

**Attachment 1C.**

**Lead Lab Report Notification Message**

**Mapping Guide 05172007.xls**

### Lead Laboratory Report Notification Message Mapping Guide

**VERSION: The version of this Message Mapping Guide is Draft 0.5 dated 5/17/2007.**

This Message Mapping Guide describes the content and message mapping specifications for the fixed set of data elements used to communicate information to meet the requirements for Lead Laboratory Report notifications to CDC. The intended audience for this document are the state/local and CDC programs and other public health related organizations interested in using the HL7 V2.5 case notification message specification for transmitting their data elements.

#### References

Version 1.0 of the *Message Specification Guide* is used to inform the mapping methodology for this guide. *Notify CDC Message-All PAMs* from NEDSS PAM Platform Team. Last updated 1/26/2007. *NEDSS PAM Platform Help Guide*, 11/30/2006.

#### Understanding the Organization of the Mapping Guide

<u>Revisions</u>	This tab is intended to provide revision control for updates made to the document.
<u>Key</u>	Key to columns in each Tab/Worksheet
<u>Subject-related</u>	This tab provides the mapping methodology for the demographic variables requested by the program.
<u>Lead Lab Rpt Observations</u>	This tab provides the mapping methodology for the content requested by the program for this specific notification.
<u>Notification Structure</u>	This tab provides the structural elements for the Notification. These variables are not negotiable. Default values are provided for HL7 structural elements that are required but not part of the surveillance data requested.

#### Variables as Observations

Other than the variables that map to the Patient Identifier segment (see Subject-Specific tab), all other variables are passed as a series of OBX-Observation/Result segments that are logically tied to the OBR-Observation Request "section header" segment that immediately precedes it. This content presents the real differences between the messages since all types of Notifications are handled in a standard manner up to this point.

# Attachment 1C

## Lead Laboratory Report Notification Message Mapping Guide

### Revisions

Date	Version	Description
4/25/2007	Draft v. 0.5	Added "notification subject type" to the Notification Structural Data to bring the message structure in line with the Outbreak Management version of the ORU Case Investigation Report message.
4/25/2007	Draft v. 0.5	Changed all observations that use the CE value type in OBX-2 to CWE - coded with exception - to prepare for versioning of value sets. The additional fields are still optional at this point.
4/25/2007	Draft v. 0.5	Added "patient name type" to the Notification Structural data to account for the default value that must be provided in the message.
4/25/2007	Draft v. 0.5	Remapped NTF139 to NOT108 for use as the PHIN Variable ID used for MSH-10 Message Control ID (UID nor text appears in this context)
4/25/2007	Draft v. 0.5	No longer supporting the <i>RE - required but may be empty</i> concept. The Program Optional/Required column reflects what the source messaging document specifies.
4/25/2007	Draft v. 0.5	DEM147 State Patient ID Changed UID - formerly mapped to INV172. Note that this element maps under the new "Subject Type" in OBR 1 .
4/25/2007	Draft v. 0.5	LEA135 Local Address ID normalized to DEM2010. It continues to appear without the UID or text as PID-11.2 - Patient Address Other Designation.
5/3/2007	Draft v. 0.5	Removed NOT110 Record Type variable. This observation is no longer necessary as the Notification Type specified in NOT101 contains this information.

# Attachment 1C

## Lead Individual Case Notification Message Mapping Guide

### Key to columns in each Tab/Worksheet:

Column	Description
<b>Program Variables Section</b>	
PHIN Variable ID	PHIN element UID drawn from the coding system PH_PHINQuestions_CDC
Label	Short name for the data element, which is passed in the message.
Description	Description of the data element as in PHIN Questions.
Data Type	Data type for the variable response expected by the program area
Prog. Req/Opt	Indicator whether the program specifies the field as: <b>R</b> - Required - mandatory for sending the message <b>O</b> - Optional - if the data is available it should be passed
May Repeat	Indicator whether the response to the data element may repeat. "Yes" in the field indicates that it may; otherwise, the field is not populated. Repeats require special processing.
Coded Concepts	Concepts that the program uses in answer to a particular question that required a coded response.
Value Set Name	Name of the pre-coordinated value set from which the response is drawn. The value sets and coding systems are accessible via the Public Health Information Network Vocabulary Access and Distribution Services at <a href="http://www.cdc.gov/PhinVSBrowser/StrutsController.do">http://www.cdc.gov/PhinVSBrowser/StrutsController.do</a> .
Data Validation	Business rules used for validating data integrity
<b>Message Mapping Methodology Section</b>	
Message Context	Specific HL7 segment and field mapping for the element.
HL7 Data Type	HL7 data type used by PHIN to express the variable.
HL7 Usage	Use of the field for PHIN. Indicates if the field is required, optional, or conditional in a segment. The only values that appear in the Message Mapping are: <ul style="list-style-type: none"> <li>• R – Required. Must always be populated</li> <li>• O – Optional. May optionally be populated.</li> </ul>
HL7 Cardinality	Indicator of the minimum and maximum number of times the element may appear. <ul style="list-style-type: none"> <li>• [0..0] Element never present.</li> <li>• [0..1] Element may be omitted and it can have at most, one Occurrence.</li> <li>• [1..1] Element must have exactly one Occurrence.</li> <li>• [0..n] Element may be omitted or may repeat up to n times.</li> <li>• [1..n] Element must appear at least once, and may repeat up to n times.</li> <li>• [0..*] Element may be omitted or repeat for an unlimited number of times.</li> <li>• [1..*] Element must appear at least once, and may repeat unlimited number of times.</li> <li>• [m..n] Element must appear at least m, and at most, n times.</li> </ul>
Implementation Notes	Related implementation comments.

Subject/Demographic Variables									Mapping Methodology				
PHIN Variable ID	Label/Short Name	Description	Data Type	Prog. Req/Opt	May Repeat	Coded Concepts	Value Set Name	Data Validation	Message Context	HL7 Data Type	HL7 Usage	HL7 Cardinality	Implementation Notes
DEM197	Local patient ID	The local ID of the patient/entity.	Text	R					PID-3 Patient Identifier List (does not pass Variable ID or label)	CX	R	[1..1]	also shown on Notification Structure tab
INV172 remapped to DEM147	State patient ID	Patient ID value assigned by the state	Text	O					Observation/OBX Segment with this variable ID and label	ST	O	[0..1]	
DEM115	Birth Date	Reported date of birth of patient.	Date	R					PID-7 Date/Time of Birth (does not pass Variable ID or label)	TS	O	[0..1]	
DEM113	Patient's sex	Patient's current sex.	Code	O		Male Female Unknown	Sex (MFU)		PID-8 Administrative Sex (does not pass Variable ID or label)	IS	O	[0..1]	
DEM152	Race Category	Field containing one or more codes that broadly refer to the patient's race(s).	Code	O	Y	American Indian or Alaska Native Asian Black or African American Native Hawaiian or Other Pacific Islander White Other Race	Race Category		PID-10 Race (does not pass Variable ID or label)	CE	O	[0..*]	

Subject/Demographic Variables									Mapping Methodology				
PHIN Variable ID	Label/Short Name	Description	Data Type	Prog. Req/Opt	May Repeat	Coded Concepts	Value Set Name	Data Validation	Message Context	HL7 Data Type	HL7 Usage	HL7 Cardinality	Implementation Notes
DEM153	Detailed Race	A patient record may have zero, one, or multiple detailed race categories assigned. This variable is not passed unless specified for the particular condition.	Code	O	Y		Detailed Race		Observation/OBX Segment with this UID and label under the Patient Subject section header in OBR-4. To keep the race category in context with detailed races, pass the race category in the first instance of this field and the detailed race codes as repeats. If more than one race category was passed in PID-10 Race, use a second OBX Detailed Race segment instance to keep that grouping in context.	CWE	O	[0..*]	
DEM155	Ethnic Group Code	Ethnic origin or ethnicity is based on the individual's self-identity of the patient as Hispanic or Latino; choose one value from the list.	Code	O		Hispanic Non-hispanic	Ethnicity Group		PID-22 Ethnic Group (does not pass Variable ID or label)	CE	O	[0..1]	Note that HL7 says this field may repeat but not expecting repeats.
DEM156	Detailed Ethnicity	If the value specified in Ethnicity is Hispanic or Latino, choose detailed ethnicity value(s) that better define the patient's Latino ethnicity; values may include Cuban, Mexican, etc.; choose one or multiple values from this list. This variable is not passed unless specified for the particular condition.	Code	O	Y		Detailed Ethnicity		Observation/OBX Segment with this UID and label under the Patient Subject section header in OBR-4.	CWE	O	[0..*]	

Subject/Demographic Variables									Mapping Methodology				
PHIN Variable ID	Label/Short Name	Description	Data Type	Prog. Req/Opt	May Repeat	Coded Concepts	Value Set Name	Data Validation	Message Context	HL7 Data Type	HL7 Usage	HL7 Cardinality	Implementation Notes
DEM2005	Date of entry into US	Original date of entry into U.S.	Date	O		Country	Country		Observation/OBX Segment with this UID and label under the Patient Subject section header in OBR-4.	CE	O	[0..1]	
<b>Address Data - note that all addresses related to the patient are sent, so the entire Extended Address construct in PID-11 will repeat.</b>													
LEA135 remapped to DEM2010	Address ID	The system-assigned unique address ID	Text	O	Y				PID-11.2 Patient Address - Other Designation (note that the variable ID and label do not appear in the message)	ST	O	[0..*]	
DEM161	Patient Address City	Patient's address city as text	Text	O	Y				PID-11.3 Patient Address - City (note that the variable ID and label do not appear in the message)	ST	O	[0..*]	
DEM162	Patient Address State	Patient's address state.	Code	O	Y		State		PID-11.4 Patient Address - State (note that the variable ID and label do not appear in the message)	ST	O	[0..*]	
DEM163	Patient Address Zip Code	Patient's address Zip code.	Text	O	Y				PID-11.5 Patient Address - Postal Code (note that the variable ID and label do not appear in the message)	ST	O	[0..*]	
DEM165	Patient Address County	County of residence of the subject.	Code	O	Y		County		PID-11.9 Patient Address - County (note that the variable ID and label do not appear in the message)	IS	O	[0..*]	

Subject/Demographic Variables									Mapping Methodology				
PHIN Variable ID	Label/Short Name	Description	Data Type	Prog. Req/Opt	May Repeat	Coded Concepts	Value Set Name	Data Validation	Message Context	HL7 Data Type	HL7 Usage	HL7 Cardinality	Implementation Notes
DEM168	Census Tract	Census tract where the address is located is a unique identifier associated with a small statistical subdivision of a county. Census tract data allows a user to find population and housing statistics about a specific part of an urban area. A single community may be composed of several census tracts.	Text	O	Y				PID-11.10 Patient Address - Census Tract (note that the variable ID and label do not appear in the message)	IS	O	[0..*]	Census codes not in PHIN-VADS - treated as a user-defined code passed without description or OID
DEM169	Residence From Date	Residence <i>From</i> date.	Date	O	Y				PID-11.13 Patient Address - Effective Date (note that the variable ID and label do not appear in the message)	TS	O	[0..*]	
DEM170	Residence To Date	Residence <i>To</i> date.	Date	O	Y				PID-11.14 Patient Address - Expiration Date (note that the variable ID and label do not appear in the message)	TS	O	[0..*]	
<b>End of repeating address info that is passed in PID-11</b>													
DEM171	Patient's City – Coded	Patient's address city as encoded value. This field will repeat a coded Place value for each city string in the repeating address field, and in the same order in which the address was presented.	Code	O	Y		City	Entire address construct repeats.	Observation/OBX segment for FIPS city/place codes derived from the repeating address field contents in PID-11. This UID and description are in OBX-3.	CWE	O	[0..*]	



## Lead Lab Report Notification Variables

Program-Specific Surveillance Variables									Mapping Methodology				
PHIN Variable ID	Label/Short Name	Description	Data Type	Prog. Req/Opt	May Repeat	Coded Concepts	Value Set Name	Data Validation	Message Context	HL7 Data Type	HL7 Usage	HL7 Cardinality	Implementation Notes
INV178	Pregnancy Status	Indicates whether the patient was pregnant during the event.	Code	O		Yes No Unknown	Yes No Unknown (YNU)		Observation/OBX Segment with this variable ID and label	CWE	O	[0..1]	
NOT109	Reporting State	State reporting the investigation/case	Code	R			State		Observation/OBX Segment with this UID and label	CWE	O	[0..1]	
LEA105	Previous country of residence	Previous country of residence - send the 3 most recent countries.	Code	O	Y		Country		Observation/OBX Segment with this UID and label under the Patient Subject section header in OBR-4.	CWE	O	[0..1]	
LEA137	Travel outside of US	Travel outside of US <Future Functionality>	Code	O		Yes No Unknown	Yes No Unknown (YNU)		Observation/OBX Segment with this UID and label under the Patient Subject section header in OBR-4.	CWE	O	[0..1]	<future functionality>
LAB202	Test ID	System-assigned local test instance identifier.	Text	R					OBR-3.1 Filler Order Number (note that the variable ID and label do not appear in the message)	EI	R	[1..1]	Also on the Notification Structure tab
LAB165	Specimen Source	The medium from which the specimen originated. Examples include whole blood, saliva, urine, etc.	Code	R		Hair Semen Blood Urine Blood Venous Saliva Blood Cord Unknown Substance Blood Unknown Tissue Culture Scab Blood Capillary Macular Scraping Buccal Swab Vesicular Swab	Specimen		Observation/OBX Segment with this variable ID and label	CWE	O	[0..1]	

Program-Specific Surveillance Variables									Mapping Methodology					
PHIN Variable ID	Label/Short Name	Description	Data Type	Prog. Req/Opt	May Repeat	Coded Concepts	Value Set Name	Data Validation	Message Context	HL7 Data Type	HL7 Usage	HL7 Cardinality	Implementation Notes	
LAB168	Laboratory Result Jurisdiction	The geographic area responsible for managing public health activities including intervention, prevention and surveillance for health event associated with a particular geographic area such as county or city, associated with an event.	Code	R		state-assigned			Observation/OBX Segment with this variable ID and label	IS	O	[0..1]		
LAB180	Age at time of laboratory test	Age of subject at time of specimen collection	Numeric	O					(note that the variable ID and label do not appear in the message)	SN	O	[0..1]		
LAB181	Age units at time of laboratory test	Age units of subject at time of specimen collection.	Code	O		Days Months Weeks Years	Age Unit		(Same Observation/OBX segment as LAB180 - age units maps to <i>OBX-6-Units</i> )	CWE	O	[0..1]		
LAB163	Date of specimen Collection	The date the specimen was collected.	Date	R					Observation/OBX Segment with this variable ID and label	TS		[0..1]		
LAB108	Sample Analyzed Date	The date and time the sample was analyzed by the laboratory.	Date	O					Observation/OBX Segment with this variable ID and label	TS		[0..1]		
LAB197	Result Sent from Lab Date	Date result sent from reporting laboratory.	Date	O					Observation/OBX Segment with this variable ID and label	TS		[0..1]	Note: required by program	
<b>NUMERIC</b>	<b>RESULT GROUP</b>	<b>- all these fields occupy the same Observation/OBX segment - uses LAB114</b>							<b>Numeric Result as the observation identifier</b>					
LAB113	Numeric Result Descriptor	Lab quantitative result operator.	Coded	O		= >= <= null			OBX Segment tagged with 'LAB114^Numeric result' in OBX-3. This is the value for OBX-5.1. Structured Numeric result in OBX-5 - component 1, the operator, is treated as a string by HL7.	ST		[0..1]		

Program-Specific Surveillance Variables									Mapping Methodology				
PHIN Variable ID	Label/Short Name	Description	Data Type	Prog. Req/Opt	May Repeat	Coded Concepts	Value Set Name	Data Validation	Message Context	HL7 Data Type	HL7 Usage	HL7 Cardinality	Implementation Notes
LAB114	Numeric result value	The first numeric value in the quantitative result.	Numeric	O				if numeric result not available, must enter LAB504 Result Notes	OBX Segment tagged with 'LAB114'Numeric result' in OBX-3. This is the value for OBX-5.2. Structured Numeric result in OBX-5 - component 2, the first numeric result field.	NM		[0..1]	
LAB115	Result units	The unit of measure for a numeric result value.	Code	O		percent gperdL mmolmol ugperL ugperh umolmol mgperL ugpermL ugpersp mL mIU/mL IUperL mgperd umold umolL ugperdL mgperh ugperd umol{ZPP}/ mol{heme} ngpermL ugperg mgperdL [ppb] [ppm]	Units of measure	Same OBX Segment as 'LAB114'Numeric result' in OBX-3. This is the value for OBX-6.	CE		[0..1]		
<b>End of LAB114 Numeric Result Observation</b>													

Program-Specific Surveillance Variables									Mapping Methodology				
PHIN Variable ID	Label/Short Name	Description	Data Type	Prog. Req/Opt	May Repeat	Coded Concepts	Value Set Name	Data Validation	Message Context	HL7 Data Type	HL7 Usage	HL7 Cardinality	Implementation Notes
LAB504	Result Notes	Explanation for missing result, (e.g., clotted, quantity not sufficient, etc.)	Code	O		Unduplicated Wrong Tube Pending Quantity Not Sufficient Test Not Done Clotted Lab Error Contaminated	Missing Lab Result Reason		Observation/OBX Segment with this variable ID and label	CWE		[0..1]	
<b>Laboratory Data</b>													
LAB143	Lab Name	Name of Laboratory that reported test result.	Text	O					Observation/OBX Segment with this variable ID and label	ST		[0..1]	Also on the Notification Structure tab
LAB144	CLIA Lab ID	CLIA (Clinical Laboratory Improvement Act) identifier for the laboratory that performed the test.	Text	O					Observation/OBX Segment with this variable ID and label	ST		[0..1]	
LAB120	Limit of detection	Reference range to/limit of detection. The <i>reference range to</i> value allows the user to enter the value on the high end of a valid range of results for the test.	Numeric	O					Observation/OBX Segment with this variable ID and label	SN		[0..1]	
<b>Provider Data</b>													
LAB500	Ordering Provider Address - State	Ordering provider address— state.	Code	O			State		Observation/OBX Segment with this variable ID and label	CWE		[0..1]	
LAB501	Ordering Provider Address - City	Ordering provider address— city.	Text	O			City		Observation/OBX Segment with this variable ID and label	CWE		[0..1]	
LAB502	Ordering Provider Address - County	Ordering provider address— county.	Code	O			County		Observation/OBX Segment with this variable ID and label	CWE		[0..1]	
<b>ABLES Data</b>													
DEM2007	Patient Employer SIC Code	Employer Standard Industrial Classification (SIC) code for the employer associated with the occupation This field may repeat with multiple values.	Code	O			Industry (SIC)		Observation/OBX Segment with this variable ID and label	CWE		[0..1]	

Program-Specific Surveillance Variables									Mapping Methodology				
PHIN Variable ID	Label/Short Name	Description	Data Type	Prog. Req/Opt	May Repeat	Coded Concepts	Value Set Name	Data Validation	Message Context	HL7 Data Type	HL7 Usage	HL7 Cardinality	Implementation Notes
DEM2008	Patient Employer NAICS Code	Employer North American Industry Classification System (NAICS) code for the employer associated with the occupation This field may repeat with multiple values.	Code	O			Industry (NAICS)		Observation/OBX Segment with this variable ID and label	CWE		[0..1]	
DEM139	Census Occupation Code	Patient's Occupation(s). Multiple occupations may be selected.	Code	O			Occupation		Observation/OBX Segment with this variable ID and label	CWE		[0..1]	

These variables are not negotiable. Default values are provided for HL7 structural elements that are required but not part of the surveillance data requested.

Notification Variables									Mapping Methodology				
PHIN Variable ID	Label/Short Name	Description	Data Type	CDC Req/Opt	May Repeat	Coded Concepts	Value Set Name	Data Validation	Message Context	HL7 Data Type	HL7 Usage	HL7 Cardinality	Implementation Notes
NOT108	Notification ID	The unique identifier for the notification record. For the V2 Case Notification, this concept maps to the HL7 attribute MSH-10 Message Control ID. No UID or label is passed in the message.	String	R					MSH-10-Message Control ID. No UID or label is passed in the message.	ST	R	[1..1]	
DEM197	Local patient ID	The local ID of the patient/entity.	String	R					PID-3.1 Patient Identifier List – ID Number PID-3.4 Assigning Authority format <localID&OID&ISO> Does not pass Variable ID or label.	CX	R	[1..1]	Only the sending system's internally assigned patient id used for these de-identified messages
DEM100	Patient name type	Name is not requested by the program, but the Patient Name field is required to be populated for the HL7 message to be valid. Have adopted the HL7 convention for processing a field where the name has been removed for de-identification purposes.	Coded	R		Pseudonym	Name Type		PID-5.7 Patient Name Type - <u>second instance</u> (does not pass Variable ID or label). HL7 reserves the first instance of the name for Legal Name.	CX	R	[1..2]	Literal value:   ~~~~~S
LAB202	Test ID	Local test identifier	Text	R					OBR-3.1 Filler Order Number (note that the variable ID and label do not appear in the message)	EI	R	[1..1]	

Notification Variables									Mapping Methodology				
PHIN Variable ID	Label/Short Name	Description	Data Type	CDC Req/Opt	May Repeat	Coded Concepts	Value Set Name	Data Validation	Message Context	HL7 Data Type	HL7 Usage	HL7 Cardinality	Implementation Notes
NOT099	Subject Type	Type of subject for the notification.	Coded	R		Person Subject	Notification Section Header		OBR 1 : Maps to the HL7 attribute OBR-4-Universal Service ID. No UID or label is passed in the message.	CE	R	[1..1]	Literal Value: 'PERSUBJ^Person Subject^2.16.840.1.114222.4.5.274'
NOT101	Notification Type	Type of notification. Main notification types are "Individual Case", "Environmental", "Summary", and "Laboratory Report".	Coded	R		Laboratory Report Notification	Notification Section Header		OBR 2 : Maps to the HL7 attribute OBR-4-Universal Service ID. No UID or label is passed in the message.	CE	R	[1..1]	Literal Value: 'LABNTF^Laboratory Report Notification^2.16.840.1.114222.4.5.274'
NOT103	Date First Submitted	Date the notification was first sent to CDC. This value does not change after the original notification. For the V2 Case Notification, this concept maps to the HL7 attribute OBR-7-Observation Date/time. No UID or label is passed in the message.	Date/time	R					Maps to the HL7 attribute OBR-7-Observation Date/time. No UID or label is passed in the message.	TS	R	[1..1]	<same value in each OBR instance>
NOT106	Date of Report	Date/time this version of the notification was sent. It will be the same value as NOT103 for the original notification. For updates, this is the update/send date/time.	Date/time	R					Maps to the HL7 attribute OBR-22-Result Report/Status Chg Date/time. No UID or label is passed in the message.	TS	R	[1..1]	<same value in each OBR instance>
NOT108	Notification ID	The unique identifier for the notification record. For the V2 Case Notification, this concept maps to the HL7 attribute MSH-10 Message Control ID. No UID or label is passed in the message.	Alphanumeric	R					Maps to the HL7 attribute MSH-10-Message Control ID. No UID or label is passed in the message.	ST	R	[1..1]	

Notification Variables									Mapping Methodology				
PHIN Variable ID	Label/Short Name	Description	Data Type	CDC Req/Opt	May Repeat	Coded Concepts	Value Set Name	Data Validation	Message Context	HL7 Data Type	HL7 Usage	HL7 Cardinality	Implementation Notes
INV169	Condition Code	Condition or event that constitutes the reason the notification is being sent.	Coded	R		32010 Lead Poisoning	Nationally Notifiable Disease Surveillance System (NNDSS) & Other Conditions of Public Health Importance		Maps to HL7 attribute OBR-31-Reason for Study. The UID and label are not passed in the message.	CE	R	[1..1]	Default value in each OBR instance: '32010^Lead Poisoning^2.16.840.1.114222.4.5.255'