbox"/> Deaf / profound hearing loss                           | <input type="checkbox"/> IVDU                                      |
| <input type="checkbox"/> Immunoglobulin deficiency                                     | <input type="checkbox"/> Diabetes mellitus                  | <input type="checkbox"/> Cirrhosis / Liver failure                              | <input type="checkbox"/> Cerebral vascular accident (CVA) / Stroke |
| <input type="checkbox"/> Immunosuppressive therapy (Steroids, Chemotherapy, Radiation) | <input type="checkbox"/> Nephrotic syndrome                 | <input type="checkbox"/> Alcohol Abuse  | <input type="checkbox"/> Complement deficiency                     |
| <input type="checkbox"/> Leukemia  | <input type="checkbox"/> Renal failure/Dialysis             | <input type="checkbox"/> Atherosclerotic Cardiovascular Disease (ASCVD) / (CAD) |  |

# Repeating Groups - Structure

## Value Sets

Repeating Group

START: Underlying Conditions Repeating Group		
Underlying Condition(s)	INV236	<a href="#">Underlying Conditions</a>
Underlying Conditions Indicator	TBD	<a href="#">Yes No Unknown (YNU)</a>

Concept Code	Concept Name
62479008	Acquired immune deficiency syndrome (disorder)
15167005	Alcohol abuse (disorder)
195967001	Asthma (disorder)
TBD	Blood Cancer
23719005	Transplantation of bone marrow (procedure)
363346000	Malignant neoplastic disease (disorder)
230690007	Cerebrovascular accident (disorder)

Concept Code	Concept Name
<input type="checkbox"/> N	No
<input type="checkbox"/> UNK	unknown
<input type="checkbox"/> Y	Yes

## Repeating Groups - Example

- It is possible to send Yes/No/Unknown values for all Underlying Conditions, or a subset
- Implementation depends on your state's system

START: Underlying Conditions Repeating Group		
Underlying Condition(s)	INV236	<u>Underlying Conditions</u>
Underlying Conditions Indicator	TBD	<u>Yes No Unknown (YNU)</u>

AIDS
Yes



Asthma
No



...repeat blocks as needed

# Condition-Specific Tabs

# *Haemophilus influenzae*, Meningococcal disease (*Neisseria meningitidis*), Invasive pneumococcal disease

- Includes data elements from each NNDSS Surveillance Worksheet (<https://www.cdc.gov/vaccines/pubs/surv-manual/appendix.html>)
- General Categories:
  - Patient/Case Information (e.g. underlying conditions, pregnancy-related questions, residence)
  - Epi Laboratory Repeating Group
  - Vaccination History
  - Drug Susceptibility/Resistance Repeating Group
  - Occupation and Industry

# Legionellosis

- Includes data elements for NNDSS surveillance and data elements from the Supplemental Legionnaires' Disease Surveillance System (SLDSS) (<https://www.cdc.gov/legionella/downloads/case-report-form.pdf>)
- General Categories:
  - Patient/Case Information
  - Travel Repeating Group
  - Healthcare Setting Repeating Group
  - Senior/Assisted Living Repeating Group
  - Exposures Repeating Group
  - Cruise Information
  - Occupation and Industry
  - Epi Laboratory Repeating Group

## Psittacosis

- Includes data elements from the National Association of State Public Health Veterinarians Case Report Form (<http://www.nasphv.org/Documents/PsittacosisHumanCaseReport.pdf>).
- General Categories:
  - Occupation and Industry
  - Treatment Repeating Group
  - Epi Laboratory Repeating Group
  - Patient/Case Information (e.g, signs and symptoms, personal protective equipment)
  - Bird Exposure Repeating Group

# Emerging Infections Program (EIP)

## Active Bacterial Core Surveillance (ABCs)

- Core ABCs Questions (*ABCs Core Case Report Form*)
- General Categories:
  - ABCs Epi Laboratory Repeating Group (*For all ABCs cases & all Neonatal Sepsis cases*)
  - Vaccination History (*For H. flu, N. Mening & IPD ABCs cases*)
  - Group A *Streptococcus* Questions
  - Invasive Pneumococcal Disease Questions
  - *Neisseria meningitidis* Questions
  - Neonatal Expanded Infection and Neonatal Sepsis Surveillance Questions

# Timeline and External Review

## RIBD MMG Timeline

- **2/26/2018:** Public review of draft RIBD MMG was opened
- **3/6/2018:** Webinar to present draft RIBD MMG to all states for feedback
- **3/23/2018:** Public review of draft RIBD MMG closes
- **March/April 2018:** CDC reviews all feedback and finalizes the MMG
- **May/June 2018:** Final RIBD MMG available

## External Review Objectives

- Identify discrepancies in the message mapping guide
  - Are value sets adequate?
  - Are concept codes consistent across conditions?
- Identify areas for technical clarification
  - Are there unclear data elements?
  - Do you know which data elements to send for each condition?
- Assess feasibility of IT implementation in your state
  - Which variables will not easily map to the MMG?
  - Is your state able to send both formats of lab data (lab template and lab data elements within condition-specific tabs)?

## External Review Process

- Please provide feedback by 3/23/2018
- To report your feedback, please use the RIBD MMG feedback document: <https://wwwn.cdc.gov/nndss/case-notification/>
- Email feedback to: [edx@cdc.gov](mailto:edx@cdc.gov)
- Subject line: “Draft RIBD MMG Feedback”
- Feedback will be reviewed by CDC; the outcome of the reconciliation process can be shared with state partners upon request
  - To submit a request for reconciled feedback, please contact [edx@cdc.gov](mailto:edx@cdc.gov), subject line “Request for RIBD Reconciled Feedback”
- RESULT: Final MMG

For questions regarding the presentation, please contact:  
[edx@cdc.gov](mailto:edx@cdc.gov), subject line “Questions: 3/6/18 RIBD  
Presentation”

For more information, contact CDC  
1-800-CDC-INFO (232-4636)  
TTY: 1-888-232-6348 [www.cdc.gov](http://www.cdc.gov)

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

