Introduction

Overview

The Council of State and Territorial Epidemiologists (CSTE) COVID-19 Pregnancy Status Reporting Workgroup (PSRW) was formed in January 2022 to identify ways to improve the capture of pregnancy status for cases of COVID-19. The workgroup is comprised of representatives from federal, state, tribal, local, and territorial (STLT) public health agencies, laboratories, professional organizations, and CSTE. All members are experienced in identifying methods for capturing pregnancy status for various conditions of public health importance such as COVID-19, hepatitis B/C, Zika virus, HIV, and congenital syphilis.

Pregnancy presents a unique vulnerability to infectious diseases. Changes in the immune, respiratory, and cardiovascular systems during pregnancy result in pregnant people being more adversely impacted by certain infectious diseases including COVID-19.4 Multiple infectious diseases may be transmitted perinatally or at birth, resulting in serious outcomes for the fetus or infant.4-11 The ability to mitigate the impact of disease on pregnant people is dependent on the recognition and reporting of pregnancy status. For cases of certain infectious diseases, rapid, accurate, and early reporting of pregnancy status is essential.12-14

The keys to adequately assessing the impact of an emerging or reemerging disease on pregnant people are timeliness and completeness of data. Where possible, electronic means of data capture and reporting to public health should be used to rapidly identify pregnant people with high levels of certainty. There are multiple electronic modalities for capturing reportable condition case data including electronic laboratory reporting (ELR), electronic case reporting (eCR), and secure file exchange. Currently, in public health, ELR is widely used for the electronic exchange of reportable condition data, though is rarely inclusive of pregnancy status. The utilization of eCR is ramping up quickly with new reporting facilities added every month. eCR could become a more comprehensive, complimentary source of pregnancy data. However, many jurisdictions are only receiving eCR for COVID-19, mpox, and a subset of other reportable conditions, and states are not yet able to consistently capture pregnancy status outside of manual review of electronic initial case report (eICR) data.15,16

The COVID-19 pandemic resulted in improved information sharing across clinical and public health responses, yet more work remains. An electronic health record (EHR) may contain the ability for providers to indicate pregnancy status in a clinical record field, but the field may not be required for providers to complete nor is there a requirement for EHR vendors to include a pregnancy observation when sharing data with public health agencies. During the COVID-19 pandemic, the CARES Act required laboratories testing for SARS-CoV2 to capture and report pregnancy status include in electronic laboratory reporting to public health; most labs used the ask at order entry (AOE) field to capture pregnancy status. This practice was not widely used by providers and was discontinued with the end of the pandemic’s public health emergency declaration.17,18

The PSRW drafted a recommendations document to outline future policy, provide a roadmap for public health agency advancement of the inclusion of pregnancy status in case reporting, and detail criteria for federal, clinical, and auxiliary agencies to ensure the right national constructs are in place. This guidance document was formed out of those recommendations.
and provides more detailed though abbreviated content for furthering pregnancy status reporting from strengthening administrative language to improving electronic case reporting (eCR).

Purpose statement
CSFT and the Centers for Disease Control and Prevention (CDC) convened a multidisciplinary workgroup of subject matter experts and public health partners to develop a guidance document to improve pregnancy status reporting accuracy and completeness. The emphasis of this effort is on collecting pregnancy status as part of COVID-19 surveillance with applicability to other infectious disease threats to maternal and child health. The focus of the document is on the following:

- Providing sample administrative code/language to help improve thorough and accurate reporting of pregnancy status for reportable conditions
- Affirm best practices for ELR capture and reporting of pregnancy status
- Detail pathways and best practices for advancing pregnancy status reporting within electronic Initial Case Reports (eICR) and by sharing jurisdiction best practices

Target audience
This guidance document is intended for use primarily by public health agencies, with relevant content for all entities supporting pregnancy status identification and reporting including, but not limited to:

- Public health laboratories
- Commercial and private laboratories
- Clinicians and clinical administrators
- Federal health agencies (e.g., CDC, Office of the National Coordinator for Health Information Technology, Centers for Medicare and Medicaid Services)
- Health information exchanges
- Vendors of Clinical Information systems (Health Information Organization systems, EHR, and Laboratory Information Systems (LIS))
- Electronic data intermediary companies (e.g., ingestion, aggregation, processing services often referred to as middleware)
- Professional organizations
- Health IT professionals and consultants
- Administrative code, legislative or similar advocates and authors

Intended use
This guidance document is intended to provide support to public health agencies in capturing, ingesting, and using pregnancy status for COVID-19 and other reportable condition investigations. The document provides multiple approaches for gathering and reporting pregnancy in ELR, and how to approach gathering and receiving pregnancy data through eCR. The document also provides sample administrative language for codifying pregnancy status reporting requirements. The resources and references sections of the document contain dozens of articles, sites, and other resources for public use.
Contributors/workgroup overview

This report was prepared by Meghan Schaeffer, MPH, MPA, EdD, of Aperio Statistical Consulting. The following is a comprehensive list of workgroup participants. Workgroup coordinators are denoted by “*” and project editors are indicated by “**”.

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<thead>
<tr>
<th>Name</th>
<th>Organization/Jurisdiction</th>
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<tbody>
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Special thanks to the following state agencies whose program leads contributed to the content:

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Minnesota Department of Health - Ann Kayser
North Carolina Department of Health - Jennifer Stewart, Karla Norsworthy
California Department of Public Health - Melanie Epstein-Corbin
Florida Department of Health - Shelby Fawaz, Nicole Kikuchi, Leah Eisenstein

Sources/reference types

The process of forming the guidance document included interviews with various stakeholders from public health agency staff, CDC, CSTE, APHL, and large commercial laboratories. Interviews used to inform the content of this document are cited and included as references. Research papers, presentations, previous recommendations, websites, and other sources are used throughout and referenced.
## List of Terms

<table>
<thead>
<tr>
<th>Term/Acronym</th>
<th>Definition/Full Term</th>
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</thead>
<tbody>
<tr>
<td>AOE</td>
<td>Ask at order entry; a type of field used when clinicians enter order information for a laboratory test</td>
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<tr>
<td>API</td>
<td>Application Programming Interface</td>
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<tr>
<td>CDA</td>
<td>Clinical Document Architecture</td>
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<tr>
<td>CDC</td>
<td>Centers for Disease Control and Prevention</td>
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<tr>
<td>CSTE</td>
<td>Council of State and Territorial Epidemiologists</td>
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<tr>
<td>CMS</td>
<td>Centers for Medicare and Medicaid Services</td>
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<tr>
<td>eCR</td>
<td>Electronic Case Reporting (the process of electronic case reporting between healthcare providers or facilities and public health)</td>
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<td>eICR</td>
<td>Electronic Initial Case Reporting (the initial case report document)</td>
</tr>
<tr>
<td>EHR</td>
<td>Electronic Health Record (comprehensive, easily shared patient medical record)</td>
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<tr>
<td>ELR</td>
<td>Electronic Laboratory Reporting</td>
</tr>
<tr>
<td>EMR</td>
<td>Electronic Medical Record (digital record of a patient’s paper chart)</td>
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<tr>
<td>FHIR</td>
<td>Fast Healthcare Interoperability Reporting</td>
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<tr>
<td>HL7</td>
<td>Health Level 7</td>
</tr>
<tr>
<td>HITEC</td>
<td>Health Information Technology Advisory Committee</td>
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<tr>
<td>HIPAA</td>
<td>Health Insurance Portability and Accountability Act; established protections for health data and information</td>
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<tr>
<td>ICD-10-CM</td>
<td>International Classification of Diseases, Tenth Revision, Clinical Modification codes used to document patient diagnoses</td>
</tr>
<tr>
<td>LOINC</td>
<td>Logical Observation Identifiers Names and Codes used in electronic laboratory reporting</td>
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<tr>
<td>OBR</td>
<td>Observation request</td>
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<tr>
<td>OBX</td>
<td>Observation result segment in an HL7 message</td>
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<tr>
<td>ONC</td>
<td>Office of the National Coordinator</td>
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<td>ORC</td>
<td>Common Order Segment</td>
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<td>PSRW</td>
<td>Pregnancy Status Reporting Workgroup</td>
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<tr>
<td>RCKMS</td>
<td>Reportable Conditions Knowledge Management System; the decision support service within eCR that evaluates eICR documents to determine reportability</td>
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<tr>
<td>SNOMED</td>
<td>Systemized Nomenclature of Medicine</td>
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<tr>
<td>STLT</td>
<td>State, Territorial, Local, and Tribal</td>
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<tr>
<td>USCDI</td>
<td>The United States Core Data for Interoperability</td>
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</table>
Background
The importance of pregnancy status reporting
Public health uses
Public health agencies prioritize the determination of pregnancy status primarily in two scenarios:

1) Identification of a reportable condition (infectious or non-infectious) where there is known impact on the pregnant person, fetus, or infant and/or a public health intervention may prevent or mitigate harm to the pregnant person, fetus, or infant; or,

2) Reporting of an emerging or reemerging disease where the potential health impact on a pregnant person, fetus, or infant is unknown.

The first scenario, where a reportable condition is known to impact the health of a pregnant person or their fetus, may require timely identification of pregnancy status to provide clinical or public health interventions. Interventions may include treatment of the pregnant person, deploying measures to prevent the spread of disease to the fetus or provision of prophylactic treatment to an infant following birth.19,20 Multiple public health interventions may be used to reduce or prevent the impact of the disease or condition. Examples of these conditions include but are not limited to SARS-CoV 2 infection, hepatitis B and C, group B streptococcal infection, Zika virus, listeriosis, HIV, syphilis, rubella, or influenza.8,12,19-28 For diseases where intervention to treat or prevent transmission may not be available, it is still important to facilitate linkage of the newborn and family with early intervention or other social services support.8,24,29 In all circumstances, tracking the incidence of congenital infection or other impacts to the pregnant person, fetus, or infant is epidemiologically valuable.

In the second scenario, where an emerging or reemerging disease presents an unknown risk to pregnant people, reporting pregnancy status is critical. Public health investigations provide essential epidemiologic and clinical information necessary for forming prevention recommendations and clinical practice guidelines.9,30 The development of clinical practice guidelines requires structured evaluation and public health data can play a key role in supporting and performing those evaluations. Enhancing large-scale data collection within public health will only increase the ability of these data to contribute to clinical guidelines for the prevention and treatment of an emerging or reemerging disease, or point toward needed research.31-34

Even in situations where treatment is not yet available, the use of preventive measures specific to a disease can help mitigate the risk of infection for a pregnant person. These measures may include avoiding exposure, vaccination, personal protective measures, travel guidance, transmission education, etc.35,36 For example, travel advisories during the Zika virus outbreak, primarily in 2015 and 2016, helped inform pregnant people and clinicians of the risk of exposure to Zika virus in certain Central and South American countries.37,38 This type of advisory likely reduced travel and therefore risk to pregnant people throughout the duration of the Zika virus outbreak.35,39
The status of reportable condition tracking in the U.S.

Case surveillance is a core function of public health at all jurisdictional levels including federal, state, territorial, local, and tribal. Reportable conditions, which include infectious and non-infectious, pose a threat to human health and often require timely action to prevent further spread or reduce the impact of the condition. Case surveillance begins at the STLT level. STLT jurisdictions are responsible for establishing administrative code or law determining which conditions must be reported by healthcare providers and laboratories, how they are to be reported to public health agencies, and in what time frame. Healthcare providers such as clinicians, hospitals, or laboratories are required to report cases, or in some instances suspected cases, of reportable conditions to public health agencies. Data collected as part of a public health investigation are limited to the minimum necessary elements to investigate a case. It is important to note, public health condition reporting is not subject to the same Health Insurance Portability and Accountability Act (HIPAA) limitations as other protected health data. Covered entities, such as healthcare providers, are required to submit patient information for reportable conditions to protect the health and safety of the public.

The types of conditions that are reportable are similar across jurisdictions. The CDC monitors more than 120 notifiable conditions as reported by public health agencies. This overarching reporting process enables local detection of diseases or situations of concern, such as an outbreak of foodborne illness or lead contamination in drinking water, and a national perspective spanning multiple states and other jurisdictions.

CSTE forms recommendations as to which conditions should be nationally notifiable, develops case definitions, and provides uniform criteria for the submission of those and other reportable conditions annually. It is important to note, some conditions are reportable in certain jurisdictions but are not nationally notifiable. A comprehensive list of infectious and non-infectious condition case definitions is located here: Surveillance Case Definitions for Current and Historical Conditions (cdc.gov). The CSTE position statements which contain recommendations for surveillance case definitions are located here: Position Statement Archive | Council of State and Territorial Epidemiologists (CSTE).

Case data captured during public health investigations typically includes demographics, symptoms of disease, diagnostic information, treatment, other relevant clinical information, close contacts, and exposure information. The type of case data obtained are different for each reportable condition or category of conditions. For example, the investigation of a case of respiratory illness such as pertussis might involve questions about duration and proximity to others. These same questions might be used for other similar infectious respiratory conditions. Investigation of a case of an enteric pathogen, such as salmonellosis, centers on foods consumed and can be used for other foodborne pathogens.

Case reporting by health care providers and laboratories occurs through a variety of methods, depending on the jurisdiction’s reporting code or laws. Reports may be made by phone, fax, mail, ELR, eCR, and occasionally secure email and other methods (e.g., web form). Public health agencies in all 50 states accept ELR to receive reportable laboratory results from laboratories, and more broadly accept syndromic surveillance data, electronic
case report data, and immunization registry data. A more comprehensive method of case reporting from providers and medical facilities is eCR. With support through the CDC’s Data Modernization Initiative, eCR has been scaling up rapidly since the early stages of the COVID-19 pandemic. Despite the ability to report to public health in multiple ways, case reporting is not always timely and underreporting is problematic. In addition, many public health jurisdictions struggle with the ability to scale case surveillance efforts in a crisis where the volume of reports is high. Continual challenges with completeness and timeliness of reporting, difficulty obtaining clinical data, lack of automated exchange capabilities, and insufficient staffing, especially in times of public health crisis, inhibit the timely collection and analysis of epidemiologic data and the reporting of cases to STLT. These challenges impede a rapid and efficient public health response. The concerted efforts of CDC’s Data Modernization Initiative and federal funding provided in response to COVID-19 are helping public health agencies make progress in resolving some of these challenges.

Background on ELR, eCR, and USCDI

**Functional process of ELR**
For more than a decade, ELR has been used to provide electronic transmission of lab results of reportable conditions from laboratories to public health. The ELR implementation guide for public health reporting uses HL7 v2 standards.

Laboratory test orders are received (electronically) or entered (manually) by a laboratory into their laboratory information management system (LIMS). The information in the LIMS is used to create standardized electronic messages such as HL7 v2 compliant messages. Laboratory test and result information is translated to codes from standard code systems (e.g., LOINC, SNOMED CT) within HL7 message fields. Public health agencies receive HL7 messages either directly from the laboratory, via a Health Information Exchange (HIE) or via the Association of Public Health Laboratories (APHL) APHL Informatics Messaging System (AIMS) and then extract the message contents into a disease surveillance system.

**Functional process of eCR**
The electronic Initial Case Report (eICR) and Reportability Response (RR), using CDA or FHIR standards, are the basis of electronic case reporting (eCR). The eICRs are created from clinical encounter data that exist in a patient’s record in an EHR. The eICR contains sections of information (e.g., Discharge Summary, Problems List, Medications List), and while there are standard structures in the CDA and FHIR standards, the way each section is populated and whether it is populated is determined by the healthcare provider and EHR vendor. The eICRs are transmitted to the AIMS platform as either CDA or FHIR and can contain structured and unstructured data. Structured data might include a medication list, whereas unstructured data might include a clinical image (e.g., x-ray) or free text narrative. The AIMS platform hosts the Reportable Conditions Knowledge Management System (RCKMS), a decision support tool that evaluates eICRs against jurisdictional reporting rules authored by each public health agency. Once a reportability determination is made, AIMS creates a RR that includes information for healthcare providers that identifies if the eICR document met reportability requirements for any condition, what jurisdiction(s) the eICR was reported to (if applicable), and information from the jurisdiction that is relevant to the reportable condition. The RR is returned to the healthcare provider that sent the eICR. For those eICRs determined
reportable, the eICR and the RR are delivered to the appropriate public health agency(ies). (Figure 1).\textsuperscript{16, 57, 60-62}

Once public health agencies receive electronic messages (i.e., CDA or FHIR), each one must be parsed to make it a machine-readable version or they can use the human-readable version. Most public health agencies attach the human-readable version, often a HTML or PDF, to a disease event within the jurisdiction’s disease surveillance system.\textsuperscript{1, 2, 63, 65} The machine-readable data may be moved into a relational database for ingestion into a disease surveillance system, which might require include validation steps such as comparison against ELR data or other version of the reportable disease report.\textsuperscript{1, 63, 65} Some surveillance systems consume the eICR directly.\textsuperscript{44} Public health agencies must decide which sections within an eICR to parse and establish a process for extraction. There are similarities for how each EHR vendor generates an eICR, but the contents vary by provider or health system.\textsuperscript{2} For example, Health System X may not have opted to use a module within EHR A to capture pregnancy information, whereas Health System Y did. Even though they both have EHR A, pregnancy information is only available to be sent in an eICR from Health System Y.\textsuperscript{2, 63}

As of April 2023, there were more than 25,000 healthcare facilities in all 50 states actively sending eICRs.\textsuperscript{66} A total of 208 conditions can be reported through eCR, though reporting at this time is primarily limited to emergent conditions (COVID-19 and mpox).\textsuperscript{67} To incentivize healthcare provider reporting, CMS’s Promoting Interoperability Program (PIP) required hospitals, critical access hospitals and Merit-based Incentive Payment System (MIPS) providers to develop the capacity to send eICR starting January 1, 2023 in order to meet the public health objective.\textsuperscript{68} Despite this requirement, there is still significant work to be done to ensure future usefulness of eCR and expansion to conditions beyond COVID-19.
**USCDI**

United States Core Data for Interoperability (USCDI) “…is a standardized set of data elements, like patient names and medication lists,” that are required to be able to be exchanged electronically from EHRs.\(^{53,62}\) USCDI serves as a starting point for what data elements EHRs must support. USCDI started with 52 data elements in 16 classes in V1 in 2020. There are now 94 data elements in 19 classes in V3.\(^{70,71}\)

Data elements are the most granular level of data exchanged. Data elements are grouped into “data classes”. New elements and classes are added to future versions of the entire set of standards.\(^53\) USCDI v2 provided new elements and classes to support the sharing of gender identity, sexual orientation, and social determinants of health.\(^{72}\) USCDI v3 expanded to include 24 new data elements across six data classes focused on laboratory, medications, patient demographics/information, procedures, health status/assessments, and health insurance information.\(^{70}\) USCDI v3 is the first version of USCDI to contain pregnancy status.\(^{73}\)

The USCDI version required for EHR certification is determined by an ONC rule-making process. Only USCDI v1 is currently required for EHR certification; a version from 2015.\(^{15,71}\) A rule proposed in April 2023 would implement the EHR provision of the 21st Century Cures Act. This would set a new baseline version of USCDI to v3 for EHR certification. The rule would include functional requirements for eCR. This change would provide a basis for improved pregnancy data reporting as USCDI v3 includes pregnancy status.\(^{73}\) For more information on this rule change, see this section of the document.

**Context for the guidance provided in this document**

The guidance supplied in this document applies to COVID-19 and reportable conditions where the health of the pregnant person, fetus, or infant may be impacted by a reportable condition. This includes reportable conditions with a known impact on a pregnant person, fetus, or infant, such as hepatitis B or COVID-19. This guidance is also relevant to emerging or reemerging diseases where the impact of infection on a pregnant person, fetus, or infant is unknown. Rapid, early collection of pregnancy status and relevant data for emerging or reemerging cases of disease is essential to evaluating the impact of those diseases.

As previously stated, public health agencies prioritize the determination of pregnancy status primarily in two scenarios:

1) Identification of a reportable condition (infectious or non-infectious) where there is known impact on the pregnant person, fetus, or infant; or,

2) Reporting of an emerging or reemerging disease where the potential health impact on a pregnant person, fetus, or infant is unknown.
Administrative Code/Law Language Guidance

This section of the document provides guidance for drafting or modifying reportable condition administrative code or language. Guidance includes examples of where pregnancy status is included in administrative code, and reporting language specifically for ELR and eCR.

Reportable condition language provides the framework for furthering electronic methods of capturing pregnancy status. Most states have language requiring reporting of pregnancy status as part of the case report demographics (Table 1). Multiple states have comprehensive administrative language for ELR. For example, Florida administrative code contains ELR language including HL7 specificity and pregnancy status reporting (Table 1).74 Nebraska code outlines a requirement for electronic laboratory reporting and laboratory ordering (Table 1).75 A listing of some jurisdictions with administrative code or laws addressing pregnancy status reporting is available in Table 1. While not inclusive of all state reporting requirements, the table includes a representation of various approaches to administrative and law verbiage.

Massachusetts administrative code contains a section of language confirming access to medical records including electronic health information.76 This might be useful to reference when requesting public health data for case investigations regardless of the way health data are provided to the public health agency.

Utah’s reportable disease language also requests expected date of delivery (EDD), and specifies the method of data delivery as electronic laboratory reporting and electronic case reporting. Utah is the only state determined to have administrative language for electronic case reporting.77

(j) “Electronic case reporting” is defined as the transmission of clinical, diagnostic, laboratory, and treatment-related data from reporting entities to the Department in a structured, computer-readable format that reflects comparable content to HL7 CDA (reg trademark) R2 Implementation Guide: Public Health Case Report, Release 2 - US Realm - the Electronic Initial Case Report (eICR). Electronic Initial Case Reporting is a form of electronic reporting. (k) “Electronic laboratory reporting” is defined as the transmission of laboratory or health-related data from reporting entities to the Department using HL7 ORU-R01 2.3.1 or 2.5.1, LOINC, and SNOMED standard message structure and vocabulary. Electronic laboratory reporting is a form of electronic reporting. (l) “Electronic reporting” The Utah administrative reporting languages is a good example of requiring providers to follow the eCR implementation guide.78 This action alone does not guarantee pregnancy status will be reported as the EHR vendor only has to conform to USCD1 v1 at this time (a proposed rule change slated for adoption by 2024 is underway).79 The State of Utah could create a more stringent requirement for reporting pregnancy status especially if USCDI v3 becomes the Certified EHR Technology (CEHRT) standard.

Minnesota administrative code specifies reporting of pregnancy status and expected date of delivery if the infection can be transmitted during pregnancy or delivery. This language is unique in requiring EDD, which is a valuable data element for determining if a pregnancy is current or occurred in the past.79 80
Key Elements of Public Health Reporting Language

The example state language provided in this document applies to all reportable conditions. When changing administrative language or code, the following guidance should be considered in addition to the examples of states provided in this document.

1) A requirement to report pregnancy status for reportable conditions where the health of a pregnant person, fetus, or infant may be affected. This includes:
   a. Reporting requirement specific to certain conditions -
      i. Emerging or reemerging diseases (e.g., COVID-19, mpox, Zika virus)
      ii. Any condition with known impacts on a pregnant person, fetus, or infant’s health, including but not limited to:
         • COVID-19
         • Hepatitis B
         • Hepatitis C
         • Syphilis
         • HIV
         • Rubella
         • Listeria
         • Zika virus
         • Novel influenza
         • Elevated blood lead
   b. Specificity for reporting method using electronic laboratory and electronic case reporting
   c. Reporting of pregnancy status as a specific data element (and preferably estimated date of delivery)

It is important to note public health agencies should specify exactly which pregnancy data elements are required when drafting or modifying administrative language. This level of detail may not be appropriate for codification but should be determined before the finalization of administrative language. There may also be a need to ensure pregnancy data remain protected and are not available for release beyond the purpose of public health investigation.

Administrative code or law language should include a minimum data standard for indicating pregnancy status, such as the recommended ELR guidance in this document or a reference to the version of the current eCR standard utilized for reporting.

Table 1. Pregnancy status reporting language by state

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Web Citation</th>
<th>Diseases Covered</th>
<th>Reporting Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utah27</td>
<td>R386-702-Communicable-Disease-Rule.pdf (utah.gov)</td>
<td>Certain perinatally-transmitted diseases include: hepatitis B infection; hepatitis C infection; HIV infection; listeriosis; rubella;</td>
<td>Contains specific eCR language</td>
</tr>
<tr>
<td>Location</td>
<td>Code/Link</td>
<td>Reporting Requirements</td>
<td>Relevant Links/Regulations</td>
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<tr>
<td>---------------</td>
<td>---------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Nebraska</td>
<td><a href="http://www.nebraska.gov">www.nebraska.gov</a></td>
<td>Pregnancy status should be reported if available and applicable; also contains code specifically for HIV</td>
<td>Require electronic laboratory ordering and electronic laboratory reporting</td>
</tr>
<tr>
<td>Arizona</td>
<td>Reportable-diseases-list.pdf (azdhs.gov) 9-06.fm (azsos.gov) (page 10)</td>
<td>Specificity for HIV and infant exposure</td>
<td>1. By telephone; 2. In a document sent by fax, delivery service, or mail; or 3. Through an electronic reporting system authorized by the Department</td>
</tr>
<tr>
<td>New York City</td>
<td>NYC Health Code, TITLE 24, Article 13, §13.03</td>
<td>Hepatitis B; pregnancy status is considered a reporting element</td>
<td>Laboratory/ELR/paper/case investigation</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>105 CMR 300 (mass.gov)</td>
<td>Requires reporting of novel influenza in pregnant women</td>
<td></td>
</tr>
<tr>
<td>Florida</td>
<td>Disease reporting</td>
<td>Hepatitis (all types); syphilis, plus special rules for Hepatitis B</td>
<td>Contains extensive ELR guidance; all disease reporting entities</td>
</tr>
<tr>
<td>Alaska</td>
<td>7 AAC 27.005 - Reporting by health care providers</td>
<td>State Regulations</td>
<td>All disease reporting entities</td>
</tr>
<tr>
<td>Kansas</td>
<td>Kansas Secretary of State - KAR Regulations (ks.gov)</td>
<td>All; pregnancy status is considered a reporting element. Also, specifically for hepatitis B, HIV, and syphilis.</td>
<td>All disease reporting entities</td>
</tr>
<tr>
<td>Iowa</td>
<td>139A.3.pdf (iowa.gov)</td>
<td>All; pregnancy status is considered a reporting element</td>
<td>All disease reporting entities</td>
</tr>
<tr>
<td>Minnesota</td>
<td>4605.7090 - MN Rules Part 4605.7044 - MN Rules Part</td>
<td>All perinatally-transmitted diseases must be reported within one working day of the knowledge of the pregnancy.</td>
<td>All disease reporting entities</td>
</tr>
<tr>
<td>Rhode Island</td>
<td>Section 216-RICR-30-05-1.5 - Timeframe, Methods, and Reportable Conditions, 216-30-05 R.I. Code R, § 1.5</td>
<td>All perinatally-transmitted diseases</td>
<td>All disease reporting entities</td>
</tr>
<tr>
<td></td>
<td>Section 216-RICR-30-05-1.6 - Special Disease Surveillance Projects, 216-30-05 R.I. Code R, § 1.6</td>
<td>Discretionary reporting code</td>
<td></td>
</tr>
<tr>
<td>Location</td>
<td>Reference</td>
<td>Reporting Entities</td>
<td>Disease Reporting</td>
</tr>
<tr>
<td>-------------</td>
<td>---------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Philadelphia</td>
<td>Philadelphia Department of Public Health - Report A Disease - PDPH Health Information Portal</td>
<td>Hepatitis B or C, HIV</td>
<td>All disease reporting entities</td>
</tr>
<tr>
<td>Arkansas</td>
<td>Rule 007.15.00-003 - Rules and Regulations for Communicable Disease Control - Prenatal testing of pregnant women for sexually transmitted diseases, 007-15-00 Ark. Code R. § 3</td>
<td>HIV, syphilis, hepatitis B</td>
<td>Provider testing, laboratory reporting</td>
</tr>
<tr>
<td>Hawaii</td>
<td>Communicable disease reporting</td>
<td>Hepatitis B testing in pregnancy</td>
<td>Laboratory</td>
</tr>
<tr>
<td>Mississippi</td>
<td>MDH Rules and Regulations Manual Template (ms.gov)</td>
<td>Hepatitis B and HIV in pregnancy</td>
<td>All disease reporting entities</td>
</tr>
<tr>
<td>Missouri</td>
<td>Diseases and Conditions Reportable In Missouri (19 CSR 20-20 (mo.gov))</td>
<td>Hepatitis B and HIV in pregnancy</td>
<td>All disease reporting entities</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>Section He-P 301.02 - Reportable Diseases, N.H. Code Admin. R. He-P 301.02</td>
<td>Hepatitis B in pregnancy</td>
<td>All disease reporting entities</td>
</tr>
</tbody>
</table>
Electronic Laboratory Reporting of Pregnancy Status Guidance

This section of the document provides guidance for capturing pregnancy status within a laboratory order and transmitting it to a public health agency via ELR.

Electronic laboratory reporting is not commonly used for capturing and submitting pregnancy status to public health agencies. However, during COVID-19, pregnancy status was a required data element for COVID-19 laboratory reporting which most labs accommodated by using the “ask at order entry” field. Outside of COVID-19 case reporting, pregnancy status is not often captured by laboratories as it is not clinically relevant or required for the interpretation of the test results. There is no established field for capturing pregnancy status in a lab order or for reporting it to a public health agency in an ELR data feed. A few states successfully capture pregnancy status by ELR for explicit conditions such as perinatal hepatitis B, but reporting is not consistently used by all providers ordering labs or laboratories reporting conditions to public health agencies. Jurisdictions receiving pregnancy status through ELR include the City of Philadelphia and New York City (limited to perinatal hepatitis B).

For jurisdictions that want to start capturing pregnancy status via ELR, the best practice is to use the observation (OBX) segment in HL7 v2 messages using the following terminologies for laboratory reporting of pregnancy status:

- OBX-3 (Observation Identifier) using LOINC: 82810-3 (Pregnancy status)

AND

- OBX-5 (Observation value) using SNOMED CT: 77386006^Pregnant (finding)^SCT, 60001007^Not pregnant (finding)^SCT, or 261665006^Unknown (qualifier value)^SCT or UNK^Unknown^NULLFL

Using an OBX to report pregnancy status is the most precise way of exchanging that information to public health regardless of how the knowledge was obtained at the laboratory (either by AOE, diagnosis code (ICD-10-CM code or problem list) or based on the type of test ordered (prenatal panel) or performed (pregnancy test). For more specifications, see Table 2.

Some laboratories use OBR-13 or 31 to indicate pregnancy status using text. This may be manually extracted and analyzed by public health agencies, but extraction requires significant effort and possibly delayed identification of pregnancy. It is recommended to use the OBX reporting approach as previously described.

To reiterate, changes in administrative code or law specific to the condition(s), data elements (i.e., pregnancy status (Y/N/UNK), estimated date of delivery), entities required to report these data (e.g., providers, laboratories), and reporting method (e.g., ELR, eCR, fax) may be necessary to implement this reporting process. Most laboratory tests for reportable conditions do not require pregnancy status for clinical interpretation of laboratory results; therefore, pregnancy status is not routinely obtained by laboratories. Pregnancy status can be inferred for lab test panels such as perinatal disease tests.
Table 2. Laboratory guidance for reporting pregnancy status using ELR: Recommended segments and additional options

<table>
<thead>
<tr>
<th>Segment</th>
<th>Value</th>
<th>Source</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Recommended Approach</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OBX-3</td>
<td>LOINC: 82810-3^Pregnancy status^LN</td>
<td>AOE or another source</td>
<td>Observation identifier; not repeatable. Contains the question. OBX-5 contains the response.</td>
</tr>
<tr>
<td>OBX-5</td>
<td>SNOMED-CT: 77386006^Pregnant (finding)^SCT 60001007^Not pregnant (finding)^SCT 261665006^Unknown (qualifier value)^SCT OR UNK^Unknown^NULLFL</td>
<td>AOE or another source</td>
<td>Observation response value</td>
</tr>
<tr>
<td>OBX-29</td>
<td>QST</td>
<td></td>
<td>Added in v2.9, Observation Type distinguishes an observation sent with an order from an observation that is the result of an order. It may not be present in all ELR messages, but adopting its use is recommended.</td>
</tr>
<tr>
<td>OBX-30</td>
<td>AOE – at order entry ASC – at specimen collection</td>
<td></td>
<td>Added in v2.9, Observation Sub-Type provides more detail on the Observation Type. In the current example, the proposed values indicate when the question about pregnancy was asked. It may not be present in all ELR messages, but adopting its use is recommended.</td>
</tr>
<tr>
<td><strong>Alternative Approaches Currently Utilized though not Recommended</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OBR-13</td>
<td>“Pregnant” “Prenatal” “Probable Pregnant”</td>
<td>Relevant clinical information</td>
<td>This may be abstracted from the DG1 segment included with the related order. Response options depend on lab configuration. This field can contain a simple text string or a code. It is often used for tests requiring clinical information and is not the best suited for capturing pregnancy status.</td>
</tr>
<tr>
<td>OBR-31</td>
<td>“Pregnant” “Prenatal” “Probable Pregnant”</td>
<td>Reason for study</td>
<td>Ababstracted from the DG1 segment included with the related order. Response options depend on lab configuration. While this field is a coded element (may use ICD-10-CM codes and could use SNOMED CT), it is not reserved for pregnancy status. Consequently, it is NOT recommended for use as it requires manual or analytic process extraction.</td>
</tr>
<tr>
<td>OBR-39</td>
<td>“Pregnant”, “Prenatal”, “Probable Pregnant”</td>
<td>Collector’s Comments</td>
<td>Response options depend on lab configuration. While this field is using a coded</td>
</tr>
</tbody>
</table>
Alternatives to HL7 field-based reporting

**Lists of pregnancy-related lab tests (e.g., excel workbook, line list) or patient line list**
A few public health agencies have developed relationships with laboratories where patient line lists are sent by laboratories for conditions where infection during pregnancy can have adverse outcomes (e.g., hepatitis B, HIV, syphilis). If this or similar manual approach is taken, laboratories should use the ICD-10-CM code Z33.1 for denoting pregnancy for faster data analysis.
Electronic Case Reporting Guidance

This section of the document provides guidance for capturing pregnancy status from an eICR.

Electronic case reporting is a potentially comprehensive method for submitting reportable conditions to public health agencies. eCR has been under development in many states and other jurisdictions for several years and adoption increased substantially in nearly all state public health agencies during the COVID-19 pandemic and mpox outbreak. However, there are many challenges with successfully expanding eCR to include conditions other than COVID-19 and mpox. Multiple public health jurisdictions report they do not often receive pregnancy status in an eICR. When pregnancy status is not provided despite its presence in the v1.1 and 3.1 versions of the eICR implementation guide, it is difficult to extract from the document as it may be part of a section of text or is not in a consistent location. The dates needed, such as EDD, to determine whether the pregnancy is current or in the past, are not always present.

According to the eICR implementation guide v1.1, pregnancy status is captured as an assertion in a Pregnancy Observation within the Social History section of the CDA document. According to the eICR implementation guide v3.1, pregnancy status is captured as a Pregnancy Observation within the Social History section, and expands the value set allowed to include options for “Possible pregnancy”, “Not pregnant”, and “Pregnant”. In both v1.1 and v3.1, the Pregnancy Observation is an optional entry in the Social History Section. There is currently no requirement for the inclusion of a Pregnancy Observation within an eICR document.

If pregnancy status is present in the EHR for a provider to indicate, it is expected to be reported as a Pregnancy Observation within the Social History section of the CDA; however, if not present in the EHR, the Pregnancy Observation may be left incomplete. This same decisioning applies to the additional pregnancy-related observations within the Pregnancy Section (i.e., gestational age, pregnancy outcome). If an EHR is not configured to report pregnancy status within the Pregnancy Observation of an eICR, pregnancy status may be reported as a Problem Observation. If a patient is currently pregnant, SNOMED or ICD-10-CM codes indicative of pregnancy may incidentally be found as a Problem Observation. The eICR implementation guides do not specify Problem Observation as a standardized method of pregnancy status reporting and this approach is not recommended.

The Pregnancy Section includes an extensible set of observations:

- The pregnancy status observation must be present within the Pregnancy Section if the section is present in the eICR document. All other observations within the Pregnancy Section are optional for reporting.
- The following elements are available for capture by eCR:
  - Pregnancy status recorded date
  - Pregnancy status date range
  - Pregnancy status (see Table 3)
  - Pregnancy status determination method
  - Pregnancy intention in the next year
  - Last menstrual period
- D(Rh) type
- D(Rh) type sensitized
- D immune globulin (RhIG) given
- Estimated gestational age of pregnancy determination date
- Estimated gestational age of pregnancy method
- Estimated gestational age (in days)
- Estimated date of delivery determination date
- Estimated date of delivery determination method
- Estimated delivery date
- Pregnancy outcome (added in V2.1.0)
- Pregnancy outcome determination date
- Pregnancy outcome determination method
- Postpartum status (added in V2.1.0)
- Postpartum determination date
- Postpartum determination method

For more information on eCR pregnancy status HL7 FHIR standards, use this web link: [eCR Pregnancy Status HL7 FHIR standards](https://www.hl7.org/implement/standards/product_brief.cfm?product_id=436).

For more information regarding HL7 CDA implementation of eCR, see this web link:


And utilize this version of the HL7 CDA Implementation Guide:


The following value set shall be used in populating the Pregnancy Observation in the Social History section (Table 3).

**Table 3. Pregnancy status value set**

<table>
<thead>
<tr>
<th>Code</th>
<th>Value Description</th>
<th>System</th>
</tr>
</thead>
<tbody>
<tr>
<td>102874004</td>
<td>Possible pregnancy (finding)</td>
<td>SNOMED CT</td>
</tr>
<tr>
<td>60001007</td>
<td>Not pregnant (finding)</td>
<td>SNOMED CT</td>
</tr>
<tr>
<td>77386006</td>
<td>Pregnant (finding)</td>
<td>SNOMED CT</td>
</tr>
<tr>
<td>UNK</td>
<td>Unknown</td>
<td>HL7 V3 Nullflavor</td>
</tr>
</tbody>
</table>
Public Heath Agency Progress, Challenges, and Best Practices for Advancing eCR

Public health agency progress in adopting and implementing eCR

Use and adoption of eCR has increased exponentially over the last few years due to support for reporting COVID-19, concerted efforts of CDC and public health agencies to recruit health system, providers, and EHR vendors to prioritize implementation of eICR exchange (Figure 2). Some public health agencies have hired recruitment specialists to work alongside CDC on provider enrollment. This extra effort can help increase the number of providers signing up to send eICRs. Many states such as CA, FL, and AZ have established electronic data systems teams to focus solely on ELR and eICR. While expertise in the area of eCR is limited in public health, often those who worked on setting up ELR are now assisting with eCR.

Addressing challenges with eCR

Adding new diseases

States are already receiving COVID-19 eICRs and most have expanded to include mpox. States are taking varied approaches in determining which diseases to add next. Some states are focusing on sexually-transmitted infections, as those eICRs tend to be isolated to a single healthcare provider visit and have more complete data relevant to the reportable condition.

In California, the Department of Public Health is focusing on expanding to diseases where laboratory confirmation is required and may be the only piece of information to confirm disease (e.g., cryptosporidiosis, cyclosporiasis) (see textbox “California Department of Health”).

Other agencies are working to improve the extraction of data from eICRs. In Florida, the department is trying to expand the number of sections parsed from the eICR to electronically import more data elements into their surveillance system. Other states such as WA and AZ
are using slimmed-down versions of the XML to improve data ingestion and use from what is provided by the CDA.¹

Data extraction and quality
The majority of public health agencies can extract demographics, provider, lab ordering, patient diagnoses, reason for visit, and chief complaint from eICRs using Mirth or Rhapsody, programs used to parse XML into human and machine-readable formats of data.¹²⁶³⁶⁵ Data may be split into a human-readable version, which is usually attached to a case report in a disease surveillance system, and a machine-readable version, which is loaded into databases for data quality review and cross-validation against other reporting sources. The difficulty with the use of a human-readable version is most records are dozens of pages and encompass multiple clinical visits, not just the visit related to the reportable condition. It takes public health staff significant time and effort to find relevant information for their investigations.⁶³⁶⁵

Data Quality
Another issue with broad utilization of eICR data is the absence of commonly used tools or reports for evaluating incoming data quality; however, a few states have developed custom processes (see textbox “Arizona Department of Health”).¹²⁶³⁶⁵ To support reportability determination, AIMS inline validation, which includes the implementation guide Schematron, checks incoming eICRs for key data elements that RCKMS needs for processing. CDC and APHL are beginning to address additional data quality issues with the use of a new Schematron, a tool for reviewing eICR documents during onboarding to evaluate data quality.¹⁶ This data quality tool will become available for local implementation by PHAs who choose to do so. In addition, the eCR onboarding process may be expedited by a new vendor certification process under development.²⁵⁵¹⁰⁰ The intent of certification is to have EHR vendors complete a more thorough data quality evaluation to ensure the right data elements are provided for disease reporting before reporting to states begins. This may reduce the effort required by jurisdictions to validate data and work with providers to adjust eICRs.

Uniformity in EHR vendors
The is significant variability in eICR content provided by providers, health systems, and even within the same EHR vendor product. Pregnancy status is inconsistently included as structure
data in the Pregnancy Observation; it is sometimes reported in unstructured text responses, or in the Problems List. Epic and Cerner are noted to be the most advanced in their ability to exchange eICR and prevalence of providers actively exchanging, while also the largest EHR vendors in the world, Theradoc and Meditech are frequently initiating exchanges as well. However, even among all Epic or all Cerner providers, the ability to consistently provide pregnancy status as a Pregnancy Observation varies. Some EHR vendors require certain software modules (e.g., Epic Stork) to be present to collect and report pregnancy status. For example, Epic can send pregnancy status in the Social History section, but only providers who accepted the 2022 upgrade can send EDD. All EHR vendor systems may require upgrades to fully meet requirements for eCR reporting. Other vendors are challenged in sending EDD as that data element is not included in FHIR mapping, so any vendor using the FHIR app, such as Cerner and Theradoc, cannot report EDD. Public health agency challenges are exacerbated by the need to track EHR vendor configurations, upgrades, and modules required for adequate eCR implementation.

ONC Health IT Certification Program Rule Changes

In April 2023, ONC proposed a rule to implement the EHR provision of the 21st Century Cures Act by establishing new conditions and maintenance certification requirements for health IT developers under the ONC Health IT Certification Program. EHR vendors are currently operating off of a set of requirements from 2015. This change would establish a new baseline version of the USCDI and would provide enhancements to support information sharing under information-blocking regulations.

With regard to eCR, functional requirements from 2015 are replaced with consensus-based standards according to § 170.315(f)(5) that include:

- Standards defining the functional requirements of eCR:
  - Create a case report for electronic transmission;
  - Consume and process a case report response; and
  - Consume and process electronic case reporting trigger codes and parameters.
- Transmit a case report electronically to a system capable of receiving an eICR
  - Agnostic to the recipient of the electronic case report; and
  - Does not prescribe a specific transport standard, reporting mechanism, or platform

The rule also mentions both the current HL7 C-CDA standards and the current HL7 FHIR-based standards as options. Few public health agencies have adopted FHIR-based messaging information systems, but interest may grow with the need to align to other programs using FHIR.

It is important to note, the change from an “edition”-based structure allows more consistent, incremental updates that recognize standards advancement, allow voluntary advancement in between certification standard updates, no longer require the entire certification of the Health IT Module, and provides predictable timelines for standards development cycles.
Lastly, these rule changes are inclusive of a move from USCDI v1 to v3. USCDI v3 includes the Pregnancy Section of a CDA. Adoption of USCDI v3 by ONC into the requirements for EHR certification incentivizes vendors to capture the pregnancy status data elements in EHR systems in a way that is transmittable to public health. While this shift ensures better data capture in the future, the change will take years to implement.100

Collaboration with CDC and Healthcare Providers
CDC is the starting point for all eCR provider onboarding, though CDC communicates with public health agencies who have jurisdictional precedence throughout the onboarding process.3 Test data are examined throughout the onboarding process but the review is typically limited to whether data are present for basic fields. Validation or testing does not currently include an extensive review of data quality for checks on frequency, completeness, accurate coding, etc. Public health agencies are able to review and approve providers for submission of eICRs following the onboarding phase. To ensure optimal transition from CDC to public health agencies, agencies should attempt to work closely with CDC throughout onboarding activities.

Even with a succinct transition, public health agencies struggle correcting data quality errors as adjustments are often the responsibility of infection prevention staff, IT, or others. Those personnel lack access to state surveillance systems to review how the data are coming through.63-65

Another challenge faced by public health agencies is the need to create matching algorithms to align the content of ELR and other reportable condition reports with eICR data.1,63-65 Matching algorithms can identify whether a new patient should be created or if data should be added to an existing case investigation.1 States may also work toward quicker ingestion of eICR information into their local database or surveillance system if the agency focuses on a smaller subset of the CDA or on diseases that only require a lab test to qualify as a case.

The role of advanced analytics
Several states have proposed that using machine learning (ML) or natural language processing (NLP) analyses could improve overall data extraction from eICRs. Applying ML to eICR and ELR dual data feeds could create more complete case reports. NLP would also be valuable in extracting key data items from text sections within an eICR, such as pregnancy status.2,64 NLP could also be used to extract information regarding travel history, exposure, or

Arizona Department of Health:

The Arizona Department of Health is taking lessons learned from the implementation of ELR. The AZ Electronic Systems Program developed data quality reports using an R program. These reports assess data loaded to a SQL database before they are pushed into a production database. Reports determine completeness and validity. The findings of these data quality reports are used to make internal corrections to data feeds and in the future will be shared with healthcare data suppliers.
other public health information. Analyzing unstructured data could provide essential data to complement structured data. 

Advocacy
Public health agency staff should participate in CSTE/APHL eCR or RCKMS communities of practice and workgroups to collaborate and share best practices between jurisdictions, as well as provide feedback and insight into successes and challenges experienced with eCR. Participation in these types of groups can help increase the number of conditions authored and data consumed from eICR documents.
eCR Resources

The following is a list of resources for public health agencies to use in furthering pregnancy status reporting, data capture, and electronic means of reportable condition reporting.

Comprehensive list of state and public health interoperability websites
Appendix IV - State and Local Public Health Readiness for Interoperability | Interoperability Standards Advisory (ISA) (healthit.gov)\textsuperscript{105}

State Agency Information
The Difference Between eCR and Traditional Case Reporting - YouTube\textsuperscript{106}

Why it’s essential to improve data collection and reporting | AMA COVID-19 Daily Update Video | AMA (ama-assn.org)\textsuperscript{107}

June 4, 2020
American Medical Association (AMA) Chief Experience Officer Todd Unger speaks with healthcare professionals on the need for improved data collection and reporting on COVID-19. Speakers include Laura Conn (eCR lead for CDC), Andrea Garcia (AMA), and Janet Hamilton (Council of State and Territorial Epidemiologists).

Requirements from the ONC 2015 CEHRT rule

2015 Edition Health IT Certification Criterion § 170.315(f)(5) (Transmission to public health agencies-electronic case reporting), page 62667\textsuperscript{108}

“\textit{To meet this certification criterion, a Health IT Module must be able to}

- (1) consume and maintain a table of trigger codes to determine which encounters should initiate an initial case report being sent to public health to determine reportability; and
- (2) when a trigger is matched, create an initial case report that includes specific data (Common Clinical Data Set; encounter diagnoses; provider name, office contact information, and reason for visit, and an identifier representing the row and version of the trigger table that triggered the case report).”

CMS Rules for Promoting Interoperability Program and Merit-Based Incentive Payment System

eCR qualifies as an objective for eligible facilities participating in the Promoting Interoperability Program (PIP), formerly called Meaningful Use.

- CMS: Promoting Interoperability Programs\textsuperscript{68}
- Promoting Interoperability\textsuperscript{109}

Effective January 1, 2022, eCR is required by the Centers for Medicare and Medicaid Services' Promoting Interoperability Program (PIP) for eligible hospitals and critical access hospitals
(CAHs) and the Merit-Based Incentive Payment System (MIPS) Promoting Interoperability Performance Category for eligible clinicians.

The following further details those reporting requirements:

- National Archives: Federal Register: Medicare Program; Hospital Inpatient Prospective Payment Systems for Acute Care Hospitals and the Long-Term Care Hospital Prospective Payment System and Policy Changes and Fiscal Year 2022 Rates Quality Programs and Medicare Promoting Interoperability Program Requirements for Eligible Hospitals and Critical Access Hospitals; Changes to Medicaid Provider Enrollment; and Changes to the Medicare Shared Savings Program. A Rule by the Centers for Medicare & Medicaid Services on 08/13/2021.
- National Archives: Federal Register: Medicare Program; CY 2022 Payment Policies Under the Physician Fee Schedule and Other Changes to Part B Payment Policies Medicare Shared Savings Program Requirements; Provider Enrollment Regulation Updates; and Provider and Supplier Prepayment and Post-Payment Medical Review Requirements. A Rule by the Centers for Medicare & Medicaid Services on 11/19/2021

Federal Agency Information - CDC, AIMS, RCKMS
- CDC: Electronic case reporting (eCR)
  - CDC: What is eCR?
  - CDC eCR helpful information: How does eCR work, getting started, and, some Digital resources
  - eICR Data Flow Diagram
  - How does electronic case reporting (eCR) work?
  - eCR: eCR Now FHIR App
  - eCR Implementation Requirements Checklist (aimsplatform.org)

- Reportable Conditions Knowledge Management System (RCKMS)
- HL7 eICR CDA R2 Implementation Guide & Standard
- Reportable Disease Rule (Communicable Disease Reporting Rule)
- Presentation: Electronic Case Reporting (eCR) (PDF)
- AIMS general information for eCR Implementation process: includes checklists and testing information “for Providers”
- eCR NOW information
- eCR Implementation Standards
- General information

Healthcare Facilities in Production for eCR | CDC
References

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https://www.law.cornell.edu/regulations/alaska/7-AAC-27.005
87. Iowa So. COMMUNICABLE AND INFECTIONIOUS DISEASES AND POISONINGS, §139A.3.
89. Island SoR. Section 216-RICR-30-05-1.5 - Timeframe, Methods, and Reportable Conditions, 216-30-05 R.I. Code R. § 1.5. Updated 2022.
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https://www.sos.ms.gov/adminsearch/ACCode/00000200c.pdf
96. Lazaroff J. Interview - New York City Health Department. 2022.
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