Foodborne and Diarrheal Diseases Message Mapping Guide (FDD MMG)

Division of Foodborne, Waterborne, and Environmental Diseases

Division of Parasitic Diseases & Malaria, Center for Global Health

CSTE webinar

October 25, 2017

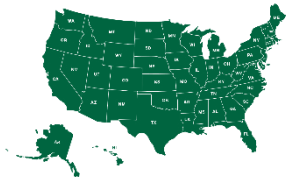
Webinar purpose is to open a period for informatics/IT feedback

- Identify discrepancies in the message mapping guide specifications
- Identify areas for technical clarification
- Assess feasibility of IT implementation in your state

Agenda

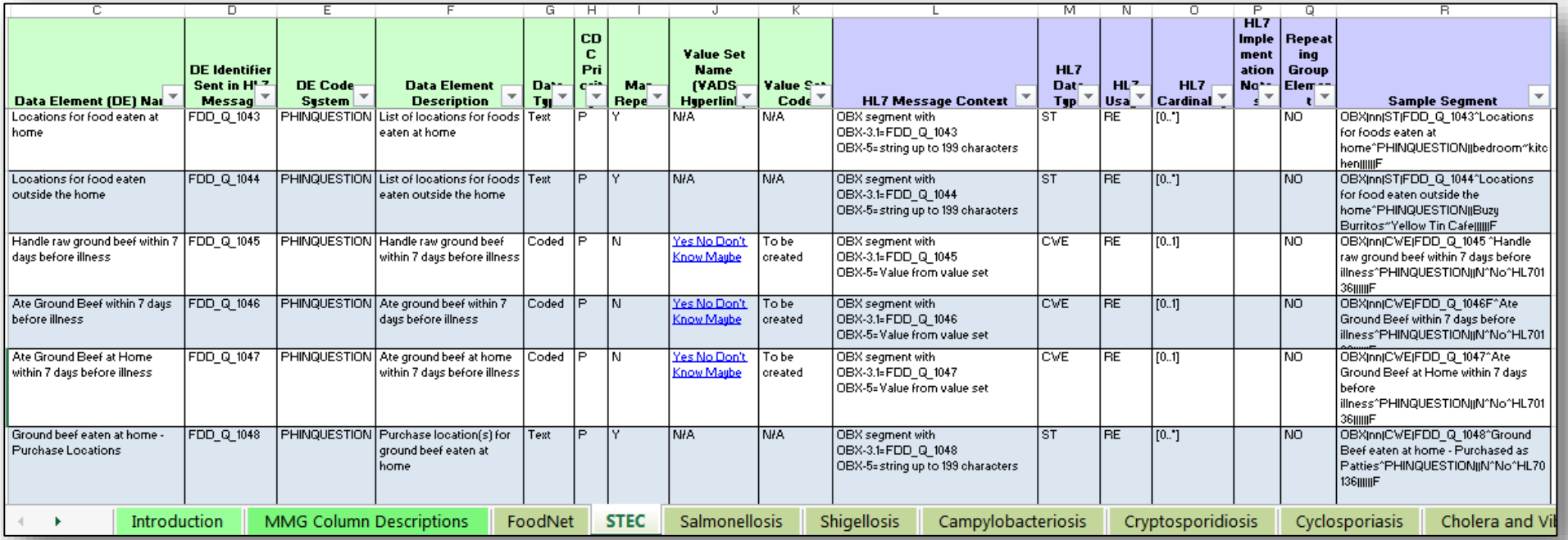
- MMG overview and components
- How to use the FDD MMG to build a message
- Timeline towards MMG implementation (2017–2018)
- Goals and processes for MMG review period

Foodborne and Diarrheal Diseases Message Mapping Guide (FDD MMG) overview



- Guide for **all states** sending data elements via HL7 for multiple nationally notifiable conditions
  - STEC, salmonellosis, shigellosis, campylobacteriosis, cryptosporidiosis, cyclosporiasis, cholera/vibriosis, typhoid/paratyphoid

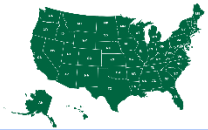
- Contains subset of data elements sent by **EIP states only** to FoodNet
  - Includes yersiniosis, which is not nationally notifiable
- Designed to be used in conjunction with Generic v2 MMG
- Excel file with condition-specific tabs

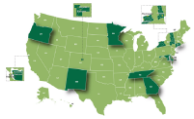


C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
Data Element (DE) Nar	DE Identifier Sent in HL7 Messag	DE Code System	Data Element Description	Data Typ	CDC Pri	Mar Repe	Value Set Name (VADS Hyperlink	Value Set Code	HL7 Message Context	HL7 Data Typ	HL7 Usa	HL7 Cardinal	HL7 Implementation Note s	Repeating Group Element	Sample Segment
Locations for food eaten at home	FDD_Q_1043	PHINQUESTION	List of locations for foods eaten at home	Text	P	Y	N/A	N/A	OBX segment with OBX-3.1=FDD_Q_1043 OBX-5=string up to 199 characters	ST	RE	[0..*]		NO	OBX|nn|ST|FDD_Q_1043^Locations for foods eaten at home^PHINQUESTION||bedroom~kitchen|||||F
Locations for food eaten outside the home	FDD_Q_1044	PHINQUESTION	List of locations for foods eaten outside the home	Text	P	Y	N/A	N/A	OBX segment with OBX-3.1=FDD_Q_1044 OBX-5=string up to 199 characters	ST	RE	[0..*]		NO	OBX|nn|ST|FDD_Q_1044^Locations for food eaten outside the home^PHINQUESTION||Buzy Burritos~Yellow Tin Cafe|||||F
Handle raw ground beef within 7 days before illness	FDD_Q_1045	PHINQUESTION	Handle raw ground beef within 7 days before illness	Coded	P	N	Yes No Don't Know Maybe	To be created	OBX segment with OBX-3.1=FDD_Q_1045 OBX-5=Value from value set	CWE	RE	[0..1]		NO	OBX|nn|CWE|FDD_Q_1045 ^Handle raw ground beef within 7 days before illness^PHINQUESTION||N^No^HL70136|||||F
Ate Ground Beef within 7 days before illness	FDD_Q_1046	PHINQUESTION	Ate ground beef within 7 days before illness	Coded	P	N	Yes No Don't Know Maybe	To be created	OBX segment with OBX-3.1=FDD_Q_1046 OBX-5=Value from value set	CWE	RE	[0..1]		NO	OBX|nn|CWE|FDD_Q_1046F^Ate Ground Beef within 7 days before illness^PHINQUESTION||N^No^HL701
Ate Ground Beef at Home within 7 days before illness	FDD_Q_1047	PHINQUESTION	Ate ground beef at home within 7 days before illness	Coded	P	N	Yes No Don't Know Maybe	To be created	OBX segment with OBX-3.1=FDD_Q_1047 OBX-5=Value from value set	CWE	RE	[0..1]		NO	OBX|nn|CWE|FDD_Q_1047^Ate Ground Beef at Home within 7 days before illness^PHINQUESTION||N^No^HL70136|||||F
Ground beef eaten at home - Purchase Locations	FDD_Q_1048	PHINQUESTION	Purchase location(s) for ground beef eaten at home	Text	P	Y	N/A	N/A	OBX segment with OBX-3.1=FDD_Q_1048 OBX-5=string up to 199 characters	ST	RE	[0..*]		NO	OBX|nn|CWE|FDD_Q_1048^Ground Beef eaten at home - Purchased as Patties^PHINQUESTION||N^No^HL70136|||||F

Introduction | MMG Column Descriptions | FoodNet | STEC | Salmonellosis | Shigellosis | Campylobacteriosis | Cryptosporidiosis | Cyclosporiasis | Cholera and Vi

FDD MMG includes…





Condition	National Data Elements (All states)	FoodNet Variables (FoodNet sites)
Cryptosporidiosis	CryptoNet	√
Cyclosporiasis	Cyclosporiasis case report form	√
Cholera, vibriosis	COVIS case report form	√
Typhoid, paratyphoid	NTPFS case report form	√
STEC	CSTE-approved data elements	√
Invasive listeriosis	pending	√
Salmonellosis	Selected CSTE-approved elements	√
Shigellosis	Selected CSTE-approved elements	√
Campylobacteriosis	Selected CSTE-approved elements	√
HUS		√
Yersiniosis		√

COVIS: Cholera and other *Vibrio* illness surveillance; NTPFS: National typhoid and paratyphoid fever surveillance; STEC: Shiga toxin-producing *E. coli*; CSTE: Council of State and Territorial Epidemiologists; HUS: hemolytic uremic syndrome

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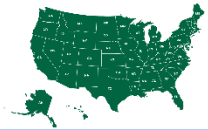

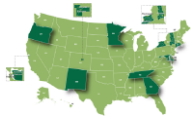

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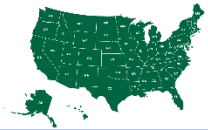

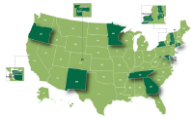

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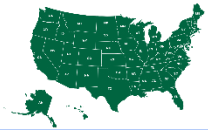

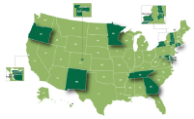

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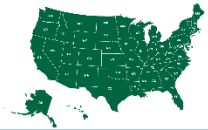

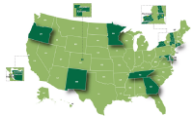

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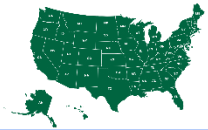

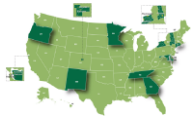

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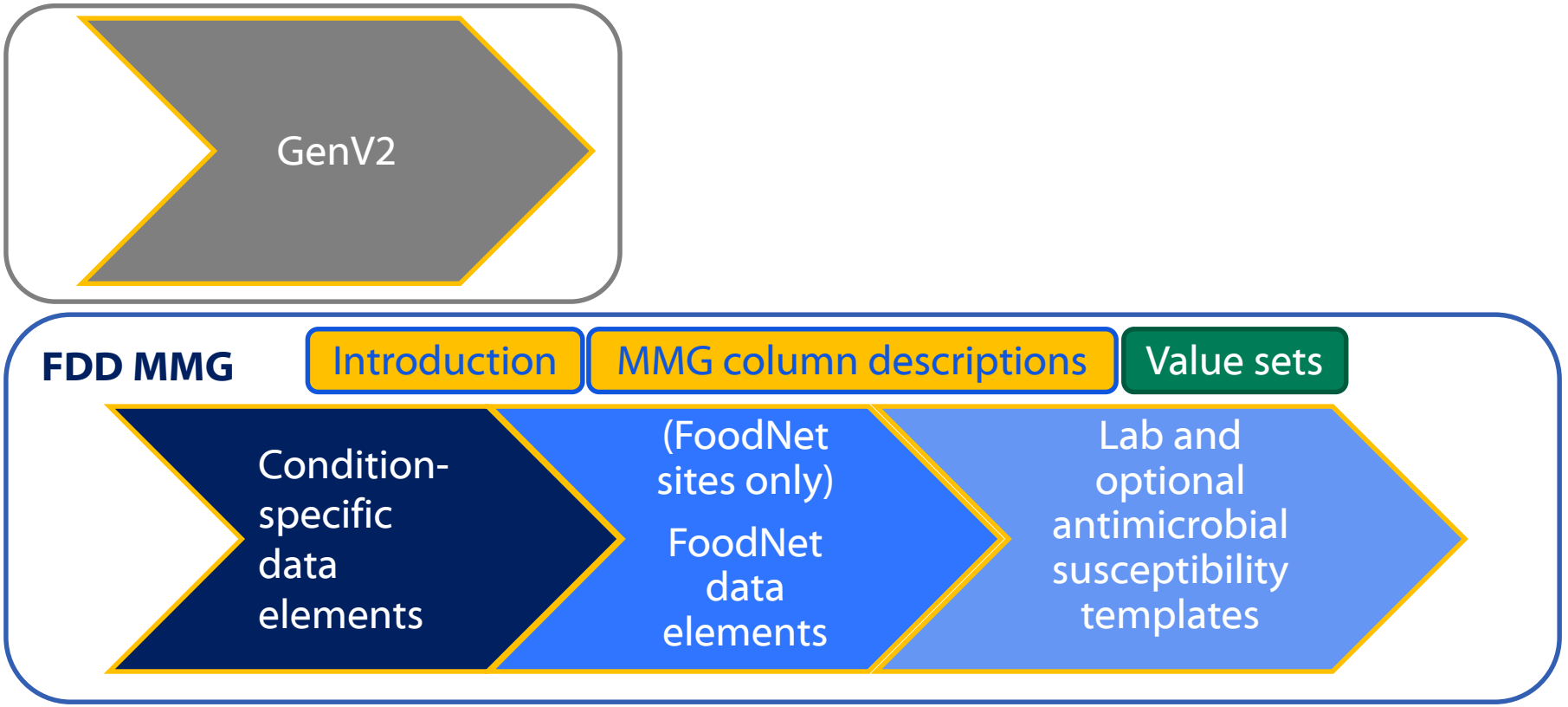
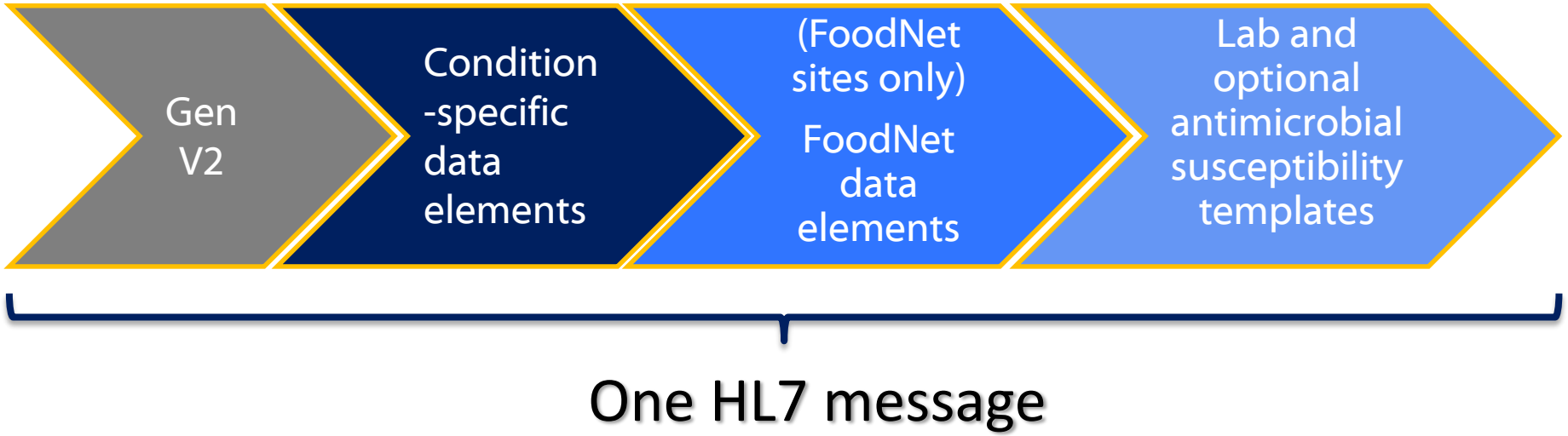
Message components



How to use the FDD MMG

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



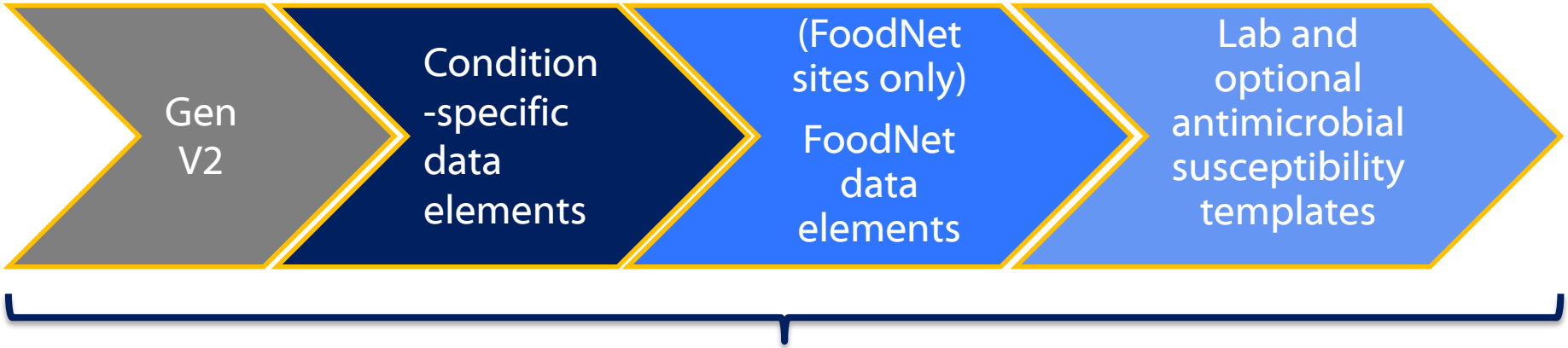
Example vibriosis notification

ID, age, sex, hospitalized…

Ate oysters, clams…

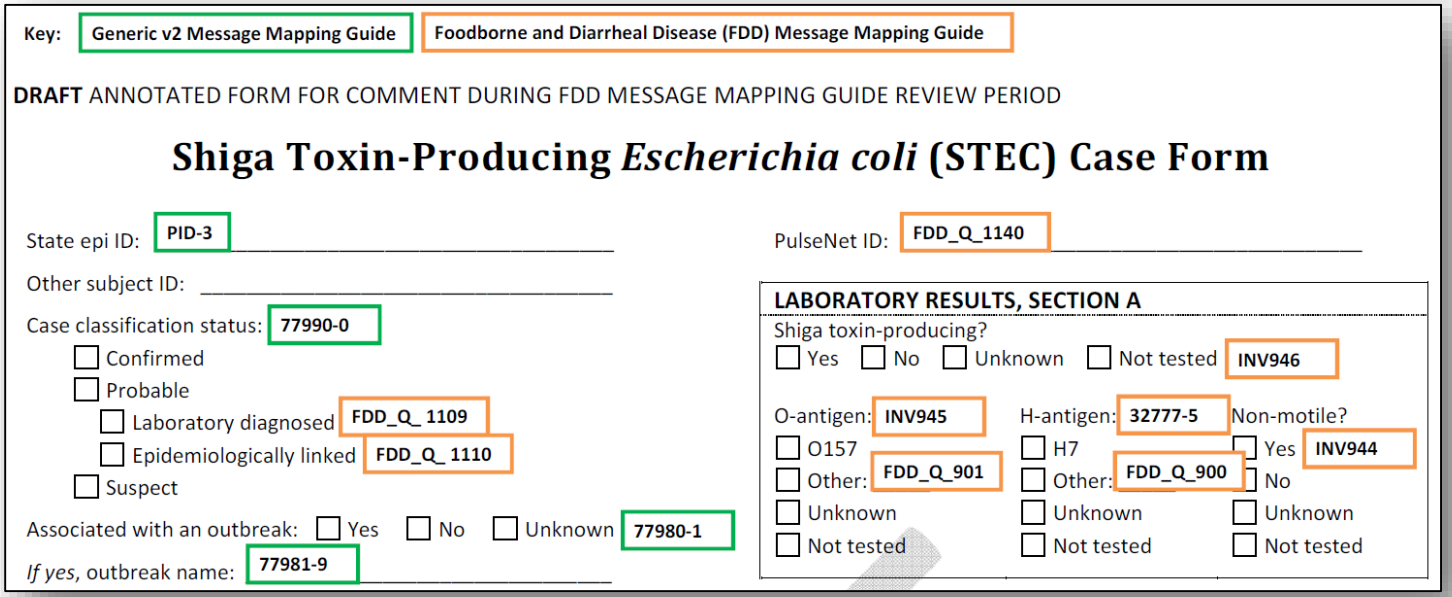
Travel…

Culture result…



Annotated case report forms and data dictionaries

- Available for STEC, typhoid/paratyphoid, COVIS, and cyclosporiasis
- https://wwwn.cdc.gov/nndss/case-notification/message-mapping-guides.html, click “MMGs in Development”



Key: Generic v2 Message Mapping Guide | Foodborne and Diarrheal Disease (FDD) Message Mapping Guide

DRAFT ANNOTATED FORM FOR COMMENT DURING FDD MESSAGE MAPPING GUIDE REVIEW PERIOD

Shiga Toxin-Producing *Escherichia coli* (STEC) Case Form

State epi ID: PID-3 _____

Other subject ID: _____

Case classification status: 77990-0

- ☐ Confirmed
- ☐ Probable
  - ☐ Laboratory diagnosed FDD_Q_ 1109
  - ☐ Epidemiologically linked FDD_Q_ 1110
- ☐ Suspect

Associated with an outbreak: ☐ Yes ☐ No ☐ Unknown 77980-1

If yes, outbreak name: 77981-9 _____

PulseNet ID: FDD_Q_1140 _____

LABORATORY RESULTS, SECTION A

Shiga toxin-producing?

☐ Yes ☐ No ☐ Unknown ☐ Not tested INV946

O-antigen: INV945

- ☐ O157
- ☐ Other: FDD_Q_901
- ☐ Unknown
- ☐ Not tested

H-antigen: 32777-5

- ☐ H7
- ☐ Other: FDD_Q_900
- ☐ Unknown
- ☐ Not tested

Non-motile?

- ☐ Yes INV944
- ☐ No
- ☐ Unknown
- ☐ Not tested

Sample test messages and scenarios are available

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

Row	Condition	PHIN Variable	Data Element (DE) Name	Test Record #1
1				**Responses for All Data Elements**
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

- **Some data elements are transmitted in the HL7 message according to a pre-defined value set**

Data Element (DE) Name	DE Identifier Sent in HL7 Message	Value Set Name (VADS Hyperlink)
Foodhandler within 7 days before illness	FDD_Q_1041	Yes No Don't Know Maybe

Concept Name	Preferred C
No	No
Yes	Yes
FDD_A_57	Maybe
UNK	unknown

... Yes No Don't Know Maybe Drink

Data Element (DE) Name	DE Identifier Sent in HL7 Message	Value Set Name (VADS Hyperlink)
International destination, countries traveled to	TRAVEL05	Country

https://phinvads.cdc.gov/vads/ViewValueSet.action?oid=2.16.840.1.114222.4.11.828

Concept Code	Concept Name	Preferred Concept Name	Code System	Value Set	
AFG	AFGHANISTAN	AFGHANISTAN	Country (ISO 3166-1)	Country	Details
ALA	ÅLAND ISLANDS	ÅLAND ISLANDS	Country (ISO 3166-1)	Country	Details
ALB	ALBANIA	ALBANIA	Country (ISO 3166-1)	Country	Details

Repeating elements

Repeating block

Data Element (DE) Name	DE Identifier Sent in HL7 Message	Value Set Name (VADS Hyperlink)
Problem associated signs and symptoms	56831-1	Signs and Symptoms (FDD)
Signs and Symptoms Indicator	INV926	Yes No Unknown (YNU)
Date of onset - Reported	76425-8	

Value sets

Concept Name	Preferred Conce
Fatigue	Fatigue
Loss of appetite	Loss of appetite
Nausea	Nausea
Stomach cramps	Stomach cramps
Vomiting	Vomiting
Diarrhea	Diarrhea
Weight Loss	Weight loss

... Signs and Symptoms (FDD)

Concept Code	Concept Name
N	No
UNK	unknown
Y	Yes

Repeating elements

Data Element (DE) Name	DE Identifier Sent in HL7 Message	Value Set Name (VADS Hyperlink)
Problem associated signs and symptoms	56831-1	Signs and Symptoms (FDD)
Signs and Symptoms Indicator	INV926	Yes No Unknown (YNU)
Date of onset - Reported	76425-8	

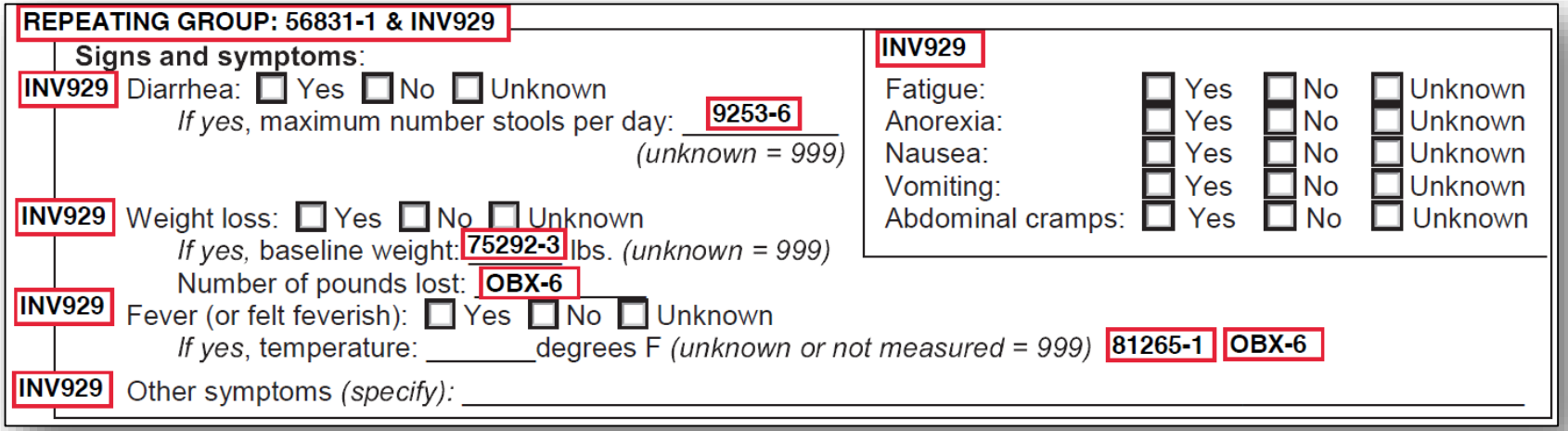
Diarrhea
Yes
2016-12-14

Fever
No

…repeat blocks as needed

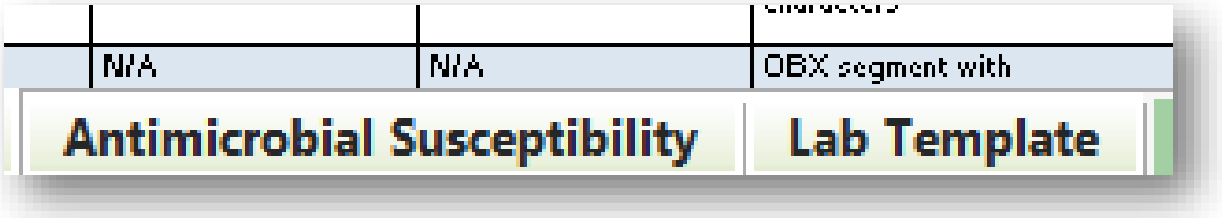
Refer to case report forms and data dictionaries for relevant values

- Value sets and repeating blocks are designed flexibly to apply across multiple conditions
- Case report forms and data dictionaries specify which values within the set are relevant for each condition



Laboratory tabs

- **“Antimicrobial susceptibility”** is an optional set of elements that can be used to transmit antimicrobial susceptibility results
- **“Lab Template”** can be used to transmit primary laboratory data (e.g., ELR). It is optional for non-EIP states.



Cholera and vibriosis

- Repeating group for harvest area traceback data
- Repeating group for seafood investigation data
- Link through Seafood Investigation ID

START: Seafood Investigation Repeating Questions	
Seafood Investigation ID	FDD_Q_934
Type of Seafood Investigated	FDD_Q_1132
Date Seafood Consumed	FDD_Q_1133
Amount of Seafood Consumed	FDD_Q_940

START: Harvest Area Repeating Questions NOTE: This group repea	
Seafood Investigation ID Link	FDD_Q_1134
Harvest Region	FDD_Q_955
Harvest State	FDD_Q_956
Area Listed on Tag	FDD_Q_957

STEC

- MMG allows transmission of CSTE-approved data elements (PS 17-ID-10)
- Draft annotated case report form created to aid MMG interpretation
  - Includes CSTE-approved data elements and optional elements based on discussion with state panels

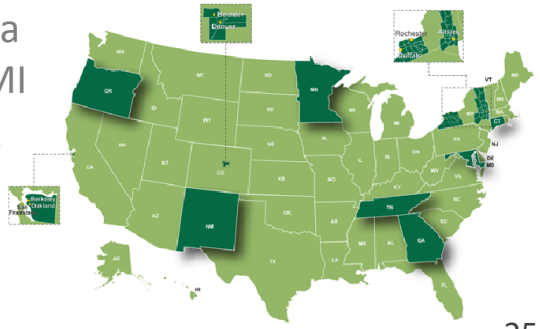
- Note: Shiga toxin 1, 2, and 1&2 added to value set for test results

Paratyphoid fever reporting

- Paratyphoid fever case notifications are usually sent by jurisdictions using the salmonellosis condition code
- Paratyphoid fever data elements are more similar to those of typhoid fever than salmonellosis
- A separate condition code for paratyphoid fever has been created in anticipation of MMG implementation

FoodNet pilot

- Emerging infections program (EIP) in collaboration with the NNDSS Modernization Initiative and APHL is providing technical assistance teams to FoodNet sites to implement Message mapping Guide (MMG)
- **Goal**
  - 3 of 10 EIP FoodNet sites (MN, NY, OR) transmitting data through HL7 by January 2018
  - All FoodNet sites transmitting data through HL7 by January 2019
- **Objectives**
  - Build capacity for simplified and streamlined “state to CDC” data transmission through HL7, the same platform to be used for NMI
  - Assess feasibility, resources required, and identify challenges to national implementation of MMG and HL7



FDD MMG timeline

- 8/1/2017: Began piloting FDD MMG in 3 FoodNet sites (MN, NY, OR)
- 10/25/2017: Webinar to present draft FDD MMG to all states for feedback
- 10/25–11/17/2017: Public review period for draft FDD MMG
- Ongoing: CDC developing listeria tab for next version of FDD MMG
- 11/17/2017: CDC starts review of feedback and creates resolutions with CSTE and external partners
- 6/2018: Final FDD MMG available for all states to implement

External review process

- Please provide feedback by 11/17
- To report your feedback, please use the FDD MMG feedback document provided here: https://wwwn.cdc.gov/nndss/case-notification/
- Email feedback to: edx@cdc.gov
- Subject line: “Draft FDD MMG Feedback”

  Include
  - Data Element (DE) Identifier Sent in HL7 Message or Data Element Name
  - Comment/question/suggestion
  - Include evidence to support suggestion if possible
  - Additional contact information (name and phone number)

Feedback review process

- CDC will aggregate feedback
- Feedback will be reviewed by
  - Surveillance Operations Team
  - Message & Vocabulary Team
  - CDC program staff
- CDC will share the outcome of the reconciliation process with state partners upon request
  - To submit a request for reconciled feedback, please contact edx@cdc.gov, subject line “Request for FDD Reconciled Feedback”
- RESULT: “Pilot Test-Ready” MMG Package

We need your feedback

- Which variables will easily map to the MMG, and which will not?
- Are value sets adequate?
- Can your state map data to laboratory elements within the condition-specific tabs?
- Can your state map data to the laboratory identifiers?
- Which format (lab template, antimicrobial susceptibility template, or lab data elements within condition-specific tabs) is preferred in your state for sending lab data?

For questions regarding the presentation, please contact:
edx@cdc.gov, subject line “Questions: 10/25 FDD Presentation”

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.