



**ELC PROJECT C2:  
ACCELERATING DATA  
MODERNIZATION IN  
JURISDICTIONS  
PERFORMANCE MEASURES  
GUIDANCE**

CDC-RFA-CK19-1904  
CDC EPIDEMIOLOGY AND LABORATORY CAPACITY FOR PREVENTION  
AND CONTROL OF EMERGING INFECTIOUS DISEASES

September 2021

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## Introduction and Purpose

Data are the foundation to public health, as public health depends on widespread and rapid access to data to drive decision-making. CDC's Data Modernization Initiative (DMI) is part of a national effort to create integrated, real-time public health data and surveillance that can protect the nation from any health threat. 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. DMI is how CDC will meet its commitments to:

- Strengthen data reporting, management, and analytics across public health
- Conduct proper surveillance – not just of COVID-19 but also of future public health threats
- Support the public health workforce in pursuing innovation and building state-of-the-art data science skills
- Deliver guidance the public can trust

The goal behind this initiative is to move from siloed and brittle public health data systems to connected, resilient, adaptable, and sustainable systems that can help us solve problems before they happen and reduce the harm caused by the problems that do happen.

The Epidemiology and Laboratory Capacity for Prevention and Control of Emerging Infectious Diseases (ELC) supports state, local, and territories' public health efforts to strengthen core capacities in epidemiology, laboratory, and health information systems activities, including modernizing public health information systems to assure faster and more complete data sharing across the public health data ecosystem. As part of the "Coronavirus Aid, Relief, and Economic Security Act" or the "CARES Act" of 2020, ELC is awarding a total of \$200 million to our recipient base in a program-initiated component funding under *Project C2: Accelerating Data Modernization in Jurisdictions* of CK19-1904, henceforth '*Data Modernization*'. These funds are intended to accelerate recipient's implementation of data modernization efforts, including core data modernization infrastructure, implementation of electronic case reporting (eCR), and modernization of the National Vital Statistics System (NVSS) to move towards faster, more automated sharing of vital statistics between the state and national levels.

This guidance provides information on performance measures for recipients of these supplemental funds. To reduce reporting burden on recipients, the performance measures for *Data Modernization* will encompass work being conducted for those receiving funds for ELC CARES, ELC Enhancing Detection, and ELC.

The performance measures are intended to be used by ELC and recipients to help:

- Support continuous monitoring and examine opportunities to improve performance and implementation of activities;
- Demonstrate accountability to stakeholders (e.g., funders, public) by showing how ELC funds are being spent; and
- Clarify ELC project expectations and priorities.

The ELC realizes that there are limitations to using performance measures to evaluate the scope of public health work being conducted by the jurisdictions. For example, without a consideration of

contextual factors, measures do not always fully represent how strongly or poorly a recipient is doing. Thus, it is important to have other ways of collecting project information to more fully demonstrate performance (i.e., workplan/milestone updates, progress calls, success stories). The ELC will rely on a combination of these sources of information to assess more fully progress throughout the duration of the project.

## Organization of Guidance

Measures in this document are arranged by the program activity tiers. For each measure, the following elements are described:

- Measure: Name of measure
- Applicable recipients: Recipients that the measure applies to
- Rationale: Specifies why the measure is important
- Data elements: Specific variables that will be reported by recipient or monitored by ELC
- Additional guidance: Additional information to help understand the measure such as definitions for specific terms, inclusion/exclusion criteria, and other applicable information
- Target: Recommended recipient target for this measure, where applicable. Targets are used to provide guidance to recipients on the desired level of performance from ELC. They will also be used in discussions between ELC and recipients to identify gaps and opportunities to provide technical assistance.
- Recommended data source: Source the recipient or ELC may use to retrieve data
- Reporting frequency and/or timeline: Specifies how often the measure will be reported
- Reporting mechanism: Describes how data will be reported

## Intended Use of Guidance

Please take some time to review the guidance and share it with the appropriate staff members who are or should be involved with the planning or implementation of data modernization related activities. Data modernization is cross-cutting and should engage staff from across the jurisdiction. Ensure that you and your staff members understand each of the measures and how it applies to your jurisdiction. ELC recommends that you develop a plan for how you will collect, organize, and synthesize this information for reporting.

Please note that some measures may also evolve or change in this guidance during the 24-month project period. Recipients should anticipate modifications to some measures due to shifts in priorities and efforts to improve the ability to monitor performance and progress. Some additional data collection for other measures may be required, and some measures may eventually become obsolete. However, ELC will make every effort to keep these changes minimal.

If you have any additional questions related to performance measures, please refer to the point of contact listed for each program or project. For general questions, please contact [EDX@cdc.gov](mailto:EDX@cdc.gov) or your ELC Project Officer.

## Tier 1 – Core Data Modernization Infrastructure

### Measure C2.1: Dedicated agency staff to lead and coordinate data modernization efforts

<b>Applicable Recipients</b>	All recipients
<b>Rationale</b>	<p>Successful data modernization planning and execution is dependent on coordination, dedication, preparation, and communication. Health departments should identify a data modernization lead to manage and coordinate the planning and implementation of jurisdiction-wide data modernization efforts. The data modernization lead, and supporting staff, should be strategically placed within the health department to work collaboratively across units, programs, and functions and ensure an enterprise approach to the implementation of modernization activities.</p> <p>This measure captures whether a data modernization lead is in place and efforts to coordinate across the agency to address data modernization within the jurisdiction.</p>
<b>Data Elements</b>	<ol style="list-style-type: none"> <li>1. Does the jurisdiction have Data Modernization Initiative (DMI) lead in place? (Y/N)             <ol style="list-style-type: none"> <li>a. Provide the position title and an organizational chart indicating the location of the DMI lead and supporting staff.</li> </ol> </li> <li>2. Describe efforts to coordinate and collaborate across units, programs, and functions to assess, plan, and implement data modernization activities.</li> </ol>
<b>Additional Guidance</b>	The DMI Lead should be able to lead and/or coordinate DMI activities across all diseases and conditions addressed by the health department and include all offices (e.g., informatics, public health labs, reportable conditions, vital records, and others) impacted by DMI work within the jurisdiction.
<b>Target</b>	
<b>Recommended Data Source</b>	N/A
<b>Reporting Frequency</b>	Quarterly
<b>Reporting Mechanism</b>	<input checked="" type="checkbox"/> REDCap <input type="checkbox"/> CDC currently has this data and there is no need to report at this time

Measure C2.2: Established workforce, data, and health information system capabilities, needs and opportunities

<b>Applicable Recipients</b>	All recipients
<b>Rationale</b>	<p>Data modernization assessment and planning are essential for determining data science and health information systems capacity and capabilities, identifying opportunities for improved interoperability, and determining the staff, competencies, and skillsets needed to support modernization efforts.</p> <p>The intent of this measure is to capture the extent to which recipients assess their workforce, data, and health information system needs and opportunities and develop a forward-thinking and strategic approach to addressing data modernization within their jurisdiction.</p>
<b>Data Elements</b>	<p>Data Modernization Assessment</p> <ol style="list-style-type: none"> <li>1. Has a data modernization assessment been completed? (Y/N)</li> </ol> <p>Data Modernization Plan</p> <ol style="list-style-type: none"> <li>2. Was a data modernization plan developed based on the results of the assessment? (Y/N)             <ol style="list-style-type: none"> <li>a. Completion date of data modernization plan (Month/Year)</li> <li>b. Provide a summary of key findings and opportunities identified in the assessment that are addressed in the data modernization plan.</li> <li>c. Submit the final data modernization plan into REDCap.</li> </ol> </li> </ol> <p>Data Modernization Workforce Development Plan</p> <ol style="list-style-type: none"> <li>3. Was a workforce development plan developed based on the results of the assessment? (Y/N)             <ol style="list-style-type: none"> <li>a. Describe the leadership, staffing, and workforce competencies needed to support data modernization efforts and plans to address these needs.</li> <li>b. Describe additional gaps, key findings and opportunities identified in the assessment that are addressed in the workforce development plan.</li> </ol> </li> </ol>
<b>Additional Guidance</b>	<p>Jurisdictions will use the Public Health Data Modernization Assessment tool provided by CDC unless approved to use an equivalent tool. If your jurisdiction already completed an assessment, please review the CDC assessment tool to ensure that all topic areas are covered. Responses from your jurisdiction specific assessment may be entered into the CDC assessment tool. If after review, there are topics or areas that were not covered in the previous assessment, CDC recommends jurisdictions to review and update assessments to address the identified gaps.</p> <p>The data modernization assessment must be completed within 120 days of the initial project award. Recipients will also complete the assessment no more than 30 days after the end of the project period to document the status and progress of capabilities and capacity. The data modernization assessment will be used to inform the development of the data modernization plan and workforce development plan.</p>

	Technical assistance is available to assist with completing the Public Health Data Modernization Assessment as well as using the assessment results to inform the development of a data modernization plan. To request technical assistance, contact EDX@cdc.gov.
<b>Target</b>	Completion of initial data modernization assessment within 120 days of the project award Development of data modernization and workforce development plans by June 2022
<b>Recommended Data Source</b>	N/A
<b>Reporting Frequency</b>	Quarterly
<b>Reporting Mechanism</b>	<input checked="" type="checkbox"/> REDCap <input type="checkbox"/> CDC currently has this data and there is no need to report at this time

Measure C2.3: Enhanced workforce capacities and capabilities to accelerate data and health information system modernization

<b>Applicable Recipients</b>	All recipients
<b>Rationale</b>	A skilled and effective data science and informatics workforce can support the development, enhancement, and use of data systems and analytics within the jurisdiction. This measure assesses the implementation of training and workforce enhancement activities intended to address gaps in competencies and skills needed to support data system and health information system modernization.
<b>Data Elements</b>	<ol style="list-style-type: none"> <li>1. List the trainings attended or hosted. Please use the spreadsheet in REDCap and provide the following information: <ol style="list-style-type: none"> <li>a. Title of the training</li> <li>b. Date of training</li> <li>c. Number and type of attendees</li> <li>d. Competencies addressed</li> <li>e. Describe how the skills learned in this training or workshop applied to your work</li> </ol> </li> <li>2. Provide details on other workforce activities such as peer-to-peer learning, workforce enhancement through fellows, technical assistance, or shared consultative services. Indicate the competencies addressed through these activities.</li> </ol>
<b>Additional Guidance</b>	<p>To support workforce enhancements, recipients are encouraged to participate in the Data Modernization Learning Community (DM LC). The DM LC is an online community that facilitates peer-to-peer learning focused on the development and implementation of data modernization plans. The DM LC provides monthly trainings, access to toolkits and templates, and promotes peer-to-peer exchange of ideas, information, and resources.</p> <p>Other available support for workforce enhancements include participation in the Data Science Team Training (DSTT) program, Epidemic Intelligence Service (EIS) or other assigned fellows from CDC, or requesting Epidemiologic Assistance (Epi-Aids) or Informatics Assistance (Info-Aids).</p> <p>Question 1 is cumulative. Recipients may update the list of trainings each quarter of reporting.</p>
<b>Target</b>	No target
<b>Recommended Data Source</b>	



<b>Reporting Frequency</b>	Quarterly
<b>Reporting Mechanism</b>	<input checked="" type="checkbox"/> REDCap <input type="checkbox"/> CDC currently has this data and there is no need to report at this time

Measure C2.4: Demonstrated use of shared services to enhance existing systems or data exchange

<b>Applicable Recipients</b>	All recipients
<b>Rationale</b>	The use of shared services can lead to reduced costs, reduced redundancy of systems and software, and increased timeliness and availability of data. Health departments should utilize shared services for various IT/data system functions, such as security, interoperability, data storage, data management, data visualization, and other functions. This measure monitors the extent to which recipients use shared services to improve data quality, management, exchange, and use.
<b>Data Elements</b>	<ol style="list-style-type: none"> <li>1. Has your jurisdiction utilized shared services to support data exchange or information system functionality? (Y/N)</li> <li>2. List each shared service used. Please use the spreadsheet in REDCap to provide the name of the shared service, who is hosting the shared service, and how it is being used. <ol style="list-style-type: none"> <li>a. If you implemented a new shared service or expanded the use of an existing shared service, briefly describe the: <ol style="list-style-type: none"> <li>i. Specific issue or problem addressed</li> <li>ii. Impact observed</li> </ol> </li> </ol> </li> </ol>
<b>Additional Guidance</b>	<p>An IT shared service is an information technology function, process, or service that is built once for use by multiple parts of an organization or multiple organizations. It fulfills a common need and is sharable and scalable. Some shared services are available on the AIMS platform.</p> <p>The types of intended improvements or outcomes observed can include, but are not limited to: time saved, timeliness of data improved, duplication of services reduced, costs saved, cost avoided, quality enhancement of data, availability of information improved, and collaboration, coordination across agency increased.</p> <p>Question 2 is cumulative. Recipients may update the list of shared services each quarter of reporting.</p>
<b>Target</b>	No target
<b>Recommended Data Source</b>	
<b>Reporting Frequency</b>	Quarterly
<b>Reporting Mechanism</b>	<input checked="" type="checkbox"/> REDCap <input type="checkbox"/> CDC currently has this data and there is no need to report at this time

## Tier 2 – Electronic Case Reporting (eCR) Scale Up

Measure C2.5: Number of healthcare organizations engaged to implement electronic case reporting (eCR)

<b>Applicable Recipients</b>	All recipients
<b>Rationale</b>	Jurisdictions must demonstrate that they are making electronic case reporting implementation with healthcare organizations a priority focus area through this funding. Recipients are expected to recruit and work with healthcare organizations in their jurisdictions that submit reportable condition reports to implement electronic case reporting. The intent of this measure is to monitor the extent to which the number of healthcare organizations submitting electronic case reports to the jurisdiction increases over time. From a jurisdiction and national perspective, full coverage of healthcare organizations ensures that all cases of reportable conditions are identified for public health action.
<b>Data Elements</b>	<ol style="list-style-type: none"> <li>1. How are you recruiting new in-jurisdiction providers to onboard to eCR? (Select all that apply.)             <ol style="list-style-type: none"> <li>a. Sending recruitment letters or e-mails</li> <li>b. Hosting or participating in recruitment group calls or eCR webinars to in-jurisdiction providers</li> <li>c. Targeted discussions (calls with one or more healthcare organizations, HIE, or HIN for recruitment)</li> <li>d. Passive recruitment – accepting providers who reach out to the eCR team</li> <li>e. Not recruiting (if this is checked, must provide a date for when recruitment will begin in question 1a)</li> </ol> </li> <li>1a. If not currently recruiting, what date will you start recruiting? (D-M-Y)</li> <li>2. Did you confirm that your answer to question 1 is consistent with the monitoring question available on the Site Overview monitoring form? (Y/N)</li> <li>3. Please share any successful recruitment strategies or any challenges to recruitment.</li> <li>4. List priority healthcare organizations for <b>recruitment</b> who have not yet implemented eCR at this time. Ideally, include at least 15 organizations and accompanying information listed below. List organizations you have prioritized for eCR recruitment and implementation. Indicate whether you have reached out to recruit this organization. Do not include any organizations already in testing or live with eCR. (Please enter the information in the spreadsheet template provided in REDCap.)             <ol style="list-style-type: none"> <li>a. Organization name</li> <li>b. Name of EHR vendor (if known)</li> <li>c. Date last contacted</li> </ol> </li> </ol>

	<p>5. For healthcare organizations actively <b>engaged</b> in eCR with the public health agency, please indicate the following for level of engagement. (Please enter the information in the spreadsheet template provided in REDCap.)</p> <ul style="list-style-type: none"> <li>a. Testing for COVID-19 only</li> <li>b. In production and parallel reporting for COVID-19 only</li> <li>c. In production with no manual reporting for COVID-19 only</li> <li>d. Testing for all conditions</li> <li>e. In production and parallel reporting for all conditions</li> <li>f. In production with no manual reporting for all conditions</li> </ul> <p>6. If you offered incentives to healthcare organizations for participating in eCR, what has been the impact of those incentives?</p>
<b>Additional Guidance</b>	<p>The agreed upon priority list of healthcare organizations in the jurisdiction will be used at quarterly calls between jurisdiction and the ELC HIS Implementation and Monitoring Team to track status of organization’s implementation progress.</p> <p>Questions 4 and 5 will be reported using the spreadsheet template available for download in REDCap.</p> <p>Recipients should use the last quarter’s Excel sheet for Question 5 and update both the list and status each quarter of reporting. Healthcare organizations may change status over time, but recipients should submit the list even if there have been no changes.</p> <p>Note: This measure is the same as Measure E.12 under Project E: Enhancing Detection.</p>
<b>Target</b>	Quarterly reporting on engagement status
<b>Recommended Data Source</b>	CDC has technical assistance available to help you identify healthcare organizations that have already onboarded as well as assistance to identify recruitment priorities.
<b>Reporting Frequency</b>	Quarterly
<b>Reporting Mechanism</b>	<input checked="" type="checkbox"/> REDCap <input type="checkbox"/> CDC currently has this data and there is no need to report it at this time.

Measure C2.6: Number of conditions published to production in Reportable Conditions Knowledge Management System (RCKMS)

<b>Applicable Recipients</b>	All recipients
<b>Rationale</b>	Using this RCKMS allows public health jurisdictions to define reporting criteria and helps healthcare organizations using electronic case reporting send the appropriate initial case reports to respective public health agencies. Increasing the number of reportable conditions published to production in RCKMS ensures efficient and timely disease surveillance, ultimately leading to more timely identification of clusters or outbreaks of disease and resulting in more rapid public health response.
<b>Data Elements</b>	1. Per the guidance, each jurisdiction should have at least 36 conditions authored each quarter, for a total of 144 conditions authored to production by the end of the year. How many conditions has your jurisdiction currently published to production in RCKMS?
<b>Additional Guidance</b>	Note: This measure is the same as Measure E.12a under Project E: Enhancing Detection.
<b>Target</b>	36 conditions authored each quarter, for a total of 144 conditions authored to production by the end of the year
<b>Recommended Data Source</b>	
<b>Reporting Frequency</b>	Quarterly
<b>Reporting Mechanism</b>	<input checked="" type="checkbox"/> REDCap <input type="checkbox"/> CDC currently has this data and there is no need to report it at this time.

Measure C2.7: Proportion of state reportable cases with an electronic initial case report (eICR) submitted

<b>Applicable Recipients</b>	All recipients
<b>Rationale</b>	Recipients are expected to work with healthcare organizations in their jurisdictions that submit reportable condition reports to increase the number submitting reports electronically. The intent of this measure is to monitor the extent to which cases in the jurisdiction have associated electronic case reports – either case was started by an eICR, an eICR was received and helped define the case status, or eICR received provided additional data to support the case. From a jurisdiction and national perspective, submission of electronic reports that are timely and complete will allow for more efficient and speedy public health action.
<b>Data Elements</b>	<ol style="list-style-type: none"> <li>1. Percent of state reportable cases with an electronic initial case report (eICR) submitted during the last 6 months <ol style="list-style-type: none"> <li>a. Numerator: Number of reportable cases with at least one associated electronic initial case report (see additional guidance below)</li> <li>b. Denominator: Total number of reportable cases known by the jurisdiction from all reporting mechanisms for all state reportable conditions</li> </ol> </li> </ol>
<b>Additional Guidance</b>	<p>For 1a: This is not the number of electronic initial case reports (eICRs) received, but the unique number of case reports that have one or more eICR associated with them (e.g deduplicated eICRs)</p> <p>Jurisdiction must maintain production connection with AIMS to receive eICRs.</p> <p>Note: This measure is the same as Measure E.13 under Project E: Enhancing Detection.</p>
<b>Target</b>	
<b>Recommended Data Source</b>	
<b>Reporting Frequency</b>	Twice per year
<b>Reporting Mechanism</b>	<input checked="" type="checkbox"/> REDCap <input type="checkbox"/> CDC currently has this data and there is no need to report it at this time.

Measure C2.8: Demonstration of automatic processing of electronic initial case reports (eICRs) in the jurisdiction integrated surveillance system(s)

<b>Applicable Recipients</b>	All recipients
<b>Rationale</b>	Recipients are expected to ensure that their surveillance systems have capability to accept, process and present the data in electronic initial case reports (eICRs) and reportability responses (RRs) for use by users of the surveillance system. The intent of this measure is to monitor the ability of the surveillance system(s) to fully process the electronic case report data. Increased capacity to process electronic data improves public health’s ability to identify and respond to health events and affected population groups and geographic areas.
<b>Data Elements</b>	<ol style="list-style-type: none"> <li>1. List each surveillance system that is used to manage cases of reportable conditions <ol style="list-style-type: none"> <li>a. For each surveillance system, indicate the percent of eICRs that are received by the jurisdiction and populated into the system without entering an error queue in the production environment.</li> <li>b. What are the start and end dates for this metric? <ol style="list-style-type: none"> <li>i. What is the start date for this metric? (Month, day, year)</li> <li>ii. What is the end date for this metric? (Month, day, year)</li> </ol> </li> </ol> </li> <li>2. Did you confirm that your answers for question 1 are consistent with the monitoring questions available on the Site Overview monitoring form? (Y/N)</li> <li>3. Please provide any qualitative information about your progress on processing eICRs into the surveillance system. Are there any successes, challenges, or status changes that you would like to share?</li> </ol>
<b>Additional Guidance</b>	<p>Data from RR are needed to process eICR. Report measure for each surveillance system being used for managing reportable conditions. Conditions may vary by jurisdictions.</p> <p>Note: This measure is the same as Measure E.14 under Project E: Enhancing Detection.</p>
<b>Target</b>	Processing of > 50% of eICRs by the surveillance system
<b>Recommended Data Source</b>	
<b>Reporting Frequency</b>	Twice per year
<b>Reporting Mechanism</b>	<input checked="" type="checkbox"/> REDCap <input type="checkbox"/> CDC currently has this data and there is no need to report it at this time.

### Tier 3 – National Vital Statistics System Modernization

#### Measure C2.9: Participation in the National Vital Statistics System Modernization Community of Practice

<b>Applicable Recipients</b>	All states, American Samoa, Commonwealth of Northern Mariana Islands, Guam, New York City, Puerto Rico, US Virgin Islands, Washington DC
<b>Rationale</b>	The National Vital Statistics System (NVSS) Modernization Community of Practice supports data modernization at all levels through sharing of ideas, technical tools, resources, and promising practices to improve birth and death data. The intent of the NVSS Modernization Community of Practice is to create efficiencies in the reuse of tools and provide opportunities for peer-to-peer learning that will accelerate modernization efforts. The Community is guided by six building blocks for modernization: connection, vision, innovation, guidance, policy, and sharing. This measure tracks the level of participation in the NVSS Modernization Community of Practice and the use of information, resources, and knowledge gained from their participation.
<b>Data Elements</b>	Document attendance in at least one NVSS Modernization Community of Practice call per month <ol style="list-style-type: none"> <li>1. List the topic and date of the NVSS Modernization Community of Practice call attended</li> <li>2. Indicate how you used the information or knowledge gained from the call</li> </ol>
<b>Additional Guidance</b>	The NVSS Community of Practice hosts a series of calls monthly, including: <ul style="list-style-type: none"> <li>• Monthly calls with topical presentations by NCHS staff, COP participants, and others</li> <li>• Monthly technical subgroup calls on the nuts and bolts of modernization</li> <li>• Weekly office hours with the NCHS technical support team</li> <li>• Opportunities to participate in special interest subgroups.</li> </ul> <p>Recipients can send an email to <a href="mailto:NVSSModernization@cdc.gov">NVSSModernization@cdc.gov</a> to be added to the NVSS Community of Practice distribution list and stay up to date on all the community’s activities and opportunities to participate.</p>
<b>Target</b>	Participate in at least one NVSS Modernization Community of Practice sponsored call per month
<b>Recommended Data Source</b>	
<b>Reporting Frequency</b>	Quarterly



**Reporting  
Mechanism**

REDCap

CDC currently has this data and there is no need to report at this time

Measure C2.10: Percent of records reported to the National Center for Health Statistics within ten days

<b>Applicable Recipients</b>	All states, American Samoa, Commonwealth of Northern Mariana Islands, Guam, New York City, Puerto Rico, US Virgin Islands, Washington DC
<b>Rationale</b>	One goal of NVSS is to improve the timeliness of the mortality data. Timeliness of death reporting is crucial for prompt assessment of emerging public health issues. Electronic reporting can increase timely reporting of mortality data. This measure monitors the timeliness of mortality data reporting to National Center for Health Statistics (NCHS).
<b>Data Elements</b>	Numerator: Number of death records reported to NCHS within 10 days of date of death  Denominator: Number of death records reported to NCHS
<b>Additional Guidance</b>	Calculation of this measure is determined monthly. The denominator is based on the number of death records reported to NCHS each month.
<b>Target</b>	80%
<b>Recommended Data Source</b>	This information is collected and monitored through the National Vital Statistics System.
<b>Reporting Frequency</b>	Monthly
<b>Reporting Mechanism</b>	<input type="checkbox"/> REDCap <input checked="" type="checkbox"/> CDC currently has this data and there is no need to report at this time

Measure C2.11: Participation in Connectathon(s) or other interoperability testing events

<b>Applicable Recipients</b>	All states, American Samoa, Commonwealth of Northern Mariana Islands, Guam, New York City, Puerto Rico, US Virgin Islands, Washington DC
<b>Rationale</b>	Development of interoperable systems is an interactive process requiring the participation of multiple partners to test the ability of all systems to successfully communicate. Participation in Connectathons provide an important opportunity for this testing to occur and can serve as valuable milestones to gage progress with interoperability. Connectathons also provide a safe place to test systems, identify and resolve problems, and learn through trial and error.
<b>Data Elements</b>	<p>1. List of connectathons participated in, including the dates of the connectathon and what was being tested.</p> <p>2. Describe the progress made and lessons learned during the connectathon/testing process and whether the demonstration was successful.</p>
<b>Additional Guidance</b>	<p>A connectathon is an opportunity for organizations of all sorts — government entities, health systems, payers, IT vendors, and other — to come together for structured testing of system interoperability. During a Connectathon systems exchange information with corresponding systems in a structured and supervised peer-to-peer testing environment, performing transactions they have selected to perform in predefined interoperability use cases. Connectathons may be formal national events (e.g. HL7 FHIR Connectathon) or less formal testing events (e.g. testing events sponsored by NCHS through the NVSS Modernization Community of Practice). These events may be in-person or virtual.</p> <p>Questions 1 and 2 are cumulative. Recipients may update the list of connectathons and progress/lessons learned for each during each quarter of reporting.</p>
<b>Target</b>	No target
<b>Recommended Data Source</b>	
<b>Reporting Frequency</b>	Quarterly
<b>Reporting Mechanism</b>	<input checked="" type="checkbox"/> REDCap <input type="checkbox"/> CDC currently has this data and there is no need to report at this time

Measure C2.12: Demonstration of capability to receive data using APIs and FHIR messages

<b>Applicable Recipients</b>	All states, American Samoa, Commonwealth of Northern Mariana Islands, Guam, New York City, Puerto Rico, US Virgin Islands, Washington DC
<b>Rationale</b>	Modernizing the NVSS and interoperability is not just about getting data to NCHS more quickly, it is also about getting data back to the jurisdiction and available to use to address urgent public health questions at the jurisdictional level. This measure will track jurisdictions' ability to receive and use the coded cause of death information being returned to the states.
<b>Data Elements</b>	<p>1. Was the jurisdiction able to receive data from CDC using APIs and FHIR messages? (Y/N)</p> <p>a. Were the codes returned to the jurisdiction by NCHS loaded into the jurisdiction's systems? (Y/N)</p> <p>b. What is the average time between NCHS sending the coded cause of death and that data being available for surveillance/analysis in the jurisdictions systems?</p>
<b>Additional Guidance</b>	The ability to receive data in exchange with CDC at least one time is considered as a yes (or pass) for the measure.
<b>Target</b>	Pass at least one time
<b>Recommended Data Source</b>	N/A
<b>Reporting Frequency</b>	Quarterly
<b>Reporting Mechanism</b>	<input checked="" type="checkbox"/> REDCap <input type="checkbox"/> CDC currently has this data and there is no need to report at this time

Measure C2.13: Demonstration of capability to send data using APIs and FHIR messages

<b>Applicable Recipients</b>	All states, American Samoa, Commonwealth of Northern Mariana Islands, Guam, New York City, Puerto Rico, US Virgin Islands, Washington DC
<b>Rationale</b>	A priority of modernizing the NVSS and interoperability is improving the flow of data to NCHS to support national public health surveillance and to address urgent public health questions. This measure will track jurisdictions’ technical ability to send mortality data to NCHS using APIs and FHIR messages.
<b>Data Elements</b>	1. Did the jurisdiction send data to CDC using APIs and FHIR messages? (Y/N)
<b>Additional Guidance</b>	The ability to send data to CDC at least one time is considered as a yes (or PASS) for the measure.
<b>Target</b>	Pass at least one time
<b>Recommended Data Source</b>	N/A
<b>Reporting Frequency</b>	Quarterly
<b>Reporting Mechanism</b>	<input type="checkbox"/> REDCap <input checked="" type="checkbox"/> CDC currently has this data and there is no need to report at this time

## Appendix A. Reporting mechanism and frequency by measure

ID	Measure	REDCap	CDC has data and will share with recipients	Reporting Frequency
C2.1	Dedicated agency staff to lead and coordinate data modernization efforts	X		Quarterly
C2.2	Established workforce, data, and health information system capabilities, needs and opportunities	X		Quarterly
C2.3	Enhanced workforce capacities and capabilities to accelerate data and health information system modernization	X		Quarterly
C2.4	Demonstrated use of shared services to enhance existing systems or data exchange	X		Quarterly
C2.5	Number of healthcare organizations engaged to implement electronic case reporting (eCR)	X		Quarterly
C2.6	Number of conditions published to production in Reportable Conditions Knowledge Management System (RCKMS)	X		Quarterly
C2.7	Proportion of state reportable cases with an electronic initial case report (eICR) submitted	X		Twice per year
C2.8	Demonstration of automatic processing of electronic initial case reports (eICRs) in the jurisdiction integrated surveillance system(s)	X		Twice per year
C2.9	Participation in the National Vital Statistics System Modernization Community of Practice	X		Quarterly
C2.10	Percent of records reported to the National Center for Health Statistics within ten days		X	Monthly
C2.11	Participation in Connectathon(s) or other interoperability testing events	X		Quarterly
C2.12	Demonstration of capability to receive data using APIs and FHIR messages	X		Quarterly
C2.13	Demonstration of capability to send data using APIs and FHIR messages		X	Quarterly

## Reporting timeline for measures reported via REDCap

Frequency	Data Collection Period	Data Submission Period
Q1	Aug 1 - Oct 31, 2021	Oct 31 - Nov 30, 2021
Q2	Nov 1, 2021 - Jan 31, 2022	Jan 31 - Feb 28, 2022
Q3	Feb 1 - Apr 30, 2022	Apr 30 - May 31, 2022
Q4	May 1 - Jul 31, 2022	Jul 31 - Aug 31, 2022
Twice per year*	May 1 - Oct 31, 2021	Oct 31 - Nov 30, 2021
Twice per year*	Nov 1, 2021 - Apr 30, 2022	Apr 30 - May 31, 2022

\*Measures C2.7 and C2.8 are the same as Measures E.13 and E.14 under ELC Project E: Enhancing Detection and will align with the Project E reporting schedule.