

Overview of the Draft Lyme and Tickborne Rickettsial Diseases Message Mapping Guide (MMG)

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Agenda

- Lyme and Tickborne Rickettsial Diseases (TBRD) background
- Message Mapping Guide (MMG) overview
- Example test messages and scenarios
- Objectives of external review
 - Key areas for feedback
 - Process for external review
- Questions or Comments

Background

Lyme Disease: Background

- Lyme disease: a nationally notifiable condition since 1991
 - 5th–6th most common of all notifiable conditions
 - Often 2nd or 3rd most common in high-incidence states
- CDC receives Lyme disease surveillance data from jurisdictions and tabulates annually to describe national trends
 - Disease-specific “extended record” contains clinical and laboratory fields in addition to core NNDSS variables
 - Content and format of extended record hasn’t been updated to match current disease and informatics standards

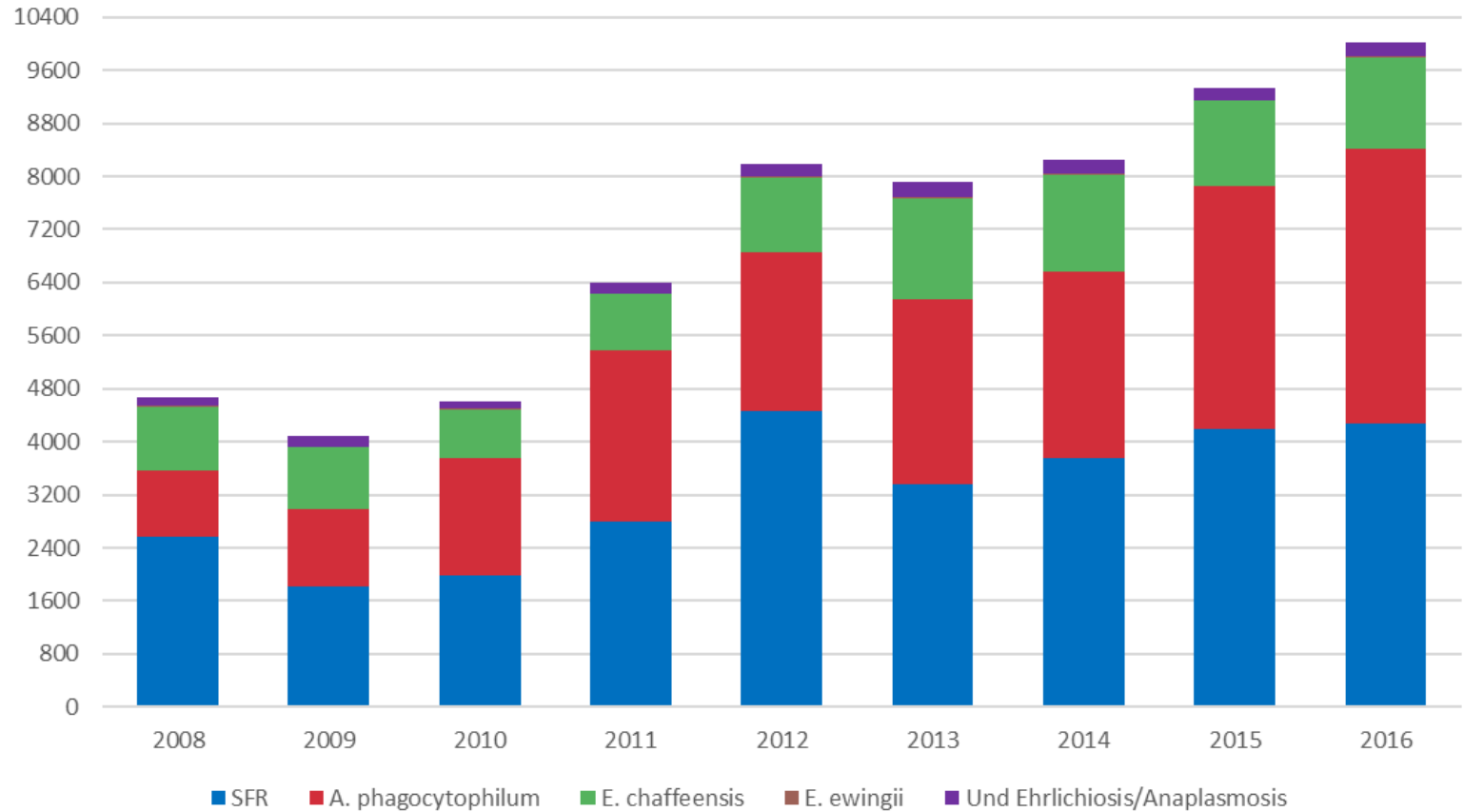
Recent Summary of Lyme Disease Surveillance Data

- 208,834 confirmed & 66,755 probable cases reported during 2008–2015
- ~60% of confirmed case records contained indication of ≥ 1 clinical manifestation necessary for confirmed status
- 3% of probable records contained indication of *confirmatory* clinical manifestations, suggestive of data transmission issues
- While transmitted successfully for some records, others contain mixtures of letters, numbers, or symbols, but most fields are empty.

Tickborne Rickettsial Diseases (TBRD): background

- Rocky Mountain spotted fever (RMSF) has been nationally notifiable since the 1920s. In 2010, the category was changed to Spotted Fever Rickettsiosis (SFR) to capture cases caused by all spotted fever group *Rickettsia*.
- Ehrlichiosis became nationally notifiable in 1999. In 2008, ehrlichiosis case definition split into four categories:
 - *Ehrlichia chaffeensis* infection
 - *Ehrlichia ewingii* infection
 - *Anaplasma phagocytophilum* infection
 - Undetermined ehrlichiosis/anaplasmosis

Tickborne Rickettsial Diseases: 2008–2016



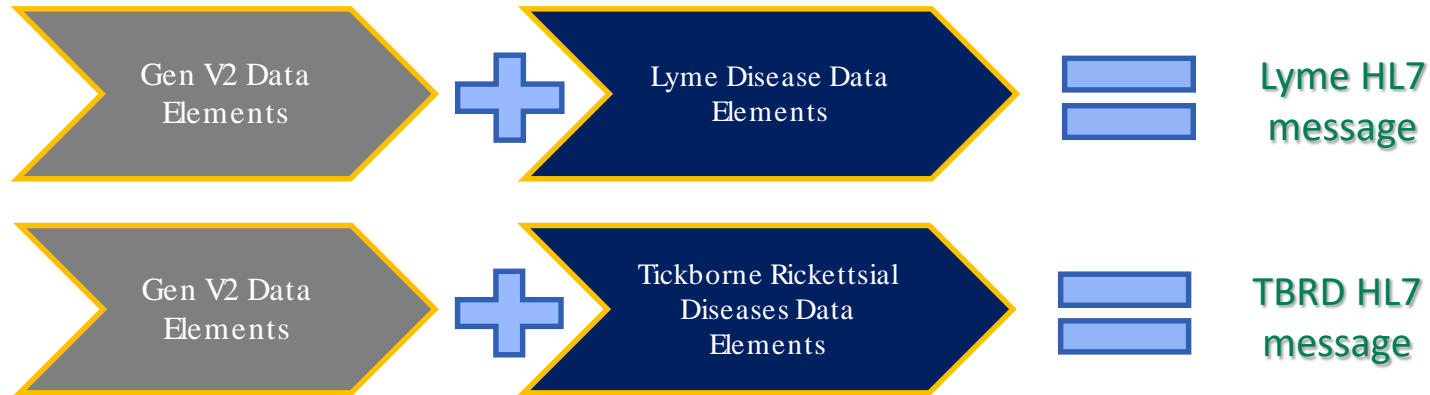
Why Implement the Lyme and Tickborne Rickettsial Diseases MMG?

- Will make complete data available to CDC programs much sooner to help identify increases in frequency and geographic expansion of diseases
- Extensive time and resources are devoted to capturing clinical details and laboratory test information; yet, limitations in data transmission hinder ability to use data to influence public health policy and recommendations at CDC
- Opportunity to improve data transmission and consolidate data streams to reduce burden on jurisdictions in reporting cases
- MMGs allow jurisdictions to map variables that CDC can receive and compile electronically
- Lead to the retirement of the TBRD paper case report form

MMG Overview

MMG Overview

- Updates the current message being used to facilitate Lyme disease data transmission
- Allows for TBRD-specific data elements to be transmitted electronically to CDC for the first time
- Allows data elements to be sent using HL7 messaging



MMG Overview

A	B	C	D	E	F	G	H
Data Element (DE) Name	DE Identifier Sent in HL7 Message	DE Code System	Data Element Description	Data Type	CDC Priority	May Repeat	Value Set Name (VADS Hyperlink)
Message Profile Identifier	N/A: MSH-21	N/A	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	Text	R	Y/3	N/A

START: EPIDEMIOLOGIC INFORMATION SECTION: The observations in this section will be mapped under an "Epidemiologic Information" category

Exposure in high incidence state	INV1264	PHINQUESTION	Did patient live in or visit a state defined as high incidence within 30 days prior to onset of symptoms?	Coded	P	N	Yes No Unknown (YNU)
Symptom onset greater than 30 days	INV1263	PHINQUESTION	Did onset of symptoms occur more than 30 days prior to diagnosis?	Coded	P	N	Yes No Unknown (YNU)

START: Clinical Manifestations Repeating Group

Clinical Manifestation	INV930	PHINQUESTION	Clinical manifestation of Lyme disease	Coded	P	N	Clinical Manifestations (Lyme)
Clinical Manifestation Indicator	81265-1	LN	For each clinical manifestation reported, indicate whether the	Coded	P	N	Yes No Unknown (YNU)

MMG Overview: Lyme Disease Data Elements Layout

- Lyme data elements tab includes 4 groups
 - Clinical Manifestation
 - Antibiotics/Treatment
 - Occupation and Industry
 - Epidemiology Laboratory Repeating Group

MMG Overview: TBRD Data Elements Layout

- TBRD data elements tab includes 7 groups
 - Physician Name/Number
 - Clinical Manifestation
 - Antibiotics/Treatment
 - Occupation and Industry
 - Epidemiology Laboratory Repeating Group
 - Travel History
 - Tick Bite

MMG Overview: Laboratory Template

- Laboratory template is not included in the MMG
- Laboratory template is optional for the tickborne MMG and can be found on the NNDSS website at <https://wwwn.cdc.gov/nndss/case-notification/related-documentation.html>
 - Click on the “MMG Related Documentation” section of the HL7 Case Notification Resource Center

MMG Related Documentation



This section contains documentation related to creating and sending case notification messages from public health entities to CDC for the new MMGs developed as part of NMI.

Document	Notes
PHIN Messaging Specification for Case Notification v3.0 (Release 2-2: 4/1/2018)	This document has been updated to accommodate sending the Generic and disease-specific Message Mapping Guides (e.g., hepatitis, sexually transmitted diseases, congenital syphilis, pertussis, and mumps) and should be used with all new MMGs beginning in 2015
Laboratory Template (Release 1; 5/11/2018)	This document includes the data elements for the "Laboratory Repeating Group" in the Message Mapping Guides.
Generic Data Elements that Define a Unique Case (Release 2; 7/7/2017)	Information for NNDSS reporting jurisdictions about which data elements in the Generic v2.0 MMG cannot change for a case because they are used to define a unique case in the CDC MVPS for HL7 case notifications

How will Lyme Disease Data Elements Differ After This MMG is Implemented?

- **New data elements**
 - Exposure question (e.g. exposure in high incidence state)
 - Symptom onset question (if symptoms began more than 30 days prior to specimen collection date)
- **Addition of valid values**
 - Valid values were added to improve data transmission (e.g. antibiotics, clinical signs and symptoms, laboratory variables)

How Will TBRD Data Elements Differ After this MMG is Implemented?

- **New data elements**
 - Clinical manifestations broken into symptoms
 - Exposure history
 - Treatment information
 - Questions about history of blood transfusions/donations and organ transplants
 - Co-infection diagnosis
- **Addition of valid values**
 - Valid values were added to improve data transmission (e.g. antibiotics, clinical signs and symptoms, laboratory variables)

Example Test Scenarios:

Sample Test Scenarios and Messages

- Test Scenario in the MMG
- Test Messages
 - <https://wwwn.cdc.gov/nnds/case-notification/message-mapping-guides.html>, click “MMGs in Development”

Data Element (DE) Name	DE Identifier Sent in HL7 Message	DE Code System	Data Element Description	Test Case 01
				Description: Sample valid values for 25-year old, Hispanic or Latino, male, hospitalized, laboratory-reported notifiable non-outbreak associated condition, recovered, confirmed case, non-travel associated, Lyme Disease (Condition Code – 11080)
Message Profile Identifier	N/A: MSH-21	N/A	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	NOTF_ORU_v3.0*PHINProfileID*2.16.840.1.114222.4.10.3*ISO
Subject Related				
Local Subject ID	N/A: PID-3	N/A	The local ID of the subject/entity	TickborneLyme_Case01
Birth Date	N/A: PID-7	N/A	Patient's date of birth	19930601
Subject's Sex	N/A: PID-8	N/A	Subject's current sex	M=Male
Race Category	N/A: PID-10	N/A	Race category - Major OMB Race Categories. Detailed race information would be rolled up to these major OMB race categories.	N/A

Introduction

MMG Column Descriptions

Lyme

Lyme TS

Tickborne Rickettsial Diseases

T.Rickettsial Disease

Objectives of the External Review and Timeline

External Review Objectives

- **Identify discrepancies in the message mapping guide**
 - Are value sets adequate?
- **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?

Lyme and Tickborne Rickettsial Diseases MMG Timeline

- **08/24/2018:** External review for draft MMG began
- **09/6/2018:** Webinar to present draft MMG for feedback
- **09/21/2018:** External review for draft MMG closes
- **Late September:** MMG team with Lyme and TBRD epidemiologist will review feedback and update MMG
- **Early October:** Pilot Test-Ready Lyme and Tickborne Rickettsial Diseases MMG

How to Submit Feedback

- Please provide feedback by **Friday, September 21st**
- To report your feedback, please use the Lyme and Tickborne Rickettsial Diseases MMG feedback document: <https://wwwn.cdc.gov/nndss/case-notification/message-mapping-guides.html>, click “MMGs in Development” tab
- Email feedback to: edx@cdc.gov
- Subject line: “Draft Lyme and TBRD MMG Feedback”
- Feedback will be reviewed by CDC; outcome of reconciliation available
 - To submit a request for reconciled feedback, please contact edx@cdc.gov, subject line “Request for Lyme and TBRD Reconciled Feedback”

Questions?

For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 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.

