

Epidemiology and Laboratory Capacity (ELC) C2 Public Health Data Modernization Assessment

User Guide v1.1

The [Public Health Data Modernization Assessment User Guide](#) is a resource that will assist your jurisdiction as you complete the annual public health data modernization assessment data collection and reporting process. The User Guide explains how to:

- Engage stakeholders in the data collection process.
- Enter your data in REDCap.
- Develop a summary report of your assessment findings.
- Engage stakeholders in the interpretation of the assessment findings and prioritization of data modernization efforts.

This guide provides explanations, resources, and example templates to walk you through each step of the process.

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Introduction

The Public Health Data Modernization Initiative (DMI) marks the first comprehensive, cross-cutting effort to improve data at the Centers for Disease Control and Prevention (CDC) and in CDC-funded jurisdictions by modernizing tools, technology, strategy, attitudes, and culture around data. The DMI supports upgrading and modernizing infrastructure with new technologies and functionality, identifying data needs to answer priority public health questions, providing data strategy planning and decision support to stakeholders, making comprehensive data available for partners and decision makers, and strengthening the public health workforce.

Jurisdictions that receive data modernization funding through the Epidemiology and Laboratory Capacity (ELC) Program C2 will complete an annual public health data modernization self-assessment to document the status, needs, and opportunities specific to public health data modernization and workforce development in their departments of health. The findings from this annual assessment will help identify your jurisdiction's strengths, areas for improvement, and technical assistance needs. In addition, assessment findings should inform your Data Modernization Roadmap (i.e., modernization plan for information technology [IT] and informatics infrastructure, and workforce development plan).

The data modernization lead in your jurisdiction will coordinate and lead the assessment process; however, the assessment will require input from multiple stakeholders in your jurisdiction. This User Guide explains the steps of the assessment process, which include:

1. Obtaining support from jurisdiction leadership and engaging stakeholders.
2. Collecting and entering the assessment data in REDCap).
3. Developing a summary report of assessment findings.
4. Sharing and confirming assessment results with stakeholders using participatory data interpretation (PDI).
5. Using the results of PDI to inform your Data Modernization Roadmap.

More information about key dates for completing the assessment process will be provided by CDC.

Overview

This section provides a broad overview of the assessment, reporting, and data interpretation process. The purpose of the Public Health Data Modernization Assessment is to provide CDC and your jurisdiction with a comprehensive understanding of your jurisdiction's capabilities and capacities related to public health data modernization. When answering the questions, consider the capabilities and capacities across your jurisdiction. The findings from this annual assessment will help you identify your jurisdiction's strengths; areas for improvement; and staffing, training, and technical assistance needs. CDC also will use the findings from the assessment to identify jurisdictions' support needs. **Exhibit 1** lists the desired outcomes of the assessment.

Your jurisdiction will complete the assessment once per year. After completing the assessment, you will download the assessment data and create a summary report that allows you to confirm and share data with stakeholders, identify gaps and areas of need, and plan your jurisdiction's future data modernization activities and workforce development. More information about key dates for completing the assessment and reporting the data will be provided by CDC. The assessment process consists of five steps:

Step 1: Engaging Stakeholders. The assessment will require input from multiple stakeholders in your jurisdiction. Prior to filling out the assessment, the data modernization lead within your jurisdiction should review the entire assessment, identify the appropriate staff within your jurisdiction who can provide information to answer the questions, and engage key stakeholders who will provide support for the assessment process. A Microsoft Word version of the blank assessment and an Adobe PDF version are available to download from REDCap (see the [File Repository](#) and [Downloading a PDF of the Blank Assessment](#) sections of this User Guide for more information). You may use the Word document or PDF to review the full assessment and to collect data from stakeholders within your jurisdiction prior to data entry. The assessment is structured based on the ELC C2 IT and data modernization workforce competency domains and systems, and data exchange core capacities. The assessment is organized by the following sections:

- Project Introduction
- Section 1: Overview of Data Modernization Efforts
- Section 2: Assessment and Evaluation (Domain 1)
- Section 3: Data Exchange and Systems Interoperability (Domain 2)
- Section 4: Data and IT Governance (Domain 3)
- Section 5: Data Analysis, Visualization, and Reporting (Domain 4)
- Section 6: Conclusion

Exhibit 1. Desired Outcomes of the Assessment

- Identification of needs and opportunities related to improving systems, processes, and workforce capacity for the following:
 - Assessment and evaluation of data and IT systems
 - Data exchange and data system interoperability
 - Data and IT governance
 - Data analytics, visualization, and reporting
- Collection of information to inform the development of a Data Modernization Roadmap that includes short-, intermediate-, and long-term goals and objectives.

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Sections 2 through 5 include questions related to processes, systems, workforce, facilitators, and barriers, and needs and opportunities.

Step 2: Collecting and Entering Data in REDCap. Once stakeholders are engaged and the necessary information is collected, the data modernization lead or other appointed representative should enter the information in REDCap for your jurisdiction. You can respond to the assessment in REDCap during multiple data entry sessions. As long as you save your responses, you may return at a later time to finish data entry.

Step 3: Reporting Assessment Findings. Once you have finished entering assessment data in REDCap, you will download your data from REDCap and develop a summary report. A summary report template is available for download in REDCap. See the [File Repository](#) section of this User Guide for more information about downloading the template.

Step 4: Sharing and Confirming Assessment Findings With Stakeholders. Once you have developed a summary report of your assessment data, you are encouraged to share the results with stakeholders using a participatory data interpretation process to confirm the findings, prepare for future modernization efforts, and develop your Data Modernization Roadmap.

Step 5: Developing Your Data Modernization Roadmap. After you have confirmed your assessment results with stakeholders, you will use the information to update or develop your Data Modernization Roadmap.

The following sections of this User Guide provide more information about the steps for completing the assessment process.

Engaging Stakeholders

Before starting the assessment, it is vital to identify the key stakeholders who will support the assessment information-gathering process, have an interest in the assessment findings, and will help plan for the future. Engaging stakeholders in the assessment facilitates the data collection process, enhances understanding and acceptance of the assessment findings, and helps plan and implement activities based on assessment results.

Obtaining buy-in and support from your jurisdiction’s leadership before engaging stakeholders will be important for facilitating the assessment implementation process. We recommend informing leadership about the purpose of the assessment and requesting support for the data collection effort. Data modernization leads will need the authority to request information from stakeholders throughout the jurisdiction.

Identifying Stakeholders

Stakeholders should represent organizational units from across your jurisdiction’s health department. It is important to include individuals who can provide information on workforce capacity, data and IT systems, data and IT governance, and data analytics and reporting.

It may be a challenge to identify the right number and mix of stakeholders. You may consider using a prioritization process focused on identifying stakeholders who are most critical to the success of your jurisdiction’s data modernization and workforce development efforts. Consider stakeholders who can provide a broad, yet integrated, perspective on data modernization and workforce needs across the agency. **Exhibit 2** lists the types of stakeholders who may be helpful for the assessment process.

Depending on their availability, role, and expertise, all stakeholders will not need to be engaged in the entire assessment process. Engagement may range from responding to some of the assessment questions to assisting with the data collection, reporting, and data interpretation. **Table 1** indicates the stages and components of the assessment process, along with space to identify who your jurisdiction would like to engage to support the process. A Word version and PDF of the full assessment are available for download from REDCap and will provide more insight on who you will need to involve in the data collection process.

Exhibit 2. Examples of Stakeholders in the Assessment Process

- Health Department Lead/Health Official (e.g., Director, Commissioner, State Health Officer, Secretary, Chief Medical Officer)
- Organizational Unit Leads (e.g., Division Directors)
- ELC program point of contact
- IT Lead/Chief Information Officer
- Informatics Lead
- State Epidemiologists
- System Managers or Administrators
- Public Health Laboratory Information Management System Administrators
- Cloud Leadership
- Electronic Laboratory Reporting Director/Lead
- Health Information Exchange Partners
- Messaging System Manager/Data Exchange Manager
- Human Resources Representative

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Table 1. Identifying Stakeholders Involved in the Stages of the Assessment Process

Stage	Component	Stakeholder(s) to Involve
Pre-Assessment	Request permission or authority to collect assessment information.	
Data Collection	Section 1: Overview of Data Modernization Efforts	
	Section 2: Assessment and Evaluation (Domain 1)	
	Section 3: Data Exchange and Systems Interoperability (Domain 2) <ul style="list-style-type: none"> • Electronic Laboratory Reporting • Electronic Case Reporting • Immunization • Syndromic Surveillance • Case-Based Reporting • Vital Records • Contract Tracing • Shared Services 	
	Section 4: Data and IT Governance (Domain 3)	
	Section 5: Data Analytics, Visualization, and Reporting (Domain 4)	
	Questions related to workforce proficiency and staffing	
	<i>(Subsections within Sections 2–5)</i>	
	Section 6: Conclusion	
Assessment Data Reporting	Use assessment data to populate report template.	
Interpreting the Data	Data sense making/interpretation (i.e., participants in the participatory data interpretation sessions)	
	Communicate the assessment findings.	
Action Planning	Develop the Data Modernization Roadmap: <ul style="list-style-type: none"> • Modernization Plan for IT and Informatics Infrastructure • Workforce Development Plan 	

Collecting and Entering Data in REDCap

The Public Health Data Modernization Assessment is part of the ELC Health Information Systems Monitoring Project in REDCap.¹ Prior to filling out the assessment in REDCap, the data modernization lead within your jurisdiction should review the entire assessment and identify the appropriate staff within your jurisdiction who can provide information to answer the questions. A Word and PDF version of the blank assessment are available for downloading from REDCap (see the [File Repository](#) and [Downloading a PDF of the Blank Assessment](#) sections of this User Guide for more information). You can use the PDF or Word document to review the full assessment and to collect data from staff within your jurisdiction prior to entering information. The Public Health Data Modernization Assessment Glossary in **Appendix A** of this User Guide provides definitions of terms used in the assessment. The data modernization lead or other appointed representative should enter the information in REDCap for your jurisdiction. You will be able to enter information into REDCap in multiple sessions.

Log in to REDCap

1. To enter data in REDCap, access <https://rdcp.cdc.gov/> from your web browser.

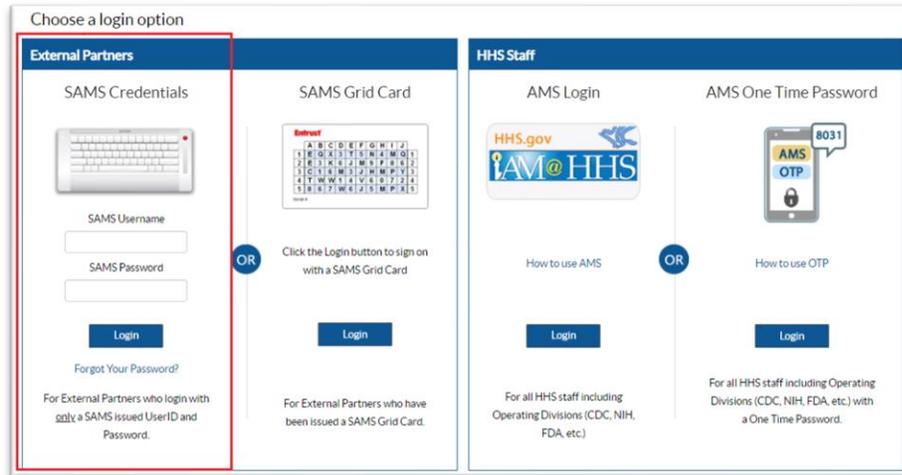
Note that this URL begins with **https**, not just **http**.

This URL will direct you to the Secure Access Management Service (SAMS) login page.

2. Select the first option in the External Partners section: SAMS Credentials.
3. Log in using your SAMS username and password.

¹ Guidance in this section was adapted from the Research Electronic Data Capture (REDCap) ELC HIS Project User's Guide. For guidance related to the other forms in the ELC Health Information Systems REDCap project, refer to that user guide.

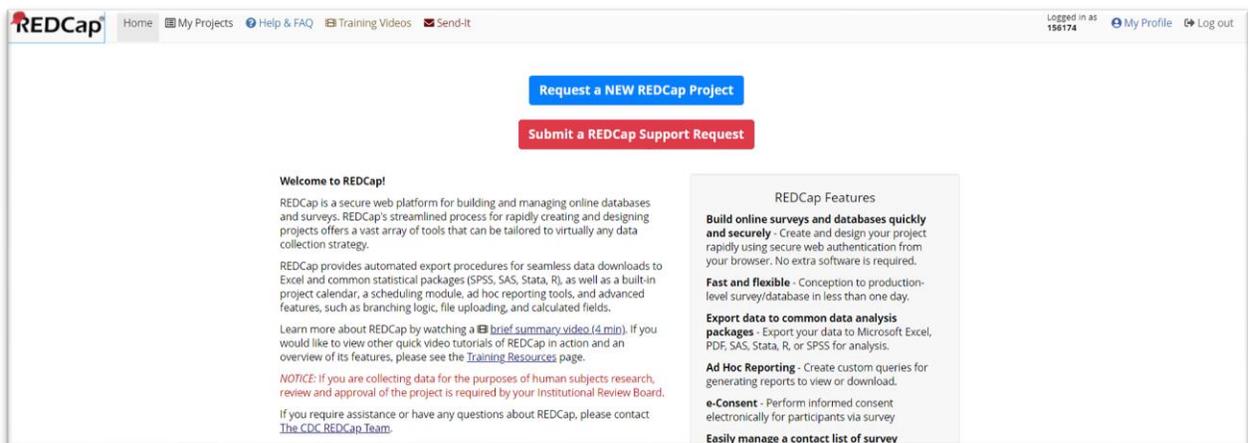
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If you forgot your SAMS password, use the **Forgot Your Password** link below the **Login** button.

For additional SAMS help, contact 877-681-2901 or samshelp@cdc.gov.

Your home page may look slightly different from the example shown below; however, your page should resemble the example.



Access the ELC Health Information Systems Monitoring Project

From the REDCap home page, to access the Public Health Data Modernization Assessment, you will first access the ELC Health Information Systems Monitoring Project.

1. Click the My Projects tab located on the top-left corner of the page.



Result: A list of your REDCap projects will appear.

Users who are involved with multiple projects/activities have multiple projects listed under the My Projects tab.

You can use the **Organize** button to create folders for your projects, if necessary. You will see the **ELC C2 Public Health Data Modernization Assessment** project if you have access. Email edx@cdc.gov if you need access to this project.



2. Click on the ELC C2 Public Health Data Modernization Assessment project.

Result: You will be directed to Project Home.

Once you are in the project, you can access the Project Home link via the left-hand menu.



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Project Home contains basic project information, such as a link to the project Codebook, the number of records in the project, most recent activity, and a list of users. The list of users contains the users' names and corresponding REDCap user IDs (numeric).

Access to project records is limited by data access groups. Data access groups are based on a user's jurisdiction, meaning that a user from one jurisdiction will not be able to access another jurisdiction's data. ELC grantees and CDC programs are the only groups who currently have access to the ELC C2 Public Health Data Modernization Assessment project.

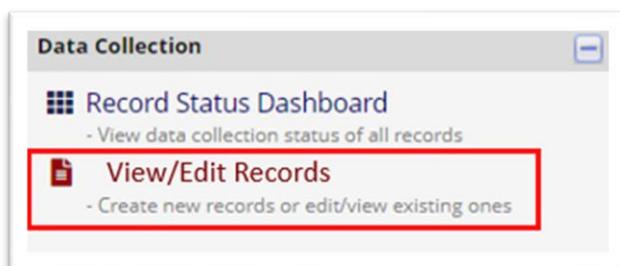


Enter or Edit Public Health Data Modernization Assessment Data

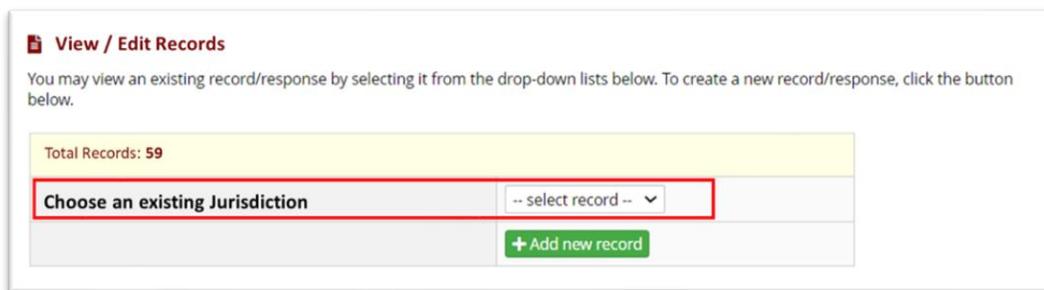
The ELC C2 Public Health Data Modernization Assessment includes multiple data collection instruments, or forms. There are two ways to access the data collection instruments for data entry, through (1) View/Edit Records and (2) Record Status Dashboard.

View/Edit Records

To enter or edit your Public Health Data Modernization Assessment data, select the View/Edit Records link on the menu on the left-hand side of REDCap.



Result: The View/Edit Records page appears.



You will never need to add a new record in the Total Records section. The record for the Public Health Data Modernization Assessment data collection instruments already exists in REDCap and is associated with your record ID. A record ID, in this case the jurisdiction name, is the unique identifier for a record in the REDCap database.

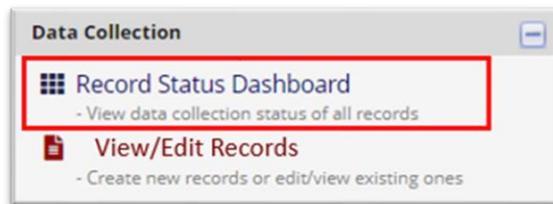
1. Select your jurisdiction in the “Choose an existing Jurisdiction” drop-down menu.
2. Next, select the circle next to one of the ELC C2 Public Health Data Modernization Assessment data collection forms.

Data Collection Instrument	Status
Project Introduction	
Section 1 Overview Of Data Modernization Efforts	
Section 2 Assessment Of Health Information Systems (Domain 1)	
Section 3 Data Exchange and Systems Interoperability (Domain 2)	
Section 4 Data And IT Governance (Domain 3)	
Section 5 Data Analytics, Visualization, And Reporting (Domain 4)	
Section 6 Conclusion	

Result: The data collection form appears.

Record Status Dashboard

Another method for accessing your jurisdiction’s record is via the Record Status Dashboard. The link for the Record Status Dashboard is located on the left-hand menu.



1. Click on the link for the Record Status Dashboard.

Result: The dashboard view shows your record and the current status of each page/form in your record (Incomplete, Unverified, or Complete) as indicated by the end user.

The Record Status Dashboard is a useful tool to capture a snapshot of all pages/forms in your record at one time. A page/form can be opened for editing by clicking on the colored circle (green, yellow, or red based on status). *Role-level permissions and data access groups identify which records and which forms you can see.* For jurisdictions, the Record Status Dashboard only shows the forms for your specific jurisdiction.

2. To get to your Record Status home page, click on your hyperlinked jurisdiction name on the Record ID table.

Result: The Record home page grid appears.

3. To begin data entry, select a circle from your Record ID row.

Jurisdiction	Project Introduction	Section 1 Overview Of Data Modernization Efforts	Section 2 Assessment Of Health Information Systems (Domain 1)	Section 3 Data Exchange and Systems Interoperability (Domain 2)	Section 4 Data And IT Governance (Domain 3)	Section 5 Data Analytics, Visualization, And Reporting (Domain 4)	Section 6 Conclusion
1							

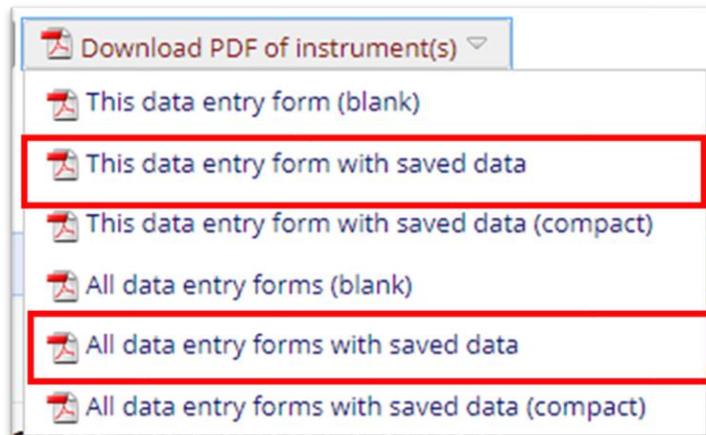
Result: The Public Health Data Modernization Assessment form appears.

Once you have opened the Public Health Data Modernization Assessment form, you may complete the questions in REDCap or download a PDF or Word version of the assessment to review online. See the [Downloading a PDF of the Blank Assessment](#) section for more information.

Downloading a PDF of the Blank Assessment

We recommend that you download a PDF of the assessment forms prior to data entry so you can share the assessment questions with stakeholders in your jurisdiction and collect information prior to entering the data in REDCap. You also may download a Word version of the assessment from the File Repository in REDCap.

To download the PDF, once you have accessed one of the ELC C2 Public Health Data Modernization Assessment forms, you will see “Download PDF of instrument(s)” at the top of the page. Click on the drop-down menu and select “This data entry form with saved data” or “All data entry forms with saved data” to download the form(s). Note that some data will be pre-loaded into the instruments from other ELC data collection. If you wish to download the forms without pre-loaded data, select from the blank form options in the drop-down menu.



Result: The form(s) will download.

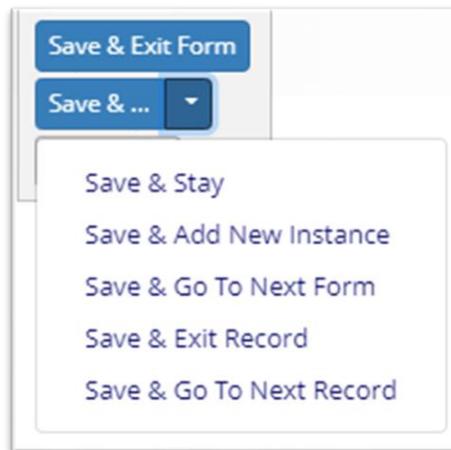
Data Entry Tips and Guidelines

Once you have reviewed the assessment questions with your stakeholders and are ready to enter data in REDCap, return to the data entry forms.

Saving Records: It is highly recommended that each time you complete a section of the form, you save the record. You should also save after completing sections of longer forms. REDCap is a web-based system, which means that if you lose your internet connection or electrical connection at any time, then any data entry that occurred after the last time you saved is lost. REDCap will automatically log-out after a period of inactivity, which may also cause loss

In the upper-right corner of each form (page) AND at the end of each form, there is a menu of save options:

- **Save & Exit Form** allows you to save your progress and exit the current form. This option takes you back to the Add/Edit Records screen.
- **Save & Stay** allows you to save your current progress and continue data entry on that form. This button can be accessed by clicking the drop-down arrow underneath the Save & Exit Form.
- **Save & Go To Next Form** allows you to save your progress on the current form and continue to the next form in the project. This button can be accessed by clicking the drop-down arrow underneath Save & Exit Form.



Record Status: At the end of each form, there is a variable to indicate whether the survey is Incomplete, Complete, or Unverified. Most CDC projects only use the Incomplete and Complete options, although the Unverified option still shows up. These choices are built-in REDCap features that cannot be changed. Once you have entered your assessment data and confirmed your findings during the participatory data interpretation sessions, you may wish to mark the assessment as Complete for your internal tracking.

A screenshot of a REDCap form interface. At the top, there is a light green header bar with the text "Complete?". Below this, a dropdown menu is open, showing four options: "Complete", "Incomplete", "Unverified", and "Complete" (the second "Complete" is highlighted in blue). To the right of the dropdown menu is a blue button labeled "Save & ...".

When you manually change a record from Incomplete to Complete and save the record, the status bubble on the Record Status home page changes to green.

File Repository

The link for the File Repository is located on the left-hand navigation menu in the Applications section.



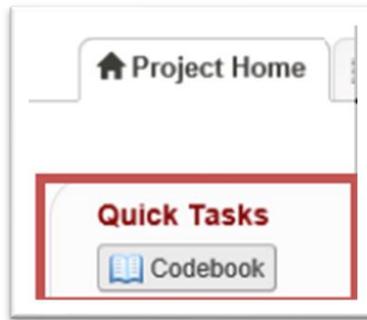
Exhibit 3. Assessment Resources in the File Repository

- User Guide
- Word Version of the Assessment Questions
- Assessment Report Template
- Glossary (also included in **Appendix A** of this User Guide)

This is a place where the CDC team posts reference documents for you to download. The CDC, and different data access groups, are able to access the documents posted, so information will be posted to the repository that is for general use only and that does not contain personally identifiable information. Documents in the File Repository related to the Public Health Data Modernization Assessment are listed in **Exhibit 3**.

Codebook

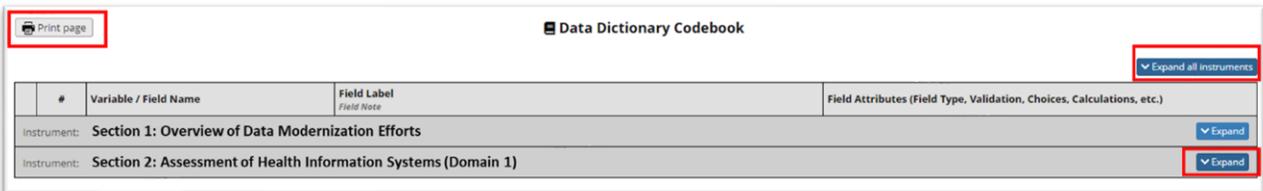
The link for the Codebook is the first button on the Project Home page.



The Codebook displays a list of all the variables in the project, as well as other information: required and not required, calculation equation, data type, minimum or maximum values, personally identifiable information designation, branching logic (skip patterns), and other information (shown below). The Codebook is helpful in understanding the project fields, the data dictionary, or project frame.

The Codebook will display the variables for all forms in the ELC C2 Public Health Data Modernization REDCap project. To view and print only the Codebook for one of the forms in the assessment, click “Collapse all Instruments” at the top right. Next, click “Expand” on the row that lists the form that you wish to print.

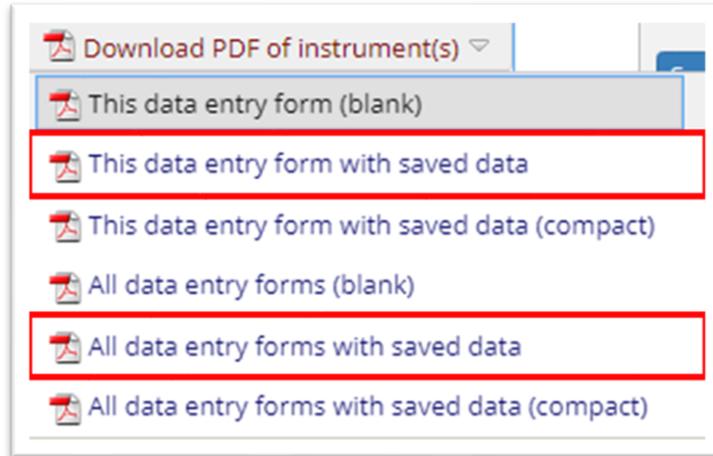
Finally, click “Print page” to save a PDF of the Codebook to your computer.



Data Exports, Reports, and Stats

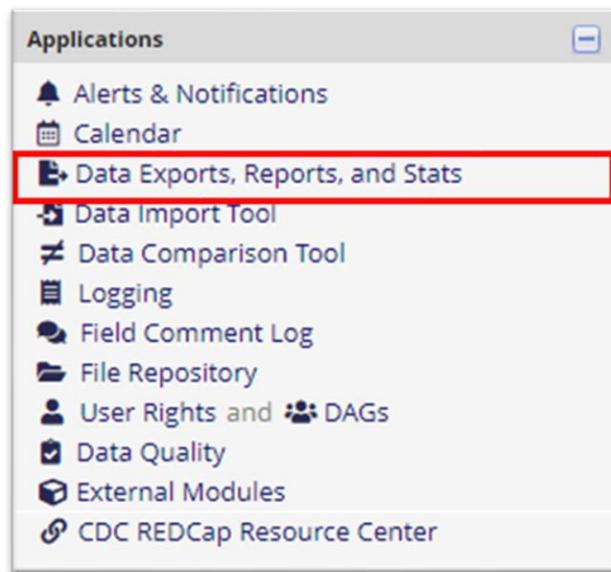
For the purposes of developing your Public Health Data Modernization Assessment Report, we recommend that you export the data in two ways:

1. **PDF of the form filled out with your responses.** To download a PDF of your completed assessment, open a form in the ELC C2 Public Health Data Modernization Assessment. At the top of the form, you will see a drop-down menu to “Download PDF of instrument(s)”. Select “This data entry form with saved data” if you only wish download the selected form. Select “All data entry forms with saved data” to download the full assessment.



You can then save a PDF of your data entry form(s).

2. **.CSV file.** To download a .CSV file, click on the Data Exports, Reports, and Stats link through the left-hand menu.



This page allows you to view data, create custom reports, view basic statistics and graphs, and export your data to a variety of applications. This User Guide describes how to download a .CSV file with your ELC C2 Public Health Data Modernization Assessment data.

Note: On the Data Exports, Reports, and Stats page, reports created by CDC or any data access group are visible to all groups. Although the filters and options for the report are visible to each jurisdiction, each data access group only sees the applicable data for their jurisdiction.

Regardless of the name or options for a report, no jurisdiction has access to another jurisdiction's data.

For information about how to export to other applications, refer to the Research Electronic Data Capture (REDCap) ELC HIS Project User's Guide.

To download the .CSV file, from the Data Exports, Reports, and Stats page, select View Report or Export Data under Option A.

Data Exports, Reports, and Stats [VIDEO: How to use Data Exports, Reports, and Stats](#)

[+ Create New Report](#) [My Reports & Exports](#) [Other Export Options](#)

This module allows you to easily view reports of your data, inspect plots and descriptive statistics of your data, as well as export your data to Microsoft Excel, SAS, Stata, R, or SPSS for analysis (if you have such privileges). If you wish to export your *entire* data set or view it as a report, then Report A is the best and quickest way. However, if you want to view or export data from only specific instruments (or events) on the fly, then Report B is the best choice. You may also create your own custom reports below (if you have such privileges) in which you can filter the report to specific fields, records, or events using a vast array of filtering tools to make sure you get the exact data you want. Once you have created a report, you may view it as a webpage, export it out of REDCap in a specified format (Excel, SAS, Stata, SPSS, R), or view the plots and descriptive statistics for that report.

My Reports & Exports			
	Report name	View/Export Options	Management Options
A	All data (all records and fields)	View Report Export Data Stats & Charts	
B	Selected instruments (all records)	Make custom selections	
+ Create New Report			

View Report: Opens a tab with a table of your ELC C2 Public Health Data Modernization Assessment data. This view allows you to see the question labels and variables in the same table. You can also export the data from this tab.

Export Data: When you select “Export data”, you will have the option of choosing the export format.

Choose export format

-  CSV / Microsoft Excel (raw data)
-  CSV / Microsoft Excel (labels)
-  SPSS Statistical Software
-  SAS Statistical Software
-  R Statistical Software
-  Stata Statistical Software
-  CDISC ODM (XML)

The following guidance for reporting the assessment findings provides instructions on using the PDF and .CSV downloads of the assessment. We recommend downloading the PDF as well as the two versions of the Microsoft Excel tables to determine which version works best for you when creating the report.

- The .CSV/Excel (raw data) option allows you to export the data with the coded values and variable names. You can refer to the project's

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- Codebook for variable names and stored values. This version will help you quickly identify which data to use for the summary report.
- The .CSV/Excel (labels) option allows you to export the data with the full question label. This version provides quick reference to the question and the response.

You also may wish to use the table on the View Report page in REDCap, which displays the coded values, variable names, and labels in one table.

Reporting Assessment Findings

Once you have finished entering your data in REDCap, you are ready to develop your Public Health Data Modernization Assessment Report. This report is designed to help you summarize and share data from your annual assessment. The report can be used to:

- Facilitate discussions during participatory data interpretation meetings with stakeholders.
- Identify technical assistance and support needs.
- Prioritize data modernization efforts and develop your Data Modernization Roadmap.

This section of the User Guide will help you customize the report template. The instructions walk you step-by-step to find your data and enter your jurisdiction's information for each section of the report.

Materials

To develop the report, you will need the following materials.

- **Export of your assessment data.** You can view your data in PDF, .CSV, or in the View Report table in REDCap. More information about how to access these files is located in the [Data Exports, Reports, and Stats](#) section of this User Guide.
- **Public Health Data Modernization Assessment Codebook.** The Codebook aligns the variable names to the assessment questions and will be helpful in interpreting the data in the .CSV file (raw data). Information on how to download the Codebook is located in the

- Codebook section of this User Guide.
- **Public Health Data Modernization Assessment Report template.** The report template is a PDF and is available in the File Repository on the left-hand menu.

Overview of the Report Template

The report template has an introduction page and is organized by the sections of the assessment. Each section includes one or more pages that summarize the data collected in your assessment. The Priorities section does not directly align to any of the questions in the assessment but may be used to reflect on the overall assessment findings and identify your jurisdiction’s key needs, opportunities, and plans to address your priorities. This section may be used during or after the participatory data interpretation sessions. Exhibit 4. Sections of the Report Template **Exhibit 4** lists the sections of the template.

Exhibit 4. Sections of the Report Template

Contents of the Report	
SECTION 1 Overview of Data Modernization Efforts	SECTION 5 Data Analytics, Visualization, and Reporting
SECTION 2 Assessment of Health Information Systems	SECTION 6 Conclusion
SECTION 3 Data Exchange and Interoperability	SECTION 7 Priorities
SECTION 4 Data and IT Governance	

Sections 1 through 6 contain a template that aligns with the assessment questions. You will update text to reflect your assessment findings according to the instructions in the [Updating Your Report](#) section of this User Guide.

Updating Your Report

This section of the guide walks you through the process for updating the report to reflect your jurisdiction’s data.

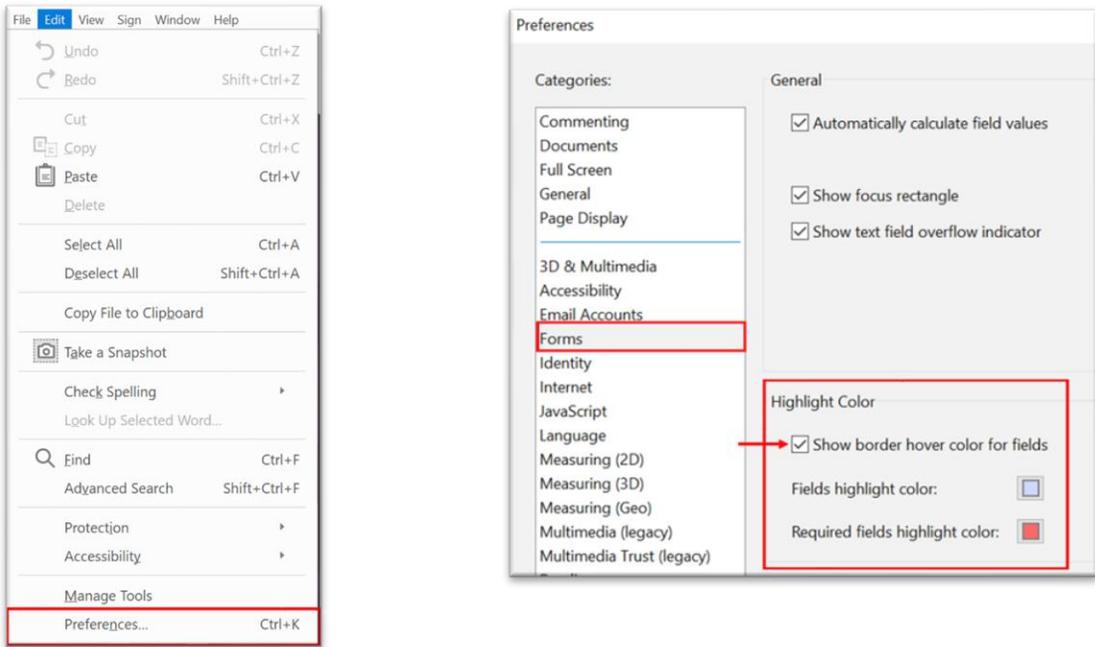
Before updating the report, you will need to disable “Show border hover color for fields” in the Adobe Acrobat Reader edit menu.

To disable the border hover color on a PC, go to Edit > Preferences.

Next, go to Forms. The Highlight Color area default will have “Show border hover color for fields” selected. You will need to deselect it, then click “OK”.

This will turn off the border hover color for fields in all PDFs until you turn it back on.

Exhibit 5. Disabling “Show border hover color for fields”

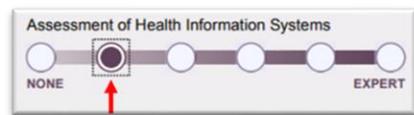


To update the report with your data, you will add text, check icons, and select radio buttons related to workforce proficiencies in the template.

To update text, click on the text field in the template. This will replace the temporary text with your cursor. You can then type or paste directly into the field.

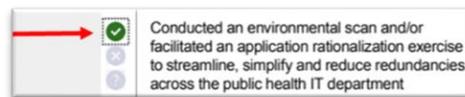
To update radio buttons related to workforce proficiency levels, click on the circle you want to highlight. If your response was N/A, leave all response options gray. NOTE: Once you select a radio button, you may switch the response to one of the other radio buttons in the array but you cannot deselect all. The only way to undo selection of all of the radio buttons in an array is to reset the entire PDF. Take care to ensure that you have an applicable response before selecting a radio button.

Exhibit 6. Updating Radio Buttons



To update check buttons, click on the circle you want to highlight. The form will allow you select and deselect these check buttons. Please only select one appropriate response.

Exhibit 7. Updating Check Buttons



To save the updates that you make to the report template, use Save or Save As to save the file with a new file name. If you do not save the file, you will lose your changes.

Public Health Data Modernization Assessment User Guide

The following tables provide instructions for updating each section of the report template. For each section, you will see directions about where you can find the information for your jurisdiction, how to prepare the information, and how to enter the information into the report template.

ITEM

Tells you the data point in the report to be updated. Have your report template open to follow this step.

DATA SOURCE

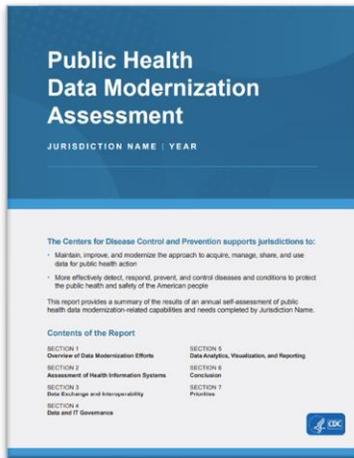
Tells you where you will find the information in your REDCap exports, including question number and variable name. Variable names are displayed in the .csv export (raw data). Question text and question numbers are displayed in the PDF or .csv export (labels). The View Report feature in REDCap displays a table with both question labels and variable names.

INSTRUCTIONS

Tells you how to edit the template.

Introduction

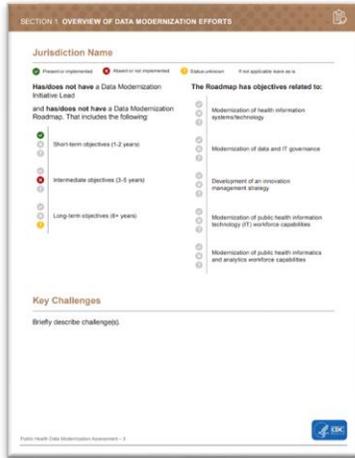
Page 1



ITEM	DATA SOURCE	INSTRUCTIONS
<p>JURISDICTION NAME</p> <p>YEAR</p>	<p>Year: Q6 date</p>	<p>Click on JURISDICTION NAME to replace the text with the name of your jurisdiction. This will also automatically update the Jurisdiction Name on page 3.</p> <p>Click on YEAR to update the year of the assessment.</p>

Section 1: Overview of Data Modernization Efforts

Page 3

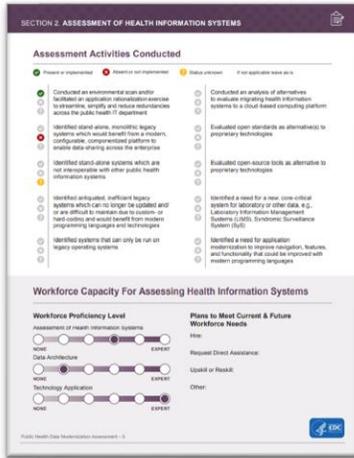


ITEM	DATA SOURCE	INSTRUCTIONS
<p><input checked="" type="checkbox"/> Has <input checked="" type="checkbox"/> does not have a Data Modernization Initiative Lead</p>	<p>Q1 dmi2_lead_yn (1 = Yes; 0 = No; 2 = Don't know)</p> <p><i>Note that the Project Introduction form includes Q1–Q7. Question numbering restarts at Q1 in the Section 1 Overview of Data Modernization Efforts.</i></p>	<p>Click on the appropriate radio button. Note: Once you click on a radio button you must select one or the other. The only way to remove all is to reset the entire document.</p> <p>Has = 1/Yes</p> <p>Does not have = 0/No</p> <p>If 2/Don't know, leave both buttons unselected.</p>
<p>and <input checked="" type="checkbox"/> has <input checked="" type="checkbox"/> does not have a Data Modernization Roadmap. That includes the following:</p>	<p>Q2 rdmp_yn (1 = Yes; 0 = No; 2 = Don't know)</p>	<p>Click on the appropriate radio button. Note: Once you click on a radio button you must select one or the other. The only way to remove all is to reset the entire document.</p> <p>Has = 1/Yes</p> <p>Does not have = 0/No</p> <p>If 2/Don't know, leave both buttons unselected.</p>
<p><input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>Short-term objectives (1-2 years)</p>	<p>Q3a rdmp_sto_yn (1 = Yes; 0 = No; 2 = Don't know)</p>	<p>Click on the appropriate icons for each objective type.</p> <p>Select only one for each objective.</p>

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ITEM	DATA SOURCE	INSTRUCTIONS
 <p>Intermediate objectives (3-5 years)</p>	<p>Q3b rdmp_ito_yn (1 = Yes; 0 = No; 2 = Don't know)</p>	<p>If you do not have a Data Modernization Roadmap, leave the circles gray.</p>
 <p>Long-term objectives (6+ years)</p>	<p>Q3c rdmp_lto_yn (1 = Yes; 0 = No; 2 = Don't know)</p>	<p>Green check indicates 1/Yes. Red X indicates 0/No. Yellow question mark indicates 2/Don't know. These icons are check buttons, which means you may select and deselect without having to reset the form.</p>
<p>The Roadmap has objectives related to:</p>  <p>Modernization of health information systems/technology</p>	<p>Q3d rdmp_modhis (1 = Yes; 0 = No; 2 = Don't know)</p>	<p>Click on the appropriate icons for each assessment activity. If the activity is not applicable, leave all circles gray.</p>
 <p>Modernization of data and IT governance</p>	<p>Q3e rdmp_moddata (1 = Yes; 0 = No; 2 = Don't know)</p>	<p>Green check indicates 1/Yes. Red X indicates 0/No.</p>
 <p>Development of an innovation management strategy</p>	<p>Q3f rdmp_innov (1 = Yes; 0 = No; 2 = Don't know)</p>	<p>Yellow question mark indicates 2/Don't know.</p>
 <p>Modernization of public health information technology (IT) workforce capabilities</p>	<p>Q3g rdmp_itwkfrc (1 = Yes; 0 = No; 2 = Don't know)</p>	
 <p>Modernization of public health informatics and analytics workforce capabilities</p>	<p>Q3h rdmp_inforwkfrc (1 = Yes; 0 = No; 2 = Don't know)</p>	
<p>Key Challenges</p> <hr/> <p>Briefly describe challenge(s).</p>	<p>Q4 a-h. Challenges or Rationale rdmp_sto_yn_chall rdmp_ito_yn_chall rdmp_lto_yn_chall rdmp_his_chall rdmp_dataitgov_chall rdmp_innov_chall rdmp_itwkfrc_chall rdmp_inforwkfrc_chall Q6 rdmp_chall</p>	<p>Summarize/Describe the challenges in creating or implementing a roadmap. Click on "Briefly describe" to replace the text. You may type directly into the field or paste from another document.</p>

Section 2: Assessment of Public Health Information Systems
Page 5



ITEM	DATA SOURCE	INSTRUCTIONS
<p>Conducted an environmental scan and/or facilitated an application rationalization exercise to streamline, simplify and reduce redundancies across the public health IT department</p>	<p>Q7a Envscan (1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)</p>	<p>Click on the appropriate icons for each assessment activity.</p> <p>If the activity is not applicable (3/N/A), leave all circles gray.</p> <p>Green check indicates 1/Yes.</p> <p>Red X indicates 0/No.</p> <p>Yellow question mark indicates 2/Don't know.</p>
<p>Identified stand-alone, monolithic legacy systems which would benefit from a modern, configurable, componentized platform to enable data-sharing across the enterprise</p>	<p>Q7b id_stndalone_platform (1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)</p>	
<p>Identified stand-alone systems which are not interoperable with other public health information systems</p>	<p>Q7c id_stndalone_interop (1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)</p>	
<p>Identified antiquated, inefficient legacy systems which can no longer be updated and/or are difficult to maintain due to custom- or hard-coding and would benefit from modern programming languages and technologies</p>	<p>Q7d id_antiquated (1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)</p>	
<p>Identified systems that can only be run on legacy operating systems</p>	<p>Q7e id_legacyos (1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)</p>	
<p>Conducted an analysis of alternatives to evaluate migrating health information systems to a cloud-based computing platform</p>	<p>Q7f aoa (1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)</p>	
<p>Evaluated open standards as alternative(s) to proprietary technologies</p>	<p>Q7g eval_openstand (1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)</p>	

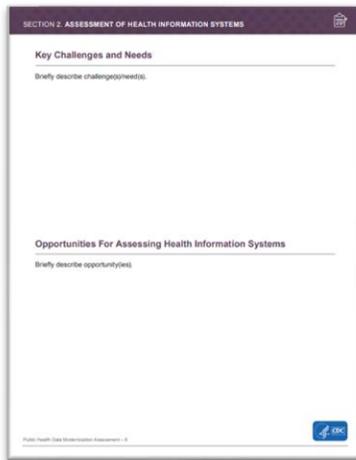
Public Health Data Modernization Assessment User Guide

ITEM	DATA SOURCE	INSTRUCTIONS
 <p>Evaluated open-source tools as alternative to proprietary technologies</p>	<p>Q7h eval_opensource (1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)</p>	
 <p>Identified a need for a new, core-critical system for laboratory or other data, e.g., Laboratory Information Management Systems (LIMS), Syndromic Surveillance System (SyS)</p>	<p>Q7i id_corecritical (1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)</p>	
 <p>Identified a need for application modernization to improve navigation, features, and functionality that could be improved with modern programming languages</p>	<p>Q7j id_appmod (1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)</p>	
<p>Workforce Proficiency Level</p> <p>Assessment of Health Information Systems</p>  <p>NONE EXPERT</p>	<p>Q8a wfprof_assesshis (None = 1; Awareness = 2; Basic = 3; Intermediate = 4; Advanced = 5; Expert = 6; N/A = 7)</p>	<p>Update the workforce proficiency level for each of the three capacities by clicking the appropriate circle.</p>
<p>Data Architecture</p>  <p>NONE EXPERT</p>	<p>Q8b wfprof_dataarch (None = 1; Awareness = 2; Basic = 3; Intermediate = 4; Advanced = 5; Expert = 6; N/A = 7)</p>	<p>Each circle represents a level of capacity. From left to right: None/1, Awareness/2, Basic/3, Intermediate/4, Advanced/5, Expert/6</p>
<p>Technology Application</p>  <p>NONE EXPERT</p>	<p>Q8c wfprof_techapp (None = 1; Awareness = 2; Basic = 3; Intermediate = 4; Advanced = 5; Expert = 6; N/A = 7)</p>	<p>If the capacity is Not applicable/7, leave the circles blank.</p> <p>Note: Once you click on a radio button you must select one in the array. The only way to remove all is to reset the entire document.</p>
<p>Plans to Meet Current & Future Workforce Needs</p> <p>Hire:</p>	<p>Q11a wf_assess_currneed_ftedesc Q13a wf_assess_futuneed_ftedesc</p> <p>Q11b wf_assess_currneed_contractdesc Q13b wf_assess_futuneed_contractdesc</p> <p>Q11c wf_assess_currneed_tempdesc Q13c wf_assess_futuneed_tempdesc</p> <p>Q11d wf_assess_currneed_fellowdesc Q13d</p>	<p>This section combines responses related to how your jurisdiction will meet current (Q11) and future (Q13) workforce needs. Summarize/Describe your plans.</p> <p>Click on the field next to the text. Provide a brief description and timeframe for your plans to meet current and future workforce needs for each category.</p> <p>If you do not plan to use one of the categories to meet current or future workforce needs, you</p>

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ITEM	DATA SOURCE	INSTRUCTIONS
Request Direct Assistance:	wf_assess_futuneed_fellowdesc Q11e wf_assess_currneed_dadesc Q13e wf_assess_futuneed_dadesc	may enter “No plans”, “N/A”, or leave the field blank.
Upskill or Reskill:	Q11f wf_assess_currneed_upskilldesc Q13f wf_assess_futuneed_upskilldesc	
Other:	Q11g wf_assess_currneed_other_spdesc Q13g wf_assess_futuneed_other_spdesc	

Page 6



ITEM	DATA SOURCE	INSTRUCTIONS
Key Challenges and Needs Briefly describe challenge(s)/need(s).	Q14 assesshis_chall Q15 assesshis_need	Click on “Briefly describe” to replace the text. You may type directly into the field or paste from another document. You may need to summarize or abbreviate your response.
Opportunities For Assessing Health Information Systems Briefly describe opportunity(ies).	Q17 assesshis_opp	

Section 3: Data Exchange and Interoperability

Pages 8



ITEM	DATA SOURCE	INSTRUCTIONS
Patient Immunization Records	Q18a receive_immunization__1 through receive_immunization__24 (1/Checked = Yes; 0/Unchecked = No) receive_immunization_opp	Click under each header for each item. You may type directly into the field or paste from another document. For each data type (e.g., immunization records, case reports), the numbered “receive” variables (e.g., receive_immunization__1) indicate how data is received into the system. The _opp variables (receive_immunization_opp indicate the opportunities for automations.
Patient Case Reports	Q18b receive_cr__1 through receive_cr__24 (1/Checked = Yes; 0/Unchecked = No) receive_cr_opp	Update for each type of data with information about how the data is received and any opportunities for automation. You may need to summarize or abbreviate your response.
Patient Laboratory Orders	Q18c receive_laborder__1 through receive_laborder__24 (1/Checked = Yes; 0/Unchecked = No) receive_laborder_opp	The numbered receive responses repeat for each data type: __1 = APHL Informatics Messaging Services (AIMS) __2 = Direct __3 = Fax __4 = Hand-keyed
Patient Laboratory Results	Q18d receive_labresult__1 through receive_labresult__24 (1/Checked = Yes; 0/Unchecked = No) receive_labresult_opp	Update for each type of data with information about how the data is received and any opportunities for automation. You may need to summarize or abbreviate your response.

ITEM	DATA SOURCE	INSTRUCTIONS
Patient Vital Records	Q18e receive_vital__1 through receive_vital__24 (1/Checked = Yes; 0/Unchecked = No) receive_vital_opp	__5 = HTTPS __6 = Hypersend __7 = Nexus __8 = NHIN __9 = Paper-based / mail __10 = PHINMS __11 = Phone transcription
Patient Encounter Data/Syndromic Surveillance Records	Q18f receive_encounter__1 receive_encounter__24 (1/Checked = Yes; 0/Unchecked = No) receive_encounter_opp	__12 = Route Not Read (RNR) __13 = S3 __14 = SFTP __15 = SMTP __16 = TCP/IP __17 = UPHN-lite __18 = VPN __19 = Web Download __20 = Web Entry __21 = Web Service APIs __22 = Other __23 = Dont Know __24 = Not received into system

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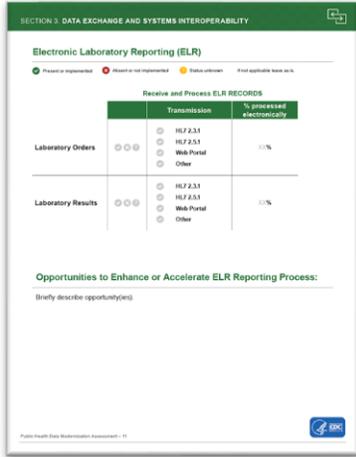
ITEM	DATA SOURCE	INSTRUCTIONS
Data Exchange and Systems Activities Implemented Develop APIs to enable rapid and flexible connectivity between applications, data, and devices Enhance/upgrade infrastructure to support continuous data streaming and scalable storage for high-volume throughput, triage and data retention	Q19a api (1 = Yes; 0 = No; 2 = Don't know; 3 = N/A) Q19e strmscale (1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)	Click on the appropriate icons for each activity. If the activity is not applicable (3/N/A), leave all circles gray. Green check indicates 1/Yes.

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ITEM	DATA SOURCE	INSTRUCTIONS
<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> <input checked="" type="checkbox"/> <input style="background-color: red; color: red; border: 1px solid red;" type="checkbox"/> <input style="background-color: yellow; color: black; border: 1px solid black;" type="checkbox"/> </div> <div> <p>Employ a semantic layer to allow the mapping of disparate data sources into a single schema or a unified data model for the purposes of integrated surveillance.</p> </div> </div>	<p>Q19i semlayer (1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)</p>	<p>Red X indicates 0/No. Yellow question mark indicates 2/Don't know.</p>
<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> <input checked="" type="checkbox"/> <input style="background-color: red; color: red; border: 1px solid red;" type="checkbox"/> <input style="background-color: yellow; color: black; border: 1px solid black;" type="checkbox"/> </div> <div> <p>Develop microservices to enable shared services between systems - enabling connectivity between applications, data, and devices.</p> </div> </div>	<p>Q19b microsrv (1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)</p>	
<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> <input checked="" type="checkbox"/> <input style="background-color: red; color: red; border: 1px solid red;" type="checkbox"/> <input style="background-color: yellow; color: black; border: 1px solid black;" type="checkbox"/> </div> <div> <p>Develop a case/patient matching and record linkage strategy which enables linkage between laboratory, epi, and clinical systems</p> </div> </div>	<p>Q19f matchlink (1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)</p>	
<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> <input checked="" type="checkbox"/> <input style="background-color: red; color: red; border: 1px solid red;" type="checkbox"/> <input style="background-color: yellow; color: black; border: 1px solid black;" type="checkbox"/> </div> <div> <p>Develop a cloud strategy which seeks to improve resource utilization and scalability, increase service responsiveness, and accrue meaningful benefits in efficiency, agility, and innovation</p> </div> </div>	<p>Q19j cloudstrat (1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)</p>	
<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> <input checked="" type="checkbox"/> <input style="background-color: red; color: red; border: 1px solid red;" type="checkbox"/> <input style="background-color: yellow; color: black; border: 1px solid black;" type="checkbox"/> </div> <div> <p>Employ an API Gateway or Enterprise Service Bus (ESB) for enterprise message brokerage and integration monitoring</p> </div> </div>	<p>Q19c apigtwy (1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)</p>	
<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> <input checked="" type="checkbox"/> <input style="background-color: red; color: red; border: 1px solid red;" type="checkbox"/> <input style="background-color: yellow; color: black; border: 1px solid black;" type="checkbox"/> </div> <div> <p>Develop a universal outbreak ID which links an individual case report with an outbreak event</p> </div> </div>	<p>Q19g univid (1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)</p>	
<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> <input checked="" type="checkbox"/> <input style="background-color: red; color: red; border: 1px solid red;" type="checkbox"/> <input style="background-color: yellow; color: black; border: 1px solid black;" type="checkbox"/> </div> <div> <p>Use of cloud computing services to support shared services</p> </div> </div>	<p>Q19k cldserv (1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)</p>	
<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> <input checked="" type="checkbox"/> <input style="background-color: red; color: red; border: 1px solid red;" type="checkbox"/> <input style="background-color: yellow; color: black; border: 1px solid black;" type="checkbox"/> </div> <div> <p>Integrate domains to promote interoperability between disparate systems.</p> </div> </div>	<p>Q19d integratedom (1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)</p>	
<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> <input checked="" type="checkbox"/> <input style="background-color: red; color: red; border: 1px solid red;" type="checkbox"/> <input style="background-color: yellow; color: black; border: 1px solid black;" type="checkbox"/> </div> <div> <p>Use a data lake, a centralized, scalable data storage repository capable of retaining vast amounts of structured, semi-structured, and unstructured data to introduce flexible configuration and agility in surveillance architecture</p> </div> </div>	<p>Q19j datalake (1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)</p>	

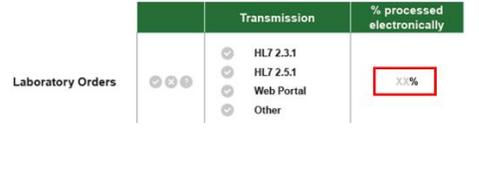
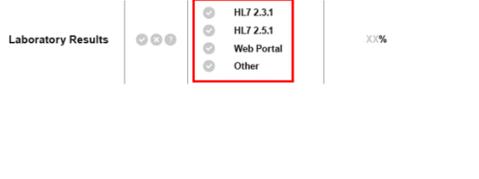
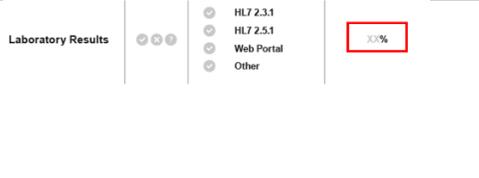
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ITEM	DATA SOURCE	INSTRUCTIONS
<p>DEVELOPING OR ENHANCING AN INTEGRATED SURVEILLANCE SYSTEM: SYSTEM NAME</p>	<p>Q20 Elr_vendor2 (1 = NBS; 2 = ASD (PRISM); 3 = Maven; 4 = STC; 8 = EpiTrax; 5 = Other; 6 = Custom System; 7 = N/A)</p> <p>or</p> <p>Q20a Elr_other_vendor2</p>	<p>Click on “SYSTEM NAME” to replace the text with the name of your integrated surveillance system vendor (Elr_vendor2). If you use a custom system, update with custom name of the system (elr_other_vendor2).</p> <p>If you do not have an integrated surveillance system, enter N/A.</p>
<p>Key Challenges</p> <p>Briefly describe challenge(s)/need(s).</p>	<p>Q21 intsurv_chall</p>	<p>Click on “Briefly describe” to replace the text. You may type directly into the field or paste from another document.</p>
<p>Opportunities</p> <p>Briefly describe opportunity(ies).</p>	<p>Q22 intsurv_opp</p>	<p>You may need to summarize or abbreviate your response.</p>



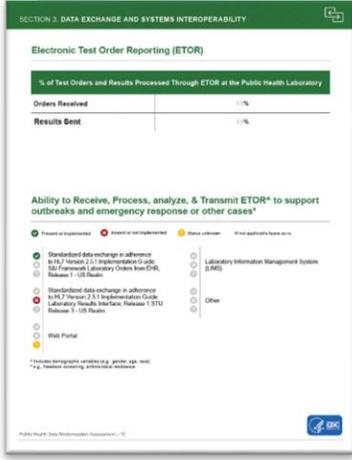
ITEM	DATA SOURCE	INSTRUCTIONS						
<p>Electronic Laboratory Reporting (ELR)</p> <table border="1" data-bbox="337 863 675 989"> <thead> <tr> <th></th> <th>Transmission</th> <th>% processed electronically</th> </tr> </thead> <tbody> <tr> <td>Laboratory Orders</td> <td> <input checked="" type="checkbox"/> HL7 2.3.1 <input checked="" type="checkbox"/> HL7 2.5.1 <input checked="" type="checkbox"/> Web Portal <input checked="" type="checkbox"/> Other </td> <td>XX%</td> </tr> </tbody> </table>		Transmission	% processed electronically	Laboratory Orders	<input checked="" type="checkbox"/> HL7 2.3.1 <input checked="" type="checkbox"/> HL7 2.5.1 <input checked="" type="checkbox"/> Web Portal <input checked="" type="checkbox"/> Other	XX%	<p>Q23a elr_labord (1 = Yes; 0 = No; 2 = Don't know)</p>	<p>Click on the appropriate icons for Laboratory Orders.</p> <p>If not applicable, leave all circles gray.</p> <p>Green check indicates 1/Yes.</p> <p>Red X indicates 0/No.</p> <p>Yellow question mark indicates 2/Don't know.</p>
	Transmission	% processed electronically						
Laboratory Orders	<input checked="" type="checkbox"/> HL7 2.3.1 <input checked="" type="checkbox"/> HL7 2.5.1 <input checked="" type="checkbox"/> Web Portal <input checked="" type="checkbox"/> Other	XX%						
<table border="1" data-bbox="337 1199 675 1325"> <thead> <tr> <th></th> <th>Transmission</th> <th>% processed electronically</th> </tr> </thead> <tbody> <tr> <td>Laboratory Orders</td> <td> <input type="checkbox"/> HL7 2.3.1 <input type="checkbox"/> HL7 2.5.1 <input type="checkbox"/> Web Portal <input checked="" type="checkbox"/> Other </td> <td>XX%</td> </tr> </tbody> </table>		Transmission	% processed electronically	Laboratory Orders	<input type="checkbox"/> HL7 2.3.1 <input type="checkbox"/> HL7 2.5.1 <input type="checkbox"/> Web Portal <input checked="" type="checkbox"/> Other	XX%	<p>Q23a ELR_LabOrd_rec (elr_labord_rec___1 = Implementation Guide for Transmission of Laboratory-Based Reporting of Public Health Information using Version 2.3.1 of the HealthLevel Seven (HL7) Standard Protocol; elr_labord_rec___2 = HL7 Version 2.5.1 Implementation Guide: Electronic Laboratory Reporting to Public Health, Release 1 (US Realm); elr_labord_rec___3 = Web Portal; elr_labord_rec___4 = Other)</p>	<p>Click on the appropriate transmission mechanism(s) to highlight.</p> <p>If your jurisdiction is not able to receive and process ELR orders, leave circles gray.</p>
	Transmission	% processed electronically						
Laboratory Orders	<input type="checkbox"/> HL7 2.3.1 <input type="checkbox"/> HL7 2.5.1 <input type="checkbox"/> Web Portal <input checked="" type="checkbox"/> Other	XX%						

Public Health Data Modernization Assessment User Guide

ITEM	DATA SOURCE	INSTRUCTIONS
 <p>Laboratory Orders</p>	<p>Q23a ELR_LabOrd_percent</p>	<p>Click on the space before the % sign to update the text with the correct percentage.</p> <p>If the information is not available, leave blank.</p>
 <p>Laboratory Results</p>	<p>Q23b elr_labres (1 = Yes; 0 = No; 2 = Don't know)</p>	<p>Click on the appropriate icons for Laboratory Orders.</p> <p>If not applicable, leave all circles gray.</p> <p>Green check indicates 1/Yes.</p> <p>Red X indicates 0/No.</p> <p>Yellow question mark indicates 2/Don't know.</p>
 <p>Laboratory Results</p>	<p>Q23b ELR_LabRes_rec (elr_labres_rec__1 = Implementation Guide for Transmission of Laboratory-Based Reporting of Public Health Information using Version 2.3.1 of the HealthLevel Seven (HL7) Standard Protocol;</p> <p>elr_labres_rec__2 = HL7 Version 2.5.1 Implementation Guide: Electronic Laboratory Reporting to Public Health, Release 1 (US Realm);</p> <p>elr_labres_rec__3 = Web Portal;</p> <p>elr_labres_rec__4 = Other)</p>	<p>Click on the appropriate transmission mechanism(s) to highlight.</p> <p>If your jurisdiction is not able to receive and process ELR results, leave circles grey.</p>
 <p>Laboratory Results</p>	<p>Q23b ELR_LabOrd_percent</p>	<p>Click on the space before the % sign to update the text with the correct percentage.</p> <p>If the information is not available, leave blank.</p>
<p>Opportunities to Enhance or Accelerate ELR Reporting Process: Briefly describe opportunity(ies).</p>	<p>Q24 elr_opp</p>	<p>Summarize/Describe the opportunities.</p> <p>Click on "Briefly describe" to replace the text. You may type</p>

ITEM	DATA SOURCE	INSTRUCTIONS
		directly into the field or paste from another document.

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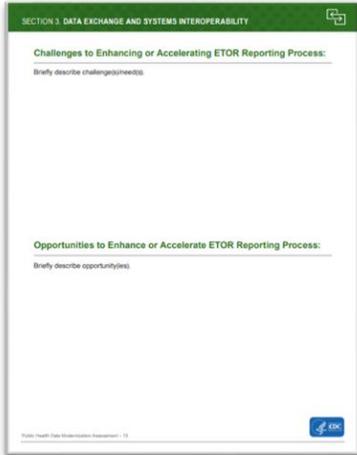


ITEM	DATA SOURCE	INSTRUCTIONS				
<p>% of Test Orders and Results Processed Through ETOR at the Public Health Laboratory</p> <table border="1"> <tr> <td>Orders Received</td> <td>11%</td> </tr> <tr> <td>Results Sent</td> <td>11%</td> </tr> </table>	Orders Received	11%	Results Sent	11%	<p>Q25c e15_percent1_pd2</p>	<p>Click on the space before the % sign to update the text with the correct percentage.</p> <p>If the information is not available, leave blank.</p>
Orders Received	11%					
Results Sent	11%					
<p>% of Test Orders and Results Processed Through ETOR at the Public Health Laboratory</p> <table border="1"> <tr> <td>Orders Received</td> <td>XX%</td> </tr> <tr> <td>Results Sent</td> <td>XX%</td> </tr> </table>	Orders Received	XX%	Results Sent	XX%	<p>Q26c e15_percent2_pd2</p>	<p>Click on the space before the % sign to update the text with the correct percentage.</p> <p>If the information is not available, leave blank.</p>
Orders Received	XX%					
Results Sent	XX%					
<p>Ability to Receive, Process, analyze, & Transmit ETOR^ to support outbreaks and emergency response or other cases*</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Standardized data exchange in adherence to HL7 Version 2.5.1 Implementation Guide: S&I Framework Laboratory Orders from EHR, Release 1 - US Realm <input type="checkbox"/> Standardized data exchange in adherence to HL7 Version 2.5.1 Implementation Guide: Laboratory Results Interface, Release 1 STU Release 3 - US Realm <input type="checkbox"/> Web Portal <input type="checkbox"/> Laboratory Information Management System (LIMS) <input type="checkbox"/> Other 	<p>Q27a etor_labord_rec (1 = Yes; 0 = No; 2 = Don't know)</p> <p>Q27b etor_labresult_rec (1 = Yes; 0 = No; 2 = Don't know)</p> <p>Q27c etor_rec_webportal (1 = Yes; 0 = No; 2 = Don't know)</p> <p>Q27d etor_rec_lims</p>	<p>Click on the appropriate icons for each exchange mechanism.</p> <p>If not applicable, leave all circles gray.</p> <p>Green check indicates 1/Yes.</p> <p>Red X indicates 0/No.</p> <p>Yellow question mark indicates 2/Don't know.</p> <p>For "Other" if Other = Yes/1, click on the Other text to replace with the specific standard.</p>				

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ITEM	DATA SOURCE	INSTRUCTIONS
	(1 = Yes; 0 = No; 2 = Don't know)	
Other (Q27e etor_other_lims (1 = Yes; 0 = No; 2 = Don't know)	

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ITEM	DATA SOURCE	INSTRUCTIONS
Challenges to Enhancing or Accelerating ETOR Reporting Process: Briefly describe challenge(s)/need(s).	Q28 etor_chall	Summarize/Describe the challenges. Click on "Briefly describe" to replace the text. You may type directly into the field or paste from another document.
Opportunities to Enhance or Accelerate ETOR Reporting Process: Briefly describe opportunity(ies).	Q29 etor_opp	Summarize/Describe the opportunities. Click on "Briefly describe" to replace the text. You may type directly into the field or paste from another document.



ITEM	DATA SOURCE	INSTRUCTIONS
<p><input checked="" type="radio"/> Has <input type="radio"/> has not conducted a workflow feasibility of receiving and processing electronic case reports (eCR) and reportable responses (RR).</p>	<p>Q30 eicr_wfkflw (1 = Yes; 0 = No)</p>	<p>Click on the appropriate radio button. Note: Once you click on a radio button you must select one or the other. The only way to remove all is to reset the entire document.</p> <p>1/Yes = Has; 0/No = Has not</p>
<p>Opportunities for Enhanced Workflow for Reportable Conditions Briefly describe opportunity(ies).</p>	<p>Q30a eicr_wfkflw_opp</p>	<p>Summarize/Describe the opportunities.</p> <p>Click on "Briefly describe" to replace the text. You may type directly into the field or paste from another document.</p>
<p>Receiving and Consuming eICR and RR Records from AIMS for Disease Surveillance</p> <p><input checked="" type="radio"/> HL7 CDA® R2 Implementation Guide: Public Health Case Report, Release 2: the Electronic Initial Case Report (eICR), Release 1, STU Release 1.1 - US Realm</p>	<p>Q31a eicr_rec_cda (1 = Yes; 0 = No; 2 = Don't know)</p>	<p>Click on the appropriate icons for each exchange mechanism.</p> <p>If not applicable, leave all circles gray.</p>
<p><input checked="" type="radio"/> Electronic Case Reporting (eCR) Version: 0.1.0 FHIR Version: 3.1.1 in adherence to the HL7 FHIR® Implementation Guide: Electronic Case Reporting (eCR) v.1.0.0</p>	<p>Q31b eicr_rec_fhir (1 = Yes; 0 = No; 2 = Don't know)</p>	<p>Green check indicates 1/Yes.</p> <p>Red X indicates 0/No.</p>
<p><input checked="" type="radio"/> Other</p>	<p>Q31c eicr_rec_other (1 = Yes; 0 = No; 2 = Don't know)</p>	<p>Yellow question mark indicates 2/Don't know.</p> <p>For "Other" if Other = Yes/1, click on the Other text to replace with the specific standard.</p>

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ITEM	DATA SOURCE	INSTRUCTIONS
<p>Key Challenges to Transmitting Electronic Case Reports Across Systems:</p> <p>Briefly describe challenge(s)/need(s).</p>	<p>Q31a eicr_rec_cda_chall</p> <p>Q31b eicr_rec_fhir_chall</p> <p>Q31c eicr_rec_other_chall</p>	<p>Summarize/Describe the challenges.</p> <p>Click on “Briefly describe” to replace the text. You may type directly into the field or paste from another document.</p>
<p>Opportunities for Transmitting Electronic Case Reports Across Systems:</p> <p>Briefly describe opportunity(ies).</p>	<p>Q31a eicr_rec_cda_opp</p> <p>Q31b eicr_rec_fhir_opp</p> <p>Q31c eicr_rec_other_opp</p>	<p>Summarize/Describe the opportunities.</p> <p>Click on “Briefly describe” to replace the text. You may type directly into the field or paste from another document.</p>

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ITEM	DATA SOURCE	INSTRUCTIONS
<p>Key Challenges to Utilizing eICR Data:</p> <p>Briefly describe challenge(s)/need(s).</p>	<p>Q32 eicr_chall</p>	<p>Summarize/Describe the challenges.</p> <p>Click on “Briefly describe” to replace the text. You may type directly into the field or paste from another document.</p>
<p>Opportunities to Enhance the eICR and RR Integration into Data Systems and Utilize Data from eCR:</p> <p>Briefly describe opportunity(ies).</p>	<p>Q33 eicr_opp</p>	<p>Summarize/Describe the opportunities.</p> <p>Click on “Briefly describe” to replace the text. You may type directly into the field or paste from another document.</p>

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SECTION 3. DATA EXCHANGE AND SYSTEMS INTEROPERABILITY

Reportable Conditions Knowledge Management System (RCKMS)

XX% Of reporting requirements authored for available conditions in AIMS/RCKMS

Plans for Authoring and Updating Reporting Requirements for Available Conditions:

Needed Services and Tools to Support Data Evaluation and Quality Assurance:

Briefly describe opportunity(ies).

ITEM	DATA SOURCE	INSTRUCTIONS
XX% Of reporting requirements authored for available conditions in AIMS/RCKMS	Q34a rckms_percent	Click on XX and type in percentage.
Plans for Authoring and Updating Reporting Requirements for Available Conditions:	Q35 rckms_plan	Summarize/Describe the plans. Click on the field below the header to enter text. You may type directly into the field or paste from another document.
Needed Services and Tools to Support Data Evaluation and Quality Assurance: Briefly describe opportunity(ies).	Q37 eicr_need	Summarize/Describe the needs. Click on “Briefly describe” to replace the text. You may type directly into the field or paste from another document.



ITEM	DATA SOURCE	INSTRUCTIONS
<p>Immunization</p> <p>Briefly describe plans for immunization-related information systems.</p>	<p>Q38 immun_enhance</p>	<p>Summarize/Describe the plans.</p> <p>Click on “Briefly describe” to replace the text. You may type directly into the field or paste from another document.</p>
<p>Receive and Process Electronic Immunization Records:</p> <p><input checked="" type="checkbox"/> Standardized data exchange in adherence to HL7 Version 2.1 Implementation Guide for Immunization Messaging</p>	<p>Q39a immune_rec_hl (1 = Yes; 0 = No; 2 = Don't know)</p>	<p>Click on the appropriate icons for each exchange mechanism.</p> <p>If not applicable, leave all circles gray.</p>
<p><input checked="" type="checkbox"/> Web Portal</p>	<p>Q39b immune_rec_webportal (1 = Yes; 0 = No; 2 = Don't know)</p>	<p>Green check indicates 1/Yes.</p> <p>Red X indicates 0/No.</p>
<p><input checked="" type="checkbox"/> Other</p>	<p>Q39c immune_rec_other (1 = Yes; 0 = No; 2 = Don't know)</p>	<p>Yellow question mark indicates 2/Don't know.</p> <p>For “Other” if Other = Yes/1, click on the Other text to replace with the specific standard.</p>
<p>Transmit Electronic COVID-19 Immunization Records from a Centralized Immunization System (IIS) to CDC</p> <p><input checked="" type="checkbox"/> HL7 Version 2.5.1 Implementation Guide for Immunization Messaging via Vaccine Administration Management System (VAMS)</p>	<p>Q41a covidimmune_transmit_vams (1 = Yes; 0 = No; 2 = Don't know)</p>	<p>Click on the appropriate icons for each exchange mechanism.</p> <p>If not applicable, leave all circles gray.</p> <p>Green check indicates 1/Yes.</p>
<p><input checked="" type="checkbox"/> COVID-19 Vaccination Reporting Specification (CVRS)</p>	<p>Q41b covidimmune_transmit_cvrs</p>	<p>Red X indicates 0/No.</p>

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ITEM	DATA SOURCE	INSTRUCTIONS
	(1 = Yes; 0 = No; 2 = Don't know)	Yellow question mark indicates 2/Don't know.
	Q41c covidimmune_transmit_other (1 = Yes; 0 = No; 2 = Don't know)	For "Other" if Other = Yes/1, click on the Other text to replace with the specific standard.

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ITEM	DATA SOURCE	INSTRUCTIONS
<p>Opportunities to Enhance or Accelerate Immunization Reporting: Briefly describe opportunity(ies).</p>	Q40 immune_opp	Summarize/Describe the opportunities. Click on "Briefly describe" to replace the text. You may type directly into the field or paste from another document.
<p>Opportunities to Enhance or Accelerate Immunization Reporting to CDC: Briefly describe opportunity(ies).</p>	Q42 immuntocdc_opp	Summarize/Describe the opportunities. Click on "Briefly describe" to replace the text. You may type directly into the field or paste from another document.



ITEM	DATA SOURCE	INSTRUCTIONS
<p>Syndromic Surveillance</p> <p>Does not have a local syndromic surveillance system. OR Local syndromic surveillance system(s) System Name(s).</p>	<p>Q43 sys_type_2_yes (1 = Yes; 0 = No)</p> <p>sys_localname</p> <p>sys_localname_2</p>	<p>Click in the field under Syndromic Surveillance to update the text.</p> <p>If sys_type_2_yes = No/0, update text by deleting “OR Local syndromic surveillance system(s) (System Name(s)) so that the text reads “Does not have a local syndromic surveillance system.”</p> <p>If sys_type_2_yes = Yes/1, replace the text with sys_localname and sys_localname_2 (if applicable)</p>
<p>Using Syndromic Surveillance to Inform Public Health Actions</p> <p>Briefly describe example products or use of syndromic surveillance to inform public health action:</p>	<p>Q44 sys_informyn (1 = Yes; 0 = No)</p> <p>Q44a Sys_inform</p>	<p>If sys_informyn = No/0, click on “Briefly describe” to replace the text with “N/A”.</p> <p>If sys_informyn = Yes/1, summarize/describe examples. Click on “Briefly describe” to replace the text. You may type directly into the field or paste from another document.</p>
<p>Transmit Standardized Admisssion, Discharge, and Transfer (ADT) Electronic Patient Records in Adherence to:</p> <p>HL7 Version 2.5.1 Implementation Guide: Syndromic Surveillance, Release 17</p>	<p>Q45a adt_trans_hl7 (1 = Yes; 0 = No; 2 = Don't know)</p>	<p>Click on the appropriate icons for each exchange mechanism.</p> <p>If not applicable, leave all circles gray.</p>

ITEM	DATA SOURCE	INSTRUCTIONS
	<p>Q45b adt_trans_other (1 = Yes; 0 = No; 2 = Don't know)</p>	<p>Green check indicates 1/Yes. Red X indicates 0/No. Yellow question mark indicates 2/Don't know. For "Other" if Other = Yes/1, click on the Other text to replace with the specific standard.</p>

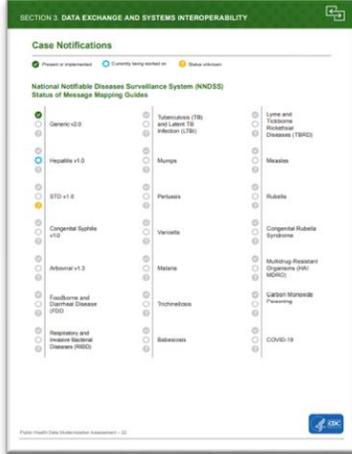
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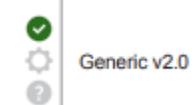
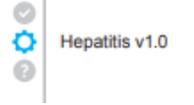


ITEM	DATA SOURCE	INSTRUCTIONS
<p>Challenges to Enhancing or Accelerating Syndromic Surveillance Reporting from Provider to Jurisdiction: Briefly describe challenge(s)/need(s).</p>	<p>Q47 sys_chall_provtojur</p>	<p>Summarize/Describe the challenges and needs. Click on "Briefly describe" to replace the text. You may type directly into the field or paste from another document.</p>
<p>Opportunities to Enhance or Accelerate Syndromic Surveillance Reporting from Provider to Jurisdiction: Briefly describe opportunity(ies).</p>	<p>Q46 sys_opp_provtojur</p>	<p>Summarize/Describe the opportunities. Click on "Briefly describe" to replace the text. You may type directly into the field or paste from another document.</p>
<p>Challenges to Enhancing or Accelerating Syndromic Surveillance Reporting from Jurisdiction to National Syndromic Surveillance Program (NSSP): Briefly describe challenge(s)/need(s).</p>	<p>Q49 sys_chall_tonssp</p>	<p>Summarize/Describe the challenges and needs. Click on "Briefly describe" to replace the text. You may type directly into the field or paste from another document.</p>
<p>Opportunities to Enhance or Accelerate Syndromic Surveillance Reporting from Jurisdiction to National Syndromic Surveillance Program (NSSP): Briefly describe opportunity(ies).</p>	<p>Q48 sys_opp_tonssp</p>	<p>Summarize/Describe the opportunities.</p>

ITEM	DATA SOURCE	INSTRUCTIONS
		Click on “Briefly describe” to replace the text. You may type directly into the field or paste from another document.

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ITEM	DATA SOURCE	INSTRUCTIONS
<p>National Notifiable Diseases Surveillance System (NNDSS) Status of Message Mapping Guides</p> 	<p>Q49 nmi_prodmmg_gen (1 = In full production; 0 = Not in full production)</p> <p>nmi_currentwork_gen (1 = Currently working on; 0 = Not currently working on)</p>	<p>Click on the appropriate icons for each message mapping guide.</p> <p>If not applicable, or if the message mapping guide is not in full production or is not being worked on, leave all circles gray.</p>
	<p>Q49 nmi_prodmmg_hep (1 = In full production; 0 = Not in full production)</p> <p>nmi_currentwork_hep (1 = Currently working on; 0 = Not currently working on)</p>	<p>Green check indicates that the associated nmi_prodmmg__ variable = 1/Checked.</p> <p>Turquoise gear indicates that the associated nmi_currentwork__ variable = 1/Checked.</p>
	<p>Q49 nmi_prodmmg_std (1 = In full production; 0 = Not in full production)</p> <p>nmi_currentwork_std (1 = Currently working on; 0 = Not currently working on)</p>	<p>Yellow question mark indicates that the status is unknown.</p>

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ITEM	DATA SOURCE	INSTRUCTIONS
 <p>Congenital Syphilis v1.0</p>	<p>Q49 nmi_prodmng_syph (1 = In full production; 0 = Not in full production)</p> <p>nmi_currentwork_syph (1 = Currently working on; 0 = Not currently working on)</p>	
 <p>Arboviral v1.3</p>	<p>Q49 nmi_prodmng_arbo (1 = In full production; 0 = Not in full production)</p> <p>nmi_currentwork_arbo (1 = Currently working on; 0 = Not currently working on)</p>	
 <p>Foodborne and Diarrheal Disease (FDD)</p>	<p>Q49 nmi_prodmng_fdd (1 = In full production; 0 = Not in full production)</p> <p>nmi_currentwork_fdd (1 = Currently working on; 0 = Not currently working on)</p>	
 <p>Respiratory and Invasive Bacterial Diseases (RIBD)</p>	<p>Q49 nmi_prodmng_ribd (1 = In full production; 0 = Not in full production)</p> <p>nmi_currentwork_ribd (1 = Currently working on; 0 = Not currently working on)</p>	
 <p>Tuberculosis (TB) and Latent TB Infection (LTBI)</p>	<p>Q49 nmi_prodmng_ltbi (1 = In full production; 0 = Not in full production)</p> <p>nmi_currentwork_ltbi (1 = Currently working on; 0 = Not currently working on)</p>	
 <p>Mumps</p>	<p>Q49 nmi_prodmng_mumps (1 = In full production; 0 = Not in full production)</p> <p>nmi_currentwork_mumps (1 = Currently working on; 0 = Not currently working on)</p>	

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ITEM	DATA SOURCE	INSTRUCTIONS
 <p>Pertussis</p>	<p>Q49 nmi_prodmng__pertussis (1 = In full production; 0 = Not in full production)</p> <p>nmi_currentwork__pertussis (1 = Currently working on; 0 = Not currently working on)</p>	
 <p>Varicella</p>	<p>Q49 nmi_prodmng__varicella (1 = In full production; 0 = Not in full production)</p> <p>nmi_currentwork__varicella (1 = Currently working on; 0 = Not currently working on)</p>	
 <p>Malaria</p>	<p>Q49 nmi_prodmng__malaria (1 = In full production; 0 = Not in full production)</p> <p>nmi_currentwork__malaria (1 = Currently working on; 0 = Not currently working on)</p>	
 <p>Trichinellosis</p>	<p>Q49 nmi_prodmng__trich (1 = In full production; 0 = Not in full production)</p> <p>nmi_currentwork__trich (1 = Currently working on; 0 = Not currently working on)</p>	
 <p>Babesiosis</p>	<p>Q49 nmi_prodmng__babs (1 = In full production; 0 = Not in full production)</p> <p>nmi_currentwork__babs (1 = Currently working on; 0 = Not currently working on)</p>	
 <p>Lyme and Tickborne Rickettsial Diseases (TBRD)</p>	<p>Q49 nmi_prodmng__tbrd (1 = In full production; 0 = Not in full production)</p> <p>nmi_currentwork__tbrd (1 = Currently working on; 0 = Not currently working on)</p>	

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ITEM	DATA SOURCE	INSTRUCTIONS
 <p>Measles</p>	<p>Q49 nmi_prodmmg__meas (1 = In full production; 0 = Not in full production)</p> <p>nmi_currentwork__meas (1 = Currently working on; 0 = Not currently working on)</p>	
 <p>Rubella</p>	<p>Q49 nmi_prodmmg__rubel (1 = In full production; 0 = Not in full production)</p> <p>nmi_currentwork__rubel (1 = Currently working on; 0 = Not currently working on)</p>	
 <p>Congenital Rubella Syndrome</p>	<p>Q49 nmi_prodmmg__crs (1 = In full production; 0 = Not in full production)</p> <p>nmi_currentwork__crs (1 = Currently working on; 0 = Not currently working on)</p>	
 <p>Multidrug-Resistant Organisms (HAI MDRO)</p>	<p>Q49 nmi_prodmmg__mdro (1 = In full production; 0 = Not in full production)</p> <p>nmi_currentwork__mdro (1 = Currently working on; 0 = Not currently working on)</p>	
 <p>Carbon Monoxide Poisoning</p>	<p>Q49 nmi_prodmmg__co (1 = In full production; 0 = Not in full production)</p> <p>nmi_currentwork__co (1 = Currently working on; 0 = Not currently working on)</p>	
 <p>COVID-19</p>	<p>Q49 nmi_prodmmg__covid (1 = In full production; 0 = Not in full production)</p> <p>nmi_currentwork__covid (1 = Currently working on; 0 = Not currently working on)</p>	



ITEM	DATA SOURCE	INSTRUCTIONS
<p>Case Notifications: Challenges to Enhancing or Accelerating Data Collection, Surveillance, and/or Reporting</p> <hr/> <p>Briefly describe challenge(s)/need(s).</p>	<p>Q52 nmi_chall</p>	<p>Summarize/Describe the challenges and needs.</p> <p>Click on “Briefly describe” to replace the text. You may type directly into the field or paste from another document.</p>
<p>Case Notifications: Opportunities to Enhance or Accelerate Data Collection, Surveillance, and/or Reporting</p> <hr/> <p>Briefly describe opportunity(ies).</p>	<p>Q53 nmi_opp</p>	<p>Summarize/Describe the opportunities.</p> <p>Click on “Briefly describe” to replace the text. You may type directly into the field or paste from another document.</p>



ITEM	DATA SOURCE	INSTRUCTIONS
<p>Vital Records</p> <p>Data Exchange Mechanism</p> <p><input checked="" type="checkbox"/> Steve 2.0 - State and Territorial Exchange of Vital Events System interface, developed by the National Association for Public Health Statistics and Information Systems (NAPHISIS) to securely transfer electronic vital records into the National Vital Statistics System (NVSS) at the National Center for Health Statistics (NCHS)</p>	<p>Q54a vitalrec_steve (1 = Yes; 0 = No; 2 = Don't know)</p>	<p>Click on the appropriate icons for each exchange mechanism.</p> <p>If not applicable, leave all circles gray.</p>
<p><input checked="" type="checkbox"/> Vital Records Death Reporting FHIR Implementation Guide v0.1.0</p>	<p>Q54b vitalrec_fhir</p>	<p>Green check indicates 1/Yes.</p>
<p><input checked="" type="checkbox"/> Other</p>	<p>Q54c vitalrec_other</p>	<p>Red X indicates 0/No.</p> <p>Yellow question mark indicates 2/Don't know.</p> <p>For "Other" if Other = Yes/1, click on the Other text to replace with the specific mechanism.</p>
<p>Opportunities to Enhance or Accelerate Vital Records Data Sharing and Reporting:</p> <p>Briefly describe opportunity(ies).</p>	<p>Q56 vitalrec_opp</p>	<p>Summarize/Describe the opportunities.</p> <p>Click on "Briefly describe" to replace the text. You may type directly into the field or paste from another document.</p>



ITEM	DATA SOURCE	INSTRUCTIONS
<p>Contact Tracing Tools:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Salesforce <input checked="" type="checkbox"/> REDCap <input checked="" type="checkbox"/> Sara Alert <input checked="" type="checkbox"/> CommCare <input checked="" type="checkbox"/> Microsoft Arias <input checked="" type="checkbox"/> DOMO <input checked="" type="checkbox"/> MTX <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> Other 	<p>Q57a ct_sys__salesforce ct_sys__rdcp ct_sys__saraalert ct_sys__comm ct_sys__arias ct_sys__domo ct_sys__mtx ct_sys__oth ct_sys__na</p> <p>(1/Checked = using tool; 0/unchecked = not using tool)</p> <p>Q57b ct_oth</p>	<p>If the corresponding ct_sys__ variable is 1/Checked, click on the check button to highlight it green.</p> <p>For "Other" if ct_sys__oth = Yes/1, click on the Other text to replace with the specific tool.</p>
<p>Contact Tracing System is Interoperable With:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Integrated Disease Surveillance System 	<p>Q57c ct_sys__interop__integ</p> <p>(1/Checked = Interoperable; 0/Unchecked = Not interoperable)</p>	<p>Click on the appropriate icons for each system or registry.</p> <p>If not applicable, leave all circles gray.</p>
<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Immunization Information System or Registry 	<p>Q57c ct_sys__interop__iis</p> <p>(1/Checked = Interoperable; 0/Unchecked = Not interoperable)</p>	<p>Green check indicates 1/Yes.</p> <p>Red X indicates 0/No.</p> <p>Yellow question mark indicates 2/Don't know.</p>

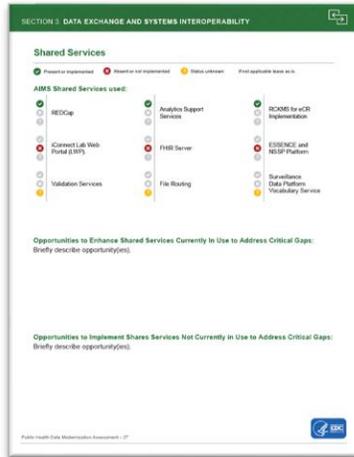
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 <p>Vital Records</p>	<p>Q57c ct_sys_interop__vit</p> <p>(1/Checked = Interoperable; 0/Unchecked = Not interoperable)</p>	<p>For “Other” if Other = Yes/1, click on the Other text to replace with the specific system.</p>
 <p>Other</p>	<p>Q57c ct_sys_interop__oth</p> <p>(1/Checked = Interoperable; 0/Unchecked = Not interoperable)</p>	

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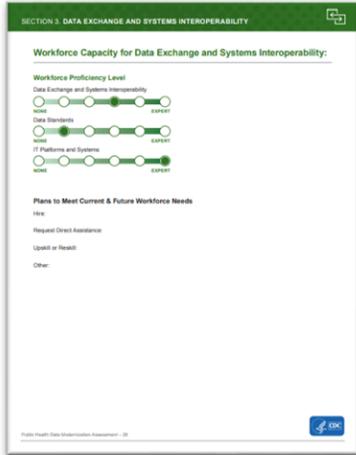
ITEM	DATA SOURCE	INSTRUCTIONS
<p>Challenges to Contact Tracing:</p> <p>Briefly describe challenge(s)/need(s).</p>	<p>Q58 ct_chall</p>	<p>Summarize/Describe the challenges.</p> <p>Click on “Briefly describe” to replace the text. You may type directly into the field or paste from another document.</p>
<p>Opportunities to Enhance or Accelerate Contact Tracing:</p> <p>Briefly describe opportunity(ies).</p>	<p>Q59 ct_opp</p>	<p>Summarize/Describe the opportunities.</p> <p>Click on “Briefly describe” to replace the text. You may type directly into the field or paste from another document.</p>



ITEM	DATA SOURCE	INSTRUCTIONS
 AIMS Shared Services REDCap	Q60 shareserv__1 (1 = Using shared service; 0 = Not using shared service)	Click on the appropriate icons for each AIMS shared service.
 iConnect Lab Web Portal (LWP).	Q60 shareserv__2 (1 = Using shared service; 0 = Not using shared service)	If not applicable, leave all circles gray.
 Validation Services	Q60 shareserv__3 (1 = Using shared service; 0 = Not using shared service)	If not applicable, leave all circles gray.
 Analytics Support Services	Q60 shareserv__4 (1 = Using shared service; 0 = Not using shared service)	Green check indicates 1/Checked.
 FHIR Server	Q60 shareserv__5 (1 = Using shared service; 0 = Not using shared service)	Red X indicates 0/Unchecked.
 File Routing	Q60 shareserv__6 (1 = Using shared service; 0 = Not using shared service)	Yellow question mark indicates 2/Don't know.
 RCKMS for eCR Implementation	Q60 shareserv__7 (1 = Using shared service; 0 = Not using shared service)	

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ITEM	DATA SOURCE	INSTRUCTIONS
 <p>ESSENCE and NSSP Platform</p>	<p>Q60 shareserv__8 (1 = Using shared service; 0 = Not using shared service)</p>	
 <p>Surveillance Data Platform Vocabulary Service</p>	<p>Q60 shareserv__9 (1 = Using shared service; 0 = Not using shared service)</p>	
<p>Opportunities to Enhance Shared Services Currently In Use to Address Critical Gaps: Briefly describe opportunity(ies).</p>	<p>Q61 shareserv_curr_opp</p>	<p>Summarize/Describe the opportunities.</p> <p>Click on “Briefly describe” to replace the text. You may type directly into the field or paste from another document.</p>
<p>Opportunities to Implement Shares Services Not Currently in Use to Address Critical Gaps: Briefly describe opportunity(ies).</p>	<p>Q62 shareserv_notcurr_opp</p>	<p>Summarize/Describe the opportunities.</p> <p>Click on “Briefly describe” to replace the text. You may type directly into the field or paste from another document.</p>



ITEM	DATA SOURCE	INSTRUCTIONS
<p>Workforce Proficiency Level Data Exchange and Systems Interoperability</p> 	<p>Q63a wfprof_interop (None = 1; Awareness = 2; Basic = 3; Intermediate = 4; Advanced = 5; Expert = 6; N/A = 7)</p>	<p>Update the workforce proficiency level for each of the three capacities by clicking the appropriate circle.</p>
<p>Data Standards</p> 	<p>Q63b wfprof_datastand (None = 1; Awareness = 2; Basic = 3; Intermediate = 4; Advanced = 5; Expert = 6; N/A = 7)</p>	<p>Each circle represents a level of capacity. From left to right: None/1, Awareness/2, Basic/3, Intermediate/4, Advanced/5, Expert/6</p>
<p>IT Platforms and Systems</p> 	<p>Q63c wfprof_itplat (None = 1; Awareness = 2; Basic = 3; Intermediate = 4; Advanced = 5; Expert = 6; N/A = 7)</p>	<p>If the capacity is Not applicable/7, leave the circles blank.</p> <p>Note: Once you click on a radio button you must select one in the array. The only way to remove all is to reset the entire document.</p>
<p>Plans to Meet Current & Future Workforce Needs Hire:</p>	<p>Q66a wf_interop_currneed_ftedesc Q68a wf_interop_futuneed_ftedesc</p> <p>Q66b wf_interop_currneed_contractdesc Q68b wf_interop_futuneed_contractdesc</p> <p>Q66c</p>	<p>This section combines responses related to how your jurisdiction will meet current (Q66) and future (Q68) workforce needs.</p> <p>Summarize/Describe your plans.</p> <p>Click on the field next to the text. Provide a brief description</p>

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ITEM	DATA SOURCE	INSTRUCTIONS
	wf_interop_currneed_tempdesc Q68c wf_interop_futuneed_tempdesc Q66d wf_interop_currneed_fellowdesc Q68d wf_interop_futuneed_fellowdesc	<p>and timeframe for your plans to meet current and future workforce needs for each category.</p> <p>If you do not plan to use one of the categories to meet current or future workforce needs, you may enter “No plans”, “N/A”, or leave the field blank.</p>
Request Direct Assistance:	Q66e wf_interop_currneed_dadesc Q68e wf_interop_futuneed_dadesc	
Upskill or Reskill:	Q66f wf_interop_currneed_upskilldesc Q68f wf_interop_futuneed_upskilldesc	
Other:	Q66g wf_interop_currneed_otherdesc Q68g wf_interop_futuneed_other_spdescdesc	

ITEM	DATA SOURCE	INSTRUCTIONS
<p>DATA INTEGRATION AND WORKFORCE DEVELOPMENT</p> <p>Key Challenges and Needs:</p> <p>Briefly describe challenge(s)/need(s).</p>	<p>Q69 interop_chall</p> <p>Q70 interop_need</p>	<p>Summarize/Describe the challenges and needs.</p> <p>Click on “Briefly describe” to replace the text. You may type directly into the field or paste from another document.</p>
<p>Opportunities for Integration</p> <p>Briefly describe opportunity(ies).</p>	<p>Q72 Intergrate_opp</p> <p>Q73 interop_opp</p>	<p>Summarize/Describe the opportunities.</p> <p>Click on “Briefly describe” to replace the text. You may type directly into the field or paste from another document.</p>

Section 4: Data and IT Governance

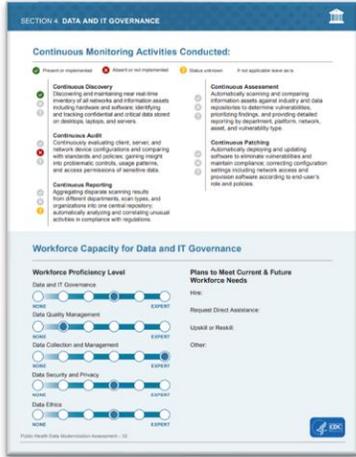
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ITEM	DATA SOURCE	INSTRUCTIONS
   <p>Developed an Innovation Management strategy to promote and govern innovation efforts</p>	<p>Q74a Innovstrat (1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)</p>	<p>Click on the appropriate icons for each activity.</p>
   <p>Engaged in routine Business Continuity Planning (BCP) to plan and execute processes and systems to effectively manage potential threats and keep facilities operational (e.g., disaster recovery and failover)</p>	<p>Q74e bcp (1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)</p>	<p>If the activity is not applicable (3/N/A), leave all circles gray.</p> <p>Green check indicates 1/Yes.</p> <p>Red X indicates 0/No.</p>
   <p>Adopt a standard operating procedure (SOP) for establishing and renewing memorandums of understanding (MOU) and data sharing agreements (e.g., DUAs)</p>	<p>Q74i sop_mou (1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)</p>	<p>Yellow question mark indicates 2/Don't know.</p>
   <p>Adopted an iterative, continuous-delivery development model, e.g., Lean-Agile [e.g., Scaled Agile Framework (SAFe)]</p>	<p>Q74b contindeliv (1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)</p>	
   <p>Employ a Data Quality Management (DQM) governance framework to employ and optimize processes, methods, and technologies</p>	<p>Q74f dqm (1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)</p>	
   <p>Established policies and procedures to ensure confidentiality and informed consent</p>	<p>Q74j confid (1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)</p>	

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ITEM	DATA SOURCE	INSTRUCTIONS
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <p>Adopted a DevOps / DevSecOps continuous integration and continuous delivery (CI/CD) model</p>	<p>Q74c cicdmode (1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)</p>	
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <p>Employ Master Data Management (MDM) [e.g., Master Patient Index (MPI)] to provide governance, processes, and standards for critical data which benefit from a single reference point</p>	<p>Q74g mdm (1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)</p>	
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <p>Engaged in digital IT Asset Inventory Management to dynamically catalog and manage hardware and software assets, licenses, networks/network devices, configuration, processes, documentation, and other HIT resources</p>	<p>Q74k itassetman (1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)</p>	
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <p>Performed a Security Risk Assessment (SRA) to identify vulnerabilities, evaluate threats, and implement key security controls in software applications and/or applied Server Hardening techniques to improve the security and resiliency of infrastructure</p>	<p>Q74d sra (1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)</p>	
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <p>Engaged in Data Lifecycle Management (DLM) to govern the creation or receipt, management, and usage (e.g., publication, data sharing), archive (e.g., retention policies and system backups), and disposition of records at end of life</p>	<p>Q74h dlim (1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)</p>	
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <p>Developed an API Strategy/ API Management Plan that includes goals and objectives, documentation methods, version control, API policies, API lifecycle: e.g., plan, design, implement, test, publish, operate, maintain, monitor, and retire</p>	<p>Q74l apistrat (1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)</p>	



ITEM	DATA SOURCE	INSTRUCTIONS
<p>Continuous Monitoring Activities Conducted</p> <p>Continuous Discovery  Discovering and maintaining near real-time inventory of all networks and information assets including hardware and software; identifying and tracking confidential and critical data stored on desktops, laptops, and servers.</p> <p>Continuous Audit  Continuously evaluating client, server, and network device configurations and comparing with standards and policies; gaining insight into problematic controls, usage patterns, and access permissions of sensitive data.</p> <p>Continuous Reporting  Aggregating disparate scanning results from different departments, scan types, and organizations into one central repository; automatically analyzing and correlating unusual activities in compliance with regulations.</p>	<p>Q75a contdisc (1 = Yes; 0 = No; 2 = Don't know)</p> <p>Q75c contaudit (1 = Yes; 0 = No; 2 = Don't know)</p> <p>Q75e contreport (1 = Yes; 0 = No; 2 = Don't know)</p>	<p>Click on the appropriate icons for each activity.</p> <p>If the activity is not applicable, leave all circles gray.</p> <p>Green check indicates 1/Yes.</p> <p>Red X indicates 0/No.</p> <p>Yellow question mark indicates 2/Don't know.</p>
<p>Continuous Assessment  Automatically scanning and comparing information assets against industry and data repositories to determine vulnerabilities, prioritizing findings, and providing detailed reporting by department, platform, network, asset, and vulnerability type.</p> <p>Continuous Patching  Automatically deploying and updating software to eliminate vulnerabilities and maintain compliance; correcting configuration settings including network access and provision software according to end-user's role and policies.</p>	<p>Q75b contassess (1 = Yes; 0 = No; 2 = Don't know)</p> <p>Q75d contpatch (1 = Yes; 0 = No; 2 = Don't know)</p>	
<p>Workforce Capacity for Data and IT Governance</p> <p>Data and IT Governance</p>  <p>NONE EXPERT</p>	<p>Q77a wfprof_dataitgov (None = 1; Awareness = 2; Basic = 3; Intermediate = 4; Advanced = 5; Expert = 6; N/A = 7)</p>	<p>Update the workforce proficiency level for each of the five capacities by clicking the appropriate circle.</p>
<p>Data Quality Management</p>  <p>NONE EXPERT</p>	<p>Q77b wfprof_dqm (None = 1; Awareness = 2; Basic = 3; Intermediate = 4; Advanced = 5; Expert = 6; N/A = 7)</p>	<p>Each circle represents a level of capacity. From left to right: None/1, Awareness/2, Basic/3, Intermediate/4, Advanced/5, Expert/6</p>

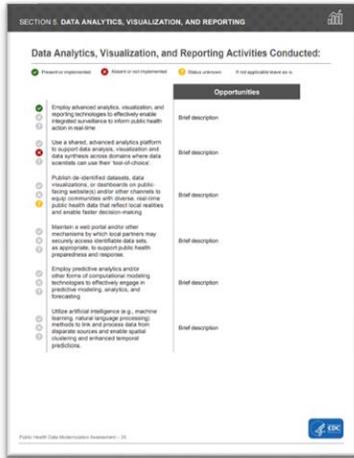
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ITEM	DATA SOURCE	INSTRUCTIONS
<p>Data Collection and Management</p> 	<p>Q77c wfprof_collectmanage (None = 1; Awareness = 2; Basic = 3; Intermediate = 4; Advanced = 5; Expert = 6; N/A = 7)</p>	<p>If the capacity is Not applicable/7, leave the circles blank.</p>
<p>Data Security and Privacy</p> 	<p>Q77d wfprof_securpriv (None = 1; Awareness = 2; Basic = 3; Intermediate = 4; Advanced = 5; Expert = 6; N/A = 7)</p>	<p>Note: Once you click on a radio button you must select one in the array. The only way to remove all is to reset the entire document.</p>
<p>Data Ethics</p> 	<p>Q77e wfprof_ethics (None = 1; Awareness = 2; Basic = 3; Intermediate = 4; Advanced = 5; Expert = 6; N/A = 7)</p>	
<p>Plans to Meet Current & Future Workforce Needs</p> <p>Hire:</p>	<p>Q80a wf_dataitgov_currneed_ftedesc Q82a wf_dataitgov_futuneed_ftedesc</p> <p>Q80b wf_dataitgov_currneed_contractdesc Q82b wf_dataitgov_futuneed_contractdesc</p> <p>Q80c wf_dataitgov_currneed_tempdesc Q82c wf_dataitgov_futuneed_tempdesc</p> <p>Q80d wf_dataitgov_currneed_fellowdesc Q82d wf_dataitgov_futuneed_fellowdesc</p>	<p>This section combines responses related to how your jurisdiction will meet current (Q80) and future (Q82) workforce needs.</p> <p>Summarize/Describe your plans.</p> <p>Click on the field next to the text. Provide a brief description and timeframe for your plans to meet current and future workforce needs for each category.</p> <p>If you do not plan to use one of the categories to meet current or future workforce needs, you may enter “No plans”, “N/A”, or leave the field blank.</p>
<p>Request Direct Assistance:</p>	<p>Q80e wf_dataitgov_currneed_dadesc Q82e wf_dataitgov_futuneed_dadesc</p>	
<p>Upskill or Reskill:</p>	<p>Q80f wf_dataitgov_currneed_upskilldesc Q82f wf_dataitgov_futuneed_upskilldesc</p>	
<p>Other:</p>	<p>Q80g wf_dataitgov_currneed_other_spdesc Q82g wf_dataitgov_futuneed_other_spdesc</p>	

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ITEM	DATA SOURCE	INSTRUCTIONS
<p>Key Challenges and Needs:</p> <p>Briefly describe challenge(s)/need(s).</p>	<p>Q83 dataitgov_chall</p> <p>Q84 dataitgov_need</p>	<p>Summarize/Describe the challenges and needs.</p> <p>Click on “Briefly describe” to replace the text. You may type directly into the field or paste from another document.</p>
<p>Opportunities for Integration Enhancing Data and IT Governance</p> <p>Briefly describe opportunity(ies).</p>	<p>Q86 dataitgov_opp</p>	<p>Summarize/Describe the opportunities.</p> <p>Click on “Briefly describe” to replace the text. You may type directly into the field or paste from another document.</p>

Section 5: Data Analytics, Visualization, and Reporting
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ITEM	DATA SOURCE	INSTRUCTIONS
<p>✓ ① ②</p> <p>Employ advanced analytics, visualization, and reporting technologies to effectively enable integrated surveillance to inform public health action in real-time</p> <p>Opportunities</p> <p>Brief description</p>	<p>Q87a analytic (1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)</p> <p>analytic_opp</p>	<p>Click on the appropriate icons for each activity.</p> <p>If the activity is not applicable (3/N/A), leave all circles gray.</p> <p>Green check indicates 1/Yes.</p>
<p>✓ ✗ ① ②</p> <p>Use a shared, advanced analytics platform to support data analysis, visualization and data synthesis across domains where data scientists can use their 'tool-of-choice'.</p> <p>Opportunities</p> <p>Brief description</p>	<p>Q87b analyticplat (1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)</p> <p>analyticplat_opp</p>	<p>Red X indicates 0/No.</p> <p>Yellow question mark indicates 2/Don't know.</p> <p>Each activity has a corresponding "opportunities" question.</p>
<p>✓ ✗ ① ②</p> <p>Publish de-identified datasets, data visualizations, or dashboards on public-facing website(s) and/or other channels to equip communities with diverse, real-time public health data that reflect local realities and enable faster decision-making</p> <p>Opportunities</p> <p>Brief description</p>	<p>Q87c publicdash (1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)</p> <p>publicdash_opp</p>	<p>Summarize/Describe the opportunities.</p> <p>Click on "Briefly describe" to replace the text. You may type directly into the field or paste from another document.</p>
<p>✓ ✗ ① ②</p> <p>Maintain a web portal and/or other mechanisms by which local partners may securely access identifiable data sets, as appropriate, to support public health preparedness and response.</p> <p>Opportunities</p> <p>Brief description</p>	<p>Q87d webport (1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)</p> <p>webport_opp</p>	
<p>✓ ✗ ① ②</p> <p>Employ predictive analytics and/or other forms of computational modeling technologies to effectively engage in predictive modeling, analytics, and forecasting</p> <p>Opportunities</p> <p>Brief description</p>	<p>Q87e predictana</p>	

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ITEM	DATA SOURCE	INSTRUCTIONS
	(1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)	
<div style="display: flex; align-items: flex-start;"> <div style="width: 20%; padding-right: 10px;"> <ul style="list-style-type: none"> ④ Utilize artificial intelligence (e.g., machine learning, natural language processing) methods to link and process data from disparate sources and enable spatial clustering and enhanced temporal predictions. </div> <div style="width: 80%;"> <div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 5px;"> <div style="background-color: #333; color: white; padding: 2px 5px; text-align: center; font-weight: bold;">Opportunities</div> <div style="padding: 2px 5px;">Brief description</div> </div> </div> </div>	<p>predictana_opp</p> <p>Q87f</p> <p>ai</p> <p>(1 = Yes; 0 = No; 2 = Don't know; 3 = N/A)</p> <p>ai_opp</p>	



SECTION	DATA SOURCE	INSTRUCTIONS
Workforce Proficiency Level Research Design 	Q88a wfprof_resdesign (None = 1; Awareness = 2; Basic = 3; Intermediate = 4; Advanced = 5; Expert = 6; N/A = 7)	Update the workforce proficiency level for each of the 9 capacities by clicking the appropriate circle. Each circle represents a level of capacity. From left to right: None/1, Awareness/2, Basic/3, Intermediate/4, Advanced/5, Expert/6 If the capacity is Not applicable/7, leave the circles blank. Note: Once you click on a radio button you must select one in the array. The only way to remove all is to reset the entire document.
Data Science Tools and Interpretation 	Q88b wf_dstools (None = 1; Awareness = 2; Basic = 3; Intermediate = 4; Advanced = 5; Expert = 6; N/A = 7)	
Software Programming 	Q88c wf_softprog (None = 1; Awareness = 2; Basic = 3; Intermediate = 4; Advanced = 5; Expert = 6; N/A = 7)	
Data Analytics Methods 	Q88d wf_analyticmeth (None = 1; Awareness = 2; Basic = 3; Intermediate = 4; Advanced = 5; Expert = 6; N/A = 7)	
Machine Learning 	Q88e wf_machlearn (None = 1; Awareness = 2; Basic = 3; Intermediate = 4; Advanced = 5; Expert = 6; N/A = 7)	
Data Exploration 	Q88f wf_dataexplore	

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SECTION	DATA SOURCE	INSTRUCTIONS
	(None = 1; Awareness = 2; Basic = 3; Intermediate = 4; Advanced = 5; Expert = 6; N/A = 7)	
<p>Data Modeling</p> 	<p>Q88g wf_datamodel (None = 1; Awareness = 2; Basic = 3; Intermediate = 4; Advanced = 5; Expert = 6; N/A = 7)</p>	
<p>Data Visualization</p> 	<p>Q88h wf_dataviz (None = 1; Awareness = 2; Basic = 3; Intermediate = 4; Advanced = 5; Expert = 6; N/A = 7)</p>	
<p>Data Synthesis and Dissemination</p> 	<p>Q88i wf_syndissem (None = 1; Awareness = 2; Basic = 3; Intermediate = 4; Advanced = 5; Expert = 6; N/A = 7)</p>	
<p>Plans to Meet Current & Future Workforce Needs</p> <p>Hire:</p>	<p>Q91a wf_analyticvizreprt_currneed_ftedesc Q93a wf_analyticvizreprt_futuneed_ftedesc</p> <p>Q91b wf_analyticvizreprt_currneed_contractdesc Q93b wf_analyticvizreprt_futuneed_contractdesc</p> <p>Q91c wf_analyticvizreprt_currneed_tempdesc Q93c wf_analyticvizreprt_futuneed_tempdesc</p> <p>Q91d wf_analyticvizreprt_currneed_fellowdesc Q93d wf_analyticvizreprt_futuneed_fellowdesc</p>	<p>This section combines responses related to how your jurisdiction will meet current (Q91) and future (Q93) workforce needs.</p> <p>Summarize/Describe your plans.</p> <p>Click on the field next to the text. Provide a brief description and timeframe for your plans to meet current and future workforce needs for each category.</p> <p>If you do not plan to use one of the categories to meet current or future workforce needs, you may enter “No plans”, “N/A”, or leave the field blank.</p>

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SECTION	DATA SOURCE	INSTRUCTIONS
Request Direct Assistance:	Q91e wf_analyticvizreprt_currneed_dadesc Q93e wf_analyticvizreprt_futuneed_dadesc	
Upskill or Reskill:	Q91f wf_analyticvizreprt_currneed_upskilldesc Q93f wf_analyticvizreprt_futuneed_upskilldesc	
Other:	Q91g wf_analyticvizreprt_currneed_other_spdesc Q93f wf_analyticvizreprt_futuneed_other_spdesc	

SECTION 6: DATA ANALYTICS, VISUALIZATION, AND REPORTING

Key Challenges and Needs:
Briefly describe challenge(s)/need(s).

Opportunities for Data Analytics, Visualization and Reporting
Briefly describe opportunity(ies).

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SECTION	DATA SOURCE	INSTRUCTIONS
Key Challenges and Needs: Briefly describe challenge(s)/need(s).	Q94 analyticvizreprt_chall Q95 analyticvizreprt_need	Summarize/Describe the challenges and needs. Click on “Briefly describe” to replace the text. You may type directly into the field or paste from another document.
Opportunities for Data Analytics, Visualization and Reporting Briefly describe opportunity(ies).	Q97 analyticvizreprt_opp	Summarize/Describe the opportunities. Click on “Briefly describe” to replace the text. You may type directly into the field or paste from another document.

Section 6: Conclusion

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SECTION	DATA SOURCE	INSTRUCTIONS
<p>Targeted Enhancements Implemented</p> <hr/> <p>Brief Description of Enhancement</p>	<p>Q99 otherenhance_prepandresp</p> <p>Q100 otherenhance_interop</p> <p>Q101 otherenhance_dataex</p> <p>Q102 otherenhance_newdata</p>	<p>Summarize/Describe the additional targeted enhancements.</p> <p>Click on “Briefly describe” to replace the text. You may type directly into the field or paste from another document.</p>
<p>Needed Resources</p> <hr/> <p>Brief Description of Need</p>	<p>Q98 otherresource_need</p>	<p>Summarize/Describe the needs and challenges.</p> <p>Click on “Briefly describe” to replace the text. You may type directly into the field or paste from another document.</p> <p>In addition to otherresource_need, you also may wish to highlight or emphasize other challenges or needs described in the assessment or elsewhere in the report.</p> <p>Variables related to challenges contain _chall in the variable name.</p> <p>Variables related to needs contain “need” in the variable name (_currneed; _futuneed; _need).</p>

Section 7: Priorities

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SECTION 7 / PRIORITIES

NEXT STEPS

As a result of the annual assessment and stakeholder input on the assessment findings, the following data modernization and workforce development needs, opportunities, and plans have been identified.

Prioritized Needs:
Briefly describe needs(s).

Prioritized Opportunities:
Briefly describe opportunity(ies).

Plans to Address Priorities:
Briefly describe plans.

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The final section of the report template does not correspond with specific variables in your assessment. You may use this section to note overall needs, opportunities, and plans after considering the assessment findings. We encourage you to use this final page during the participatory data interpretation meetings. Consider the “big picture” needs and opportunities that will allow you to make significant advances in your jurisdiction’s data systems, processes, and workforce development.

Using the Public Health Data Modernization Report

The Public Health Data Modernization Assessment Report can help you confirm the results of the assessment with stakeholders and turn data into knowledge and action.

How To Use the Public Health Data Modernization Report

To Identify Technical Assistance and Support Needs

Your report can help you summarize gaps, barriers, and areas of opportunity for your data modernization efforts. By reviewing this information, you can identify where your jurisdiction needs additional support.

To Prioritize Data Modernization Efforts

The report can be a starting point for team discussions about goals for data modernization and strategic, actionable, next steps, including development of your IT modernization infrastructure and workforce development plans (i.e., Data Modernization Roadmap).

To Facilitate Discussions During Participatory Data Interpretation Meetings With Stakeholders

Participatory data analysis and interpretation is a method that involves bringing a group of stakeholders, such as program staff or leadership, into the data interpretation and meaning-making process. More information about how to use the report and how to conduct participatory data interpretation meetings with stakeholders is provided in the [Sharing and Confirming Assessment Findings With Stakeholders](#) section of this User Guide.

Sharing and Confirming Assessment Findings With Stakeholders

Once you have developed a summary report of your assessment results, you are encouraged to share the results with stakeholders during participatory data interpretation (PDI) sessions to confirm the findings and prepare for future modernization efforts. PDI and analysis is a method that involves bringing a group of stakeholders, such as program staff and leadership, into the data interpretation and meaning-making process.

PDI increases stakeholder participation, understanding, and support of the data, and will achieve more meaningful results and useful recommendations. Input from the PDI sessions will help your jurisdiction finalize the assessment data, prioritize data modernization efforts and activities, and identify human resources and technical assistance needs. The outputs from the PDI sessions will help inform the development or updating of your Data Modernization Roadmap. Below are steps on how to prepare for and conduct successful PDI sessions.

Participatory Data Analysis

- **Who?** – You and your key stakeholders.
- **What?** – One or more facilitated discussions where stakeholders interact, learn about the draft assessment findings, confirm the results, and provide input into the final conclusions and recommendations.
- **When?** – After the assessment is complete and the draft report is created.
- **Where?** – Virtual or in-person.
- **Why?** – To provide stakeholders with an opportunity to confirm the assessment findings, create a shared understanding of assessment results, and build consensus for the next steps.
- **How?** – Pose reflective questions about the findings and allow participants to discuss them. We recommend that your PDI sessions last no more than 2 hours. ***You may need to schedule more than one session to discuss all of the assessment findings.***

Preparing for the PDI Sessions

Step 1: Prepare Data for Use

Populate the summary report template with your jurisdiction's data. More information on how to develop the summary report is included in [Reporting Assessment Findings](#) section of this User Guide. If you choose to report your data in another format, remember to:

- Present the data without interpretation so that guests can draw their own conclusions.
- Do not overlook qualitative data as it provides context to your numbers.
- Prioritize your data and be thoughtful about what you include based on guests' information needs.
- Leave adequate white space to avoid clutter.

Due to the large amount of information in the assessment, we recommend discussing the findings in two or three PDI sessions. The following steps should be completed for each PDI session.

Step 2: Identify PDI Session Facilitators and Notetakers

Facilitators are essential for constructive participation in PDI sessions. Facilitators plan, guide, and manage the session to ensure that the objectives are met effectively and that participants are engaged. Although the data modernization lead will play a significant role in planning the PDI session, they may wish to ask someone else to facilitate so that they can focus on participating in the session.

One of the meeting organizers should be assigned the role of notetaker. The notetaker will outline the decisions made during the sessions, as well as emerging questions or areas for follow-up.

Step 3: Develop a Facilitator's Guide, Participant Agenda, and Session Materials

A Facilitator's Guide is an in-depth agenda that is a resource for facilitators during the session. It provides information about the meeting objectives, flow, and participant roles and responsibilities. The guide should include a list of discussion questions that participants should consider regarding the assessment findings. Example discussion questions are included in **Exhibit 8**. An example Facilitator's Guide is located in **Appendix B**. Review the guide with the facilitators before the PDI session to ensure that the information is easy to follow.

Exhibit 8. Example PDI Session Discussion Questions

- WHAT?
 - Are the assessment findings accurate?
- SO WHAT?
 - Why are these findings important?
 - What do they suggest?
 - Where are we making the most/least progress?
- NOW WHAT?
 - What are the implications of these findings?
 - Where do we need additional data?
 - What changes do we need to make?
 - What are our top priorities?
 - Short-term
 - Intermediate-term
 - Long-term
- What are our options for addressing challenges?
- What are our next steps?
 - Who is responsible for acting on our next steps?
 - What resources are needed?

A participant agenda is a pared down version of the Facilitator's Guide that provides information about the session objectives and the topics that will be discussed. The agenda and orientation materials should be shared with participants prior to the sessions.

If PDI session participants are new to the Public Health Data Modernization Assessment process, or did not participate in data collection, the PDI session organizers should share orientation materials to provide background information about the assessment process. Orientation materials may include the goals and purpose of the assessment, who participated in the completion of the assessment, the name and contact information of a designated person who can answer questions, and information about how the assessment findings will be used.

Step 4: Gather Materials and Identify a Technology Platform

PDI sessions can be held virtually or in-person. **Exhibit 9** shows some of the materials that you will need for the PDI session.

If you are meeting in-person, you also will need a laptop computer, projector, hard copies of the materials, markers, sticky notes, and flip charts.

If you are meeting virtually, you have the option of various presentation platforms (e.g., Zoom, Microsoft Teams). If you are working with a large group, breakout rooms will help to simulate an in-person experience. ICF also recommends using an online, interactive platform such as Ziteboard, RealtimeBoard, Mural, or Microsoft Whiteboard. These platforms allow participants to create notes and post ideas.

Exhibit 9. PDI Session Materials

Facilitator and Meeting Organizer Materials	Participant Materials
<ul style="list-style-type: none">• Facilitator’s Guide• Public Health Data Modernization Report• PDF of the form filled out with your responses or the CSV export (for reference)• Data Modernization Roadmap or workforce development and modernization plans	<ul style="list-style-type: none">• Participant Agenda• Public Health Data Modernization Report• Public Health Data Modernization Assessment Glossary• Data Modernization Roadmap or workforce development and modernization plans

Step 5: Invite Participants and Conduct the PDI Sessions

Share any orientation materials and the Public Health Data Modernization Report with participants and facilitators in advance so they can become familiar with the draft findings. If your jurisdiction has a Data Modernization Roadmap (also called a modernization plan for IT and informatics infrastructure or a workforce development plan), you may wish to include this document in the invitation materials. Sharing and asking participants to review the materials prior to the sessions will allow for more time to discuss and interpret data during the PDI session.

After the PDI Sessions

After your PDI session, prepare a brief summary of what you learned. If the PDI sessions identified errors in the assessment findings, you should update the data entered in REDCap and in the report template. This will facilitate future assessments. Update the Priorities section of the report with your jurisdiction’s data modernization priorities, needs, and next steps. You may wish to share your final brief summary with CDC.



Developing Your Data Modernization Roadmap

The ultimate goal of the assessment is to identify your jurisdiction's data modernization and workforce capacity needs and opportunities, and plan for the future. Once you have confirmed the assessment findings and identified your jurisdiction's priorities during the PDI sessions, you are ready to create or refine your jurisdiction's Data Modernization Roadmap.

Each jurisdiction's Data Modernization Roadmap will differ according to the jurisdiction's needs, but should include (1) a modernization plan for IT and informatics infrastructure used to support epidemiology and laboratory work in a jurisdiction that includes forward-looking use of scalable, sustainable shared services and cloud-infrastructure, and (2) a workforce development plan that includes how existing gaps will be addressed and how modernization efforts will be supported.

Data Modernization Roadmaps may include short-, intermediate-, and long-term objectives that will assist your jurisdiction in making decisions for allocating resources, present a shared vision for your modernization strategy goals and objectives, and provide structure to track progress and success. More information about the modernization and workforce develop plan is included in ELC Program C2 guidance.

Appendix A: Public Health Data Modernization Assessment Glossary



Public Health Data Modernization Assessment: Glossary

The **Data Modernization Initiative** (DMI) is a comprehensive strategy for modernizing data, technology, and workforce capabilities to strengthen public health surveillance, research, and decision making. The Center for Disease Control and Prevention's (CDC) Modernization Initiative is bringing together state, tribal, local, and territorial public health jurisdictions and private and public sector partners to create modern, interoperable, and real-time public health data and surveillance systems that will protect the American public. Data are the foundation for public health because public health depends on widespread and rapid access to data to drive decision making. CDC aims to promote seamless reporting of clinical and laboratory data to public health, ensure interoperability among core public health surveillance systems, and support cross-cutting upgrades, such as migration to the cloud and access to new data sources. Collectively, these activities will help ensure that the systems and services funded by CDC will scale nationwide and adapt to meet evolving needs.

The following glossary lists terms used in the Public Health Data Modernization Assessment. Terms are presented in alphabetical order, by section of the assessment. Terms related to workforce competencies, proficiency, and capacity are located at the end of the glossary, under Workforce Development.

Section 1: Overview of Data Modernization Efforts

This section includes questions about your jurisdiction's data modernization efforts related to the Epidemiology and Laboratory Capacity (ELC) Program C2 Cooperative Agreement Requirements. Note that if your jurisdiction has not completed a data modernization assessment other than the 90-day assessment, it is likely that you have not yet created a Data Modernization Roadmap. You will use the results from this assessment to develop or update your Roadmap.

Data Modernization Roadmap: A framework that lays out a strategic vision with short-, intermediate-, and long-term DMI objectives.

Short-term objectives: Objectives that can be addressed and completed within 1 to 2 years.

Intermediate-term objectives: Objectives that can be addressed and completed within 3 to 5 years.

Long-term objectives: Objectives that can be addressed and completed in 6 or more years.

This framework:

- Guides decisions for allocating resources.
- Presents a shared vision for what a modernization strategy was designed to accomplish.
- Provides a structure to track progress and success along the way.

The Data Modernization Roadmap includes your jurisdiction's (1) modernization plan for information technology (IT) and informatics infrastructure used to support epidemiology and

laboratory work in a jurisdiction that includes forward-looking use of scalable, sustainable, shared services and cloud infrastructure, and (2) a workforce development plan that includes how existing gaps will be addressed and how modernization efforts will be supported.

Innovation management: A structured framework that enables the systematic promotion of new ideas, products, or services within organizations. The process includes ideation, exploration, rapid prototyping, testing, piloting, and implementation.

Section 2: Assessment of Health Information Systems (Domain 1)

This section includes questions about activities that your jurisdiction has completed to assess health information systems and the outcomes of those assessments. These questions also aim to document your jurisdiction's capacity and capability to:

- Identify business needs and determine solutions to business problems.
- Analyze, define, document, and manage requirements.
- Initiate, plan, execute, and manage projects to ensure that objectives are met.

Analysis of alternatives (AoA): An analytical comparison of the operational effectiveness, performance, suitability, risk, and lifecycle costs of alternatives that satisfy an established capability need.

Application modernization: Refers to the conversion, refactoring, or porting of legacy software applications to modern computer programming languages, software libraries, protocols, or hardware platforms.

Application rationalization: The practice of strategically identifying opportunities to (1) retire or consolidate redundant and minimal-value software applications; (2) reduce infrastructure costs due to decommissioning applications; (3) replace non-IT applications and processes with existing IT functionality; (4) eliminate or consolidate software licenses; (5) consolidate or virtualize hardware and software infrastructure; (6) reduce costs and improve the service-level agreement (SLA)-to-cost values via managed services; (7) eliminate, consolidate, simplify, or automate inefficient or redundant business processes; (8) reduce maintenance and support costs with modern applications; and (9) increase agility with technologies that enable rapid change.

Cloud computing: A federated data model that allows computer systems to send and receive data on common platforms for user sharing, comparisons, analytics, and visualization. The infrastructure for cloud computing is composed of many server computers connected by the internet.

Component-based software engineering (CBSE): Software development approach that uses loosely coupled, independent, reusable components, independently developed and deployed, and connected by standard interfaces.



Health information system (HIS): System used to acquire, store, deliver, and analyze clinical, epidemiological, or laboratory data in order to (1) inform public health decision making; (2) enable coordinated responses to emerging public health threats; and (3) enable clinical decision support and analytics.

Interoperability: The ability of computer applications, platforms, systems, and networks to communicate electronically with one another by using standardized nomenclature, language, and architecture.

Legacy system: An outdated or antiquated computer system, programming language, or application software that may no longer be compatible with modern systems; may not be available for purchase from vendors or distributors; nor based on current software versions. Legacy systems may no longer be supported or maintained by their developer/vendor and may not get updated or patched automatically. A legacy system also may be associated with terminology or processes that are no longer applicable to current contexts or content.

Open source: Software that is distributed with its source code, making it available for reference, use, modification, extension, and distribution with its original rights.

Open standards: Technical specifications and formal descriptions of software or software interfaces made available to the general public that are developed and maintained via a collaborative and consensus-driven process. Open standards facilitate interoperability and data exchange among different products or services, and are intended for widespread adoption.

Section 3: Data Exchange and Interoperability (Domain 2)

This section includes questions about data exchange and systems interoperability in your jurisdiction. These questions aim to document your jurisdiction's capacity and capability to:

- *Design and implement information systems, devices, and applications (systems) to access, exchange, integrate, and cooperatively use data in a coordinated manner; provide timely and seamless portability of information; and optimize the health of individuals and populations.*
- *Apply principles of good, ethical practice and value judgments related to data collection, dissemination, and use.*

Application programming interface (API): Set of tools, definitions, functions, and procedures that enables the integration of application software and services, and enables data transmission or access to data and features of another application, service, or operating system.

Cloud strategy: The plan an organization follows to host its IT infrastructure in a cloud environment. By outlining the cloud's architecture, development plans, and governance model, cloud strategies help ensure effective performance of the infrastructure, workloads, and applications hosted on the cloud.

Data lake: Centralized data storage repository capable of retaining vast amounts of traditional, structured (row and column), semi-structured, and unstructured (non-tabular) data in its native format (e.g., videos, images, binary files) without hierarchy or organization, and applies schema and business logic only upon retrieval. While hierarchical data warehouses store data in files or folders, data lakes use a flat architecture to store data.

Enterprise service bus (ESB): Middleware technology or integrated platform used to distribute work among connected components of a service-oriented architecture. ESBs are designed to provide a uniform means of moving work, offering applications the ability to connect to the bus and subscribe to messages based on simple structural and business policy rules.

Integrated surveillance information system: Secure, enterprise-level surveillance platform that synthesizes laboratory, epidemiological, and other health information across domains—acute, chronic, and emerging infections—in order to maximize the public health impact of available resources.

Microservice architecture: Software development technique that is a variant of the service-oriented architecture (SOA) architectural style that structures an application as a collection of loosely coupled services. In a microservices architecture, services are fine-grained and independently deployable with lightweight protocols.

Record linkage strategy: Also known as data matching or entity resolution, record linkage is the process of identifying and cataloging laboratory, epidemiological, and clinical records in a data set that references the same entity across different data sources.

Syndromic surveillance: A branch of public health surveillance that traditionally identifies syndromes rather than individual cases. Syndromes are based on a collection of symptoms and signs (e.g., headache and fever) rather than diagnostic codes and laboratory results. Syndromes are obtained from electronic health record emergency department chief complaints, triage notes, and other data elements, and from other points of care in the community such as urgent care centers, poison center calls, or emergency medical service runs. As diagnostic codes become available in the medical record, they are often incorporated.

Section 4: Data and Information Technology Governance (Domain 3)

This section includes questions about your jurisdiction's data and IT governance activities. These questions aim to document your jurisdiction's capacity and capability to:

- *Formulate an information systems strategic plan for a public health informatics program or project.*
- *Examine organizational issues related to information systems projects to manage change and recommends solutions that ensure confidentiality, security, and integrity while maximizing the availability of information for public health.*
- *Solve problems using knowledge of the historical development, structure, and interaction of public health and health care systems.*

DMI leads may need support from the jurisdictions' IT subject matter experts to respond to these questions.

Business continuity planning (BCP): Process of creating systems of prevention and recovery that outline how a business will continue operating during an unplanned disruption in service. Business continuity planning generally includes the following steps: (1) facilitate a regulatory review, (2) conduct a risk assessment, (3) perform a business impact analysis, (4) draft a strategy and plan, (5) develop an incident response plan, (6) test incident response procedures, (7) facilitate training and maintenance, and (8) draft a communication plan.

Continuous assessment: Process of automatically scanning and comparing information assets against industry and data repositories to determine vulnerabilities, prioritizing findings and providing detailed reporting by department, platform, network, asset, and vulnerability type.

Continuous audit: Process of continuously evaluating client, server, and network device configurations and comparing with standards and policies, thus gaining insight into problematic controls, usage patterns, and the access permissions of sensitive data.

Continuous discovery: Process of discovering and maintaining a near real-time inventory of all networks and information assets, including hardware and software, and identifying and tracking confidential and critical data stored on desktops, laptops, and servers.

Continuous monitoring: Process of systematically monitoring information security, vulnerabilities, and threats to facilitate risk-based decision making:

- Involves ongoing assessment and analysis of the effectiveness of all security controls.
- Provides ongoing reporting on the security posture of information systems.
- Supports risk management decisions to help maintain organizational risk tolerance at acceptable levels.

Continuous patching: Process of automatically deploying and updating software to eliminate vulnerabilities and maintain compliance, and correcting configuration settings, including network access and provision software, according to the end user's role and policies.

Continuous reporting: Process of aggregating disparate scanning results from different departments, scan types, and organizations into one central repository, automatically analyzing and correlating unusual activities in compliance with regulations.

Data lifecycle management (DLM): A policy-based approach or set of governing principles designed to define and manage the flow of data throughout the lifecycle of an information system—from data capture and initial storage until final disposition—to govern the creation or receipt, management, usage (e.g., publication, data sharing), archiving (e.g., retention policies and system backups), and disposition of records at end of life. Management approach generally

governs data protection policies (e.g., data security, privacy, confidentiality, availability, integrity considerations).

Data quality management (DQM): A set of processes and practices, methods, and technologies aimed at ensuring that the quality of the data meets or exceeds specific organizational requirements. Examples of measurable data quality attributes may include consistency, accuracy, completeness, auditability, orderliness, uniqueness, timeliness, and validity.

DevOps: A continuous-delivery development model that combines cultural philosophies, practices, and tools to increase an organization’s ability to deliver applications and services at a high velocity.

DevSecOps: A continuous-delivery development and security management model that combines cultural philosophies, practices, and tools to increase an organization’s ability to deliver applications and services at a high velocity.

Innovation management: A structured framework that enables the systematic promotion of new ideas, products, or services within organizations. The process includes ideation, exploration, rapid prototyping, testing, piloting, and implementation.

IT asset inventory management: A set of processes and practices that govern how an organization monitors its assets—from tangible fixed assets such as property and equipment to intangible assets such as intellectual property—in order to track physical or virtual location, maintenance requirements, depreciation, performance, and disposition.

Lean-Agile: A process that incorporates elements of both continuous delivery and continuous improvement, optimized across the entire value stream.

Master data management (MDM): A technology-enabled discipline in which business and IT work together to ensure the uniformity, accuracy, stewardship, semantic consistency, and accountability of the enterprise’s official shared master data assets.

Scaled Agile Framework (SAFe®): A set of organization and workflow patterns intended to guide enterprises in scaling lean and agile practices.

Server hardening: A set of disciplines and techniques that improve the security and resiliency of a site’s infrastructure.

Section 5: Data Analytics, Visualization, and Reporting (Domain 4)

This section includes questions about data analytics, visualization, and reporting in your jurisdiction. These questions aim to document your jurisdiction’s capacity and capability to:

- *Understand and implement basic data management organization techniques.*
- *Store data in a useful and meaningful manner.*
- *Develop methods to extract knowledge from structured and unstructured data.*
- *Apply data analytics and visualization principles and methods to inform public health action.*

- *Articulate and distribute data, data analysis, and outcomes to appropriate audiences.*

Advanced analytics platform: An information system that employs predictive modeling, statistical methods, machine learning, and process automation—techniques beyond the capacities of traditional business intelligence tools—to analyze data and information assets.

Big data: High-volume, high-velocity, and/or high-variety information assets, often a combination of structured, semi-structured, and unstructured data that requires non-traditional information-processing methods to enable enhanced insight, decision making, and process automation.

Predictive analytics: A branch of advanced analytics that encompasses a variety of statistical techniques—data mining, predictive modeling, and machine learning—to analyze current and historical data in order to make predictions about future outcomes, or otherwise unknown events.

Syndromic surveillance: A branch of public health surveillance that traditionally identifies syndromes rather than individual cases. Syndromes are based on a collection of symptoms and signs (e.g., headache and fever) rather than diagnostic codes and laboratory results. Syndromes are obtained from electronic health record emergency department chief complaints, triage notes, and other data elements, and from other points of care in the community, such as urgent care centers, poison center calls, or emergency medical service runs. As diagnostic codes become available in the medical record, they are often incorporated.

Workforce Development

Workforce-related questions are in Sections 2 through 5 of the assessment.

Capability: A jurisdiction’s ability to effectively accomplish work processes and deliver products.

Capacity: The extent to which a jurisdiction can effectively accomplish work processes and deliver products, including ensuring sufficient staffing levels and the ability to meet seasonal or varying demand levels.

Hiring: Employing new staff through hiring full-time equivalents, temporary or contract staff, fellows, or interns.

Reskilling: Providing education and training for the current workforce that allows them to develop skills beyond their current occupation or role.

Upskilling: Providing the current workforce with education and training to advance skills to improve performance in their current occupation or role.



Workforce: Jurisdiction’s health department staff or employees, including merit employees or full-time equivalents, part-time staff, contract staff, temporary staff, fellows and interns, and other persons contributing to the jurisdiction’s capacity.

Workforce competencies: Knowledge, skills, abilities, and behaviors that contribute to individual and organizational performance. The competencies included in this assessment (organized by section) are:

Section 2: Assessment and Evaluation (Domain 1)

- **Assessment:** Conducts assessment and evaluation activities to assess public health systems and infrastructure, gather user requirements, and identify actions for system improvement.
- **Data architecture:** Understands, develops, and implements an agile approach to designing, implementing, and maintaining a distributed standards-based data architecture.
- **Technology application:** Maintains a current knowledge of technological advancements and integrates suitable technology solutions into work products by using:
 - Machines, tools, instruments, or equipment effectively.
 - Computers and computer applications to analyze and communicate information in the appropriate format.
 - Technology to support decision making.

Section 3: Data Exchange and Systems Interoperability (Domain 2)

- **Data exchange and systems interoperability:** Contributes to the development of public health information systems that are interoperable with other relevant information systems by:
 - Formulating models for acquisition, representation, processing, display, and transmission of public health information.
 - Designing solutions for data integration and record linkage.
 - Applying principles of good, ethical practice and value judgments as they relate to data acquisition, dissemination, and use.
- **Data standards:** Uses technical standards and voluntary consensus standards-setting processes to support public health, such as Health Level 7.
- **IT platforms and systems:** Demonstrates knowledge of IT operating systems, systems design and structured programming, hardware, and software. This includes database mapping rules and applications development supported by the agency, such as BioSense, the Laboratory Response Network (LRN), and the National Electronic Disease Surveillance System (NEDSS).

Section 4: Data and IT Governance (Domain 3)

- **Data and IT governance:** Formulates an information systems strategic plan for a public health informatics program by:
 - Examining organizational issues related to information systems projects to manage change.
 - Recommending solutions that assure confidentiality, security, and integrity while maximizing the availability of information.
 - Solving problems using knowledge of the historical development, structure, and interaction of public health and healthcare systems.
- **Data collection and management:** Designs methods and tools to collect and manage valid, reliable qualitative and quantitative information by:
 - Collaborating with investigators to facilitate data collection that is consistent with the analytic plan.
 - Identifying and collecting the data required to construct usable datasets.
 - Implementing data management organization techniques.
 - Storing data in a useful and meaningful manner.
- **Data ethics:** Understands and practices the principles, application, and implications of the moral issues related to data and algorithms.
- **Data quality management:** Assesses data for completeness, accuracy, and quality by:
 - Determining whether the data are fit for their intended use.
 - Taking appropriate actions such as profiling, cleansing, and standardizing to improve data utility.
- **Data security and privacy:** Uses data communications security and privacy techniques by considering:
 - Legal issues regarding confidentiality.
 - Individually identifiable public health and medical record data.
 - Ensuring appropriate access to technology systems.

Section 5: Data Analytics, Visualization, and Reporting (Domain 4)

- **Data analytics methods:** Demonstrates knowledge of a wide range of evaluative and analytical techniques to establish criteria for:
 - Identifying and measuring accomplishments and progress.
 - Revising methods.
 - Developing new approaches for information gathering.
 - Analyzing detailed findings.



- **Data exploration:** Explores data by:
 - Conducting data quality assessments to determine the validity of available data.
 - Identifying and resolving established data issues.
 - Establishing data specifics and relationships through preliminary analysis.
 - Developing structured exploration processes.
- **Data modeling:** Develops data science and analytical models by:
 - Applying relevant testing and model validation techniques.
 - Developing methods to extract knowledge from structured and unstructured data.
- **Data visualization:** Communicates data insights through the art of storytelling to convey relevant organizational and mission knowledge.
- **Data synthesis and dissemination:** Synthesizes public health data into action-oriented recommendations for the appropriate audience (e.g., scientific colleagues, constituents, stakeholders, the public) for widespread adoption.
- **Data science tools and interpretation:** Understands and uses appropriate procedures, software, tools, programming languages, and analytic methods to support or refute hypotheses.
- **Machine learning:** Uses artificial intelligence to provide systems with the ability to automatically learn and improve from experience without being explicitly programmed.
- **Research design:** Develops a systematic plan to study a scientific problem by identifying the following:
 - Type of study
 - Research questions
 - Hypothesis
 - Data collection procedures
 - Analysis and interpretation plan (including statistical analyses)
 - Dissemination plan
- **Software and programming:** Analyzes user needs to recommend software solutions and designs by:
 - Creating, modifying, and testing computer code, forms, and script to ensure the operability of applications.
 - Using commercial off-the-shelf software, development software, production software, database engines, web servers, and other platform software.

- Using programming language to develop and write computer programs to store, locate, and retrieve specific documents, data, and information.

Workforce proficiency level: The ability to demonstrate competency on the job, which is gained through training or experience:

- **None:** Jurisdiction does not have any staff with the proficiency to conduct preliminary assessment and analysis.
- **Awareness:** Jurisdiction has staff that demonstrate awareness of the concepts and processes. Staff can conduct preliminary assessment and analysis in the simplest situations with close and extensive guidance.
- **Basic:** Jurisdiction has staff that demonstrate familiarity with concepts and processes. Staff can conduct preliminary assessment and analysis in somewhat difficult situations requiring frequent guidance.
- **Intermediate:** Jurisdiction has staff that demonstrate an understanding of concepts and processes. Staff can conduct preliminary assessment and analysis in difficult situations requiring occasional guidance.
- **Advanced:** Jurisdiction has staff that demonstrate a broad understanding of concepts and processes. Staff can conduct preliminary assessment and analysis in considerably difficult situations with little or no guidance.
- **Expert:** Jurisdiction has staff that demonstrate a comprehensive, expert understanding of concepts and processes. Staff can conduct preliminary assessment and analysis in exceptionally difficult situations and can serve as a key resource to advise others.
- **N/A:** Concepts and processes are not applicable to our jurisdiction.

Appendix B: Participatory Data Interpretation Session: Sample Facilitator's Guide



Public Health Data Modernization Assessment Findings: Session 1 of X.
[Date] [Time]

Objectives: 1–3 objectives that you wish to achieve during the meeting, for example:

1. Present and confirm assessment findings related to data analytics, visualization, and reporting with stakeholders.
2. Identify action items to address gaps and needs identified by the assessment.
3. Identify elements to include in the Data Modernization Roadmap.

Participants: A list of invited participants and their roles

Facilitators: Name of the session facilitator(s)

Notetaker: Name of the session notetaker(s)

Participatory Data Interpretation Agenda

Agenda Item	Time	Facilitator
<p>Introductions and Overview</p> <ul style="list-style-type: none"> • If participants do not know each other, allow time for introductions of all facilitators and participants. • Provide a brief background on the Public Health Modernization Assessment and the ELC cooperative agreement. 	15 min.	
<p>Small Group Work</p> <p><i>Objective:</i> Break into smaller groups to answer the discussion questions and prioritize next steps. Each group will examine a different set of findings and then switch to review the responses of the first group and provide their own reactions.</p> <p>If in-person, have the findings and flip chart paper posted around the room. Allow participants to add their responses using sticky notes.</p> <p>If virtual, use a whiteboard feature to allow participants to record their reactions so that others can see.</p> <p>Discussion questions – 30 minutes per rotation</p> <ol style="list-style-type: none"> 1. Review the assessment findings. 	60 min. total 30 min. per rotation	Group 1: Group 2:



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Agenda Item	Time	Facilitator
<p>2. Ask open-ended questions. For example, Do these findings seem reasonable? What may need to be updated? What are these data telling us? What are the possible implications of the data/findings? Were you surprised by these findings? How do these findings inform our next steps?</p> <p>3. Tips:</p> <ul style="list-style-type: none"> a. Note any obvious patterns in the findings. b. Ask probing questions (e.g., is there anything important that we have not already recorded?) <p>4. Recommendations and Next Steps</p> <ul style="list-style-type: none"> a. For each finding, ask open-ended questions. For example, What is the appropriate action step? b. How do we move forward? What support do we need? c. What do we need to make significant advances related to this finding? Where do we want to be in 5–10 years? d. How does this finding inform our Data Modernization Roadmap? e. Record the recommendations. 		
<p>Large Group Reflections</p> <p><i>Objective:</i> Bring the two groups back together to discuss the findings and identify areas of consensus and disagreement between the two groups.</p> <p>Finalize the recommendations and action items.</p>	30 min.	
<p>Conclusion and Wrap-Up</p> <p><i>Objective:</i> Solicit final thoughts from the participants. Discuss next steps (e.g., future sessions to discuss other sections of the assessment), sharing the results of the sessions with stakeholders.</p>	15 min.	

Small Groups

Group Number	Findings	Discussion Questions	Group Actions	Members	Facilitator
Group 1	Key findings (or sections of the summary report) that the small group will discuss	Discussion questions that you would like the group to discuss	Add reflections via sticky notes to the findings.	Names of the participants	Name of facilitator
Group 2	Key findings (or sections of the summary report) that the small group will discuss	Discussion questions that you would like the group to discuss	Add reflections via sticky notes to the findings.	Names of the participants	Name of facilitator

