Office of the National Coordinator for Health Information Technology

# Interoperability of Maternity Health Care Records: Best Practices Informational Resource

March 2024

Please note, this Informational Resource (IR) is current as of March 2024and is intended to support best practices for healthcare settings implementing health IT for maternal healthcare. The Office of the National Coordinator for Health IT intends to publish an updated version which will include tools and resources for maternal health programs from across the Department of Health and Human Services.

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# Executive Summary

### Background

As part of the House Report of the Consolidated Appropriations Act, 2023 (P.L. 117-328), Congress charged HHS with responding to the following request:

Interoperability of Maternity Care Records — The Committee recognizes that Personal Health Records for pregnant people are needed to improve patient health and safety as they move from one level of care to another during pregnancy, and that efforts must continue to improve the interoperability of electronic health records in order to optimize the care of pregnant persons. The Committee requests that within one year of enactment of this Act, HHS create and publish guidelines that address Perinatal Care and that leverage the skills of all providers, including physicians and midwives, and all sites of care, including hospitals and freestanding birth centers. The guidelines should also outline best practices for creating and maintaining accessible, longitudinal peri- and post-natal health records for patients. (House Report 117-403, page 233-234)

### Overview

The development of this document was facilitated by the Office of the National Coordinator for Health Information Technology (ONC) and is informed by maternal health subject matter experts from across the Department of Health and Human Services. This document is intended to support and inform the implementation of health IT products used by maternal healthcare providers. These providers have an important role to play in health IT implementation to optimize care delivery, decision-making, and peri- and post-natal health outcomes. This document also supplements the previously published ONC Pediatric Health IT Developer and Provider Informational Resources and Neonatal Abstinence Syndrome Informational Resource. It responds to the Congressional request to improve the interoperability of electronic health records to optimize the care of pregnant persons and to outline best practices for creating and maintaining accessible, longitudinal peri- and post-natal health records for patients. Perinatal care guidelines are included, when available, as they may inform potential new guideline development. We note that new guideline development is an iterative process based upon evolving best practice, scientific evidence, research, and specialty society activities that inform practice guideline development.

### Purpose

This document focuses on the functionalities and standards that maternal healthcare providers may leverage in health IT to support the safe and effective healthcare of pregnant persons as part of peri- and post-natal care and to advance the interoperability (capture, exchange, and use) of this health data. This document offers an initial:

- outline for using existing ONC Certification Criteria for Health IT, adopted and emerging standards, and other relevant implementation and technical resources and tools, as known and available, to support the health IT needs of peri- and post-natal health care in practice settings; and
- identification of other technical resources and tools to inform best practices and to support the successful implementation of health IT that support peri- and post-natal clinical priorities in practice settings, includes references to relevant HHS programs, and highlights gaps in existing certification criteria and interoperability standards that are broadly supportive across various settings and use cases.

This document is not intended to serve as legal advice, medical advice, or recommendations to fit a health provider's or professional's specific circumstances. It is informed by HHS subject matter experts including those executing programs that address perinatal care involving different provider types from across various sites of care – including physicians and midwives, hospitals and free-standing birth centers. We note that future iterations supported by funded activities, such as partner outreach and pilots, could further inform the current state of best practices and priorities and contribute to new or updated guideline development. Finally, we note that throughout this document we have used multiple terms (e.g., "maternal," "mother," "parent," or "pregnant person") due to variations in language used in source materials – including the 2023 House Report which is specific to maternity care record interoperability. We have sought to maintain consistency with these sources. For the purposes of this informational resource for health IT, we note that these terms should be considered as inclusive rather than distinctive.

# Interoperability of Maternity Care Records: Optimizing Care by Leveraging Health IT

The United States has the highest maternal mortality rate among high-income countries[1] and the Biden-Harris Administration is committed to cutting the rates of maternal mortality and morbidity, reducing the disparities in maternal health outcomes, and improving the overall experience of pregnancy, birth, and postpartum for people across the country. The White House Blueprint for Addressing the Maternal Health Crisis[2] lays out specific actions and goals that the federal government will take to improve maternal health. Goal 3 of this blueprint focuses on advancing data collection, standardization, harmonization, transparency, and research. This goal recognizes gaps in data related to maternal health and the need for consistent data collection and for standardizing data definitions and formats and outlines actions to build a data-driven health system that delivers high-quality maternity care.

## United States Core Data for Interoperability (USCDI) and USCDI+ Maternal Health

One action involves the United States Core Data for Interoperability (USCDI ).[3] ONC oversees the USCDI, which is a standardized set of health data classes and constituent data elements for nationwide, interoperable health information exchange. USCDI is updated and incrementally expands on an annual basis through a predictable, transparent, and collaborative process that involves public input. USCDI version 1 is adopted as a standard in the ONC Cures Act Final Rule[4]. The USCDI includes key maternal health data elements as well as data elements supporting health equity that are essential for representation of patient goals and treatment plans including birth plans, as well as social determinants of health (SDOH) goals, and identifying a care team. Although USCDI version 3 includes a data class indicating pregnancy status, ONC and other HHS partners have agreed that there are additional types of data that must be electronically available to support the needs of pregnant people.

ONC is developing a comprehensive data element list through the USCDI+ Maternal Health , which extends the USCDI, to include data elements that are necessary for high quality maternal care, equitable outcomes, maternal health research, and to support maternal public health initiatives. USCDI+ Maternal Health outlines the information regarding the peri- and post-natal periods that should be electronically available and standardized to support appropriate terminology standards to use within health information technology systems. This, in turn, supports the interoperable flow of information that follows the patient and is part of care coordination across the various provider types

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[1] White House Blueprint for Addressing the Maternal Health Crisis https://www.whitehouse.gov/wp-content/uploads/2022/06/Maternal-Health-Blueprint.pdf
[2] White House Blueprint for Addressing the Maternal Health Crisis https://www.whitehouse.gov/wp-content/uploads/2022/06/Maternal-Health-Blueprint.pdf
[3] https://www.healthit.gov/isa/united-states-core-data-interoperability-uscdi
[4] https://www.federalregister.gov/documents/2020/05/01/2020-07419/21st-century-cures-act-interoperability-information-blocking-and-the-onc-health-it-certification

that are part of the patient's care team. USCDI+ Maternal Health serves as the reference to guide development and adoption of data standards, making the data usable for public health initiatives and research. ONC is exploring ways to foster adoption among federal partners and industry stakeholders of this standards-based approach within technical innovations and harmonization of these data elements that are tied to improved maternal health outcomes.

USCDI+ Maternal Health is complemented by another project ONC led in fulfillment of the commitment included in the Executive Order 14058[5] on Transforming Federal Customer Experience and Service Delivery to Rebuild Trust in Government. For this project ONC worked with partners[6] to test methods that automate patient access to electronic prenatal, birth, and postpartum health records (including lab results, genetic tests, ultrasound images, and clinical notes) to improve patient experiences in maternity care, health outcomes, and equity. This project was informed by interviews that were conducted by the U.S. Digital Service where women shared how impactful it was – or would have been – to get convenient, digital access to their health records.

The USCDI+ Maternal Health can be viewed on the USCDI+ platform.

## Clinical Focus Areas

This section outlines specific clinical focus areas identified as high value and impactful for maternity care outcome improvement that HHS subject matter experts identified as benefiting from using health IT for providing care, enabling shared decision making, and advancing interoperability beyond care delivery purposes. For each clinical focus area, it outlines the following:

| Clinical Focus Area | Description | Health IT Standard(s) | ONC Certification Criteria | Tools/Resources |
|---|---|---|---|---|

Clinical focus areas include where individuals seek care in different clinical settings (e.g., emergency room departments, clinics, labor, and delivery units, etc.) and locations (e.g., rural, semiurban, urban). The interoperability of maternity care records has the potential to strengthen the ways in which clinical care systems can respond to patient needs. The data elements associated with specific clinical focus areas are crucial for record interoperability to enable different providers and institutions to access information that affects patient care. As a result, these data can be used for quality improvement and/or research-focused efforts.

[5] https://www.whitehouse.gov/briefing-room/presidential-actions/2021/12/13/executive-order-on-transforming-federal-customer-experience-and-service-delivery-to-rebuild-trust-in-government/
[6] https://www.performance.gov/blog/2023-empowering-mothers-maternity-care-records-partnership/

## Clinical Focus Area 1: Transitions in Care

**Description:**

Pregnant individuals may experience challenges with transitions in care from pregnancy to postpartum and primary care. Transitions can be complicated by the multiple types of clinicians (e.g., obstetrician gynecologists, maternal-fetal medicine specialists, certified nurse midwives, family practice clinicians, women's health nurse practitioners, prenatal care clinics) and varying healthcare settings that may be involved (e.g., hospital/birthing center, primary care).

The opportunity to keep more pregnant individuals in high quality postpartum care is greater than ever with Medicaid expansion of postpartum care to 12 months in 38 states.[7]

Barriers to transitions from obstetric care to postpartum care in primary and other specialty care (e.g., mental health, cardiology, endocrinology) include lack of record sharing and interoperability between the various health care providers and systems, respectively.

Opportunities to strengthen transitions from delivery to postpartum care include leveraging perinatal quality collaboratives (PQCs) to strengthen transition from delivery to postpartum care to close care coordination and care management gaps as well as map patient and clinic workflows.

**Health IT Standards Adopted under PHSA §§ 3001 and 3004:**

- Services/Exchange –
  - Applicability Statement for Secure Health Transport, Version 1.2, August 2015 (Direct))
  - ONC Implementation Guide for Direct Edge Protocols, Version 1.1, June 25, 2014
  - Implementation Guide for Delivery Notification in Direct, Version 1.0, June 29, 2012
  - XDR and XDM for Direct Messaging Specification, Version 1, March 9, 2011
  - IHE IT Infrastructure Technical Framework Volume 2b (ITI TF-2b), Transactions Part B - Sections 3.29 - 2.43, Revision 7.0, August 10, 2010
- Content/Structure - Summary Care Record
  - HL7 Implementation Guide for CDA® Release 2: IHE Health Story Consolidation, DSTU Release 1.1 (US Realm) Draft Standard for Trial Use July 2012

[2] Medicaid Postpartum Coverage Extension Tracker
https://www.kff.org/medicaid/issue-brief/medicaid-postpartum-coverage-extension-tracker/

  - HL7 Implementation Guide for CDA® Release 2: Consolidated CDA Templates for Clinical Notes (US Realm), Draft Standard for Trial Use, Volume 1 - Introductory Material, Release 2.1, August 2015
  - HL7 Implementation Guide for CDA® Release 2: Consolidated CDA Templates for Clinical Notes (US Realm), Draft Standard for Trial Use, Volume 2 - Templates and Supporting Material, Release 2.1, August 2015
  - HL7® CDA R2 Implementation Guide: C-CDA Templates for Clinical Notes R2.1 Companion Guide, Release 2-US Realm, October 2019 (adoption expires January 1, 2026)
  - HL7® CDA® R2 Implementation Guide: C–CDA Templates for Clinical Notes STU Companion Guide, Release 4.1—US Realm
- Content/Structure - Security Tags for Sensitive Information - Data Segmentation for Privacy
- HL7 Version 3 Implementation Guide: Data Segmentation for Privacy (DS4P), Release 1, Part 1: CDA R2 and Privacy Metadata Reusable Content Profile, May 16, 2014 United States Core Data for Interoperability
  - United States Core Data for Interoperability (USCDI) v3
  - Services/Exchange – Query (Application Programming Interfaces) - Fast Healthcare Interoperability Resources (FHIR)
  - HL7 Fast Healthcare Interoperability Resources Specification (FHIR®) Release 4, Version 4.0.1: R4, October 30, 2019, including Technical Correction #1, November 1, 2019

**HL7 FHIR® US Core Implementation Guide STU 3.1.1, August 28, 2020 ONC Certification Criteria for Health IT Adopted under PHSA §§ 3001 and 3004:**

- Transitions of care – 45 C.F.R. § 170.315(b)(1)
- Security Tags - summary of care - send - 45 C.F.R. § 170.315(b)(7)
- Security Tags - summary of care - receive - 45 C.F.R. § 170.315(b)(8)
- Standardized API for patient and population services - 45 C.F.R. § 170.315(g)(10)

**Additional Standards and Specifications:**

- USCDI+ Maternal Health

- Bidirectional Services eReferral (BSeR) FHIR IG. This Implementation Guide (IG) provides guidance for using the HL7 FHIR standard as an exchange format for clinical and non-clinical referrals to be communicated in the form of service requests. The goal of the BSeR project is to streamline and enhance the efficacy of the exchange of health information between health care systems and community services organizations involved in addressing chronic health conditions by establishing information exchange standards for electronic referrals and referral outcome reporting.

## Clinical Focus Area 2: Linking Maternal and Infant Health Records to Support Care for Better Maternal and Infant Outcomes

**Description:**

Point-of-care access to some maternal health and demographic information is critical for the care of a newborn patient. Critical health information may include but is not limited to maternal infections, immunizations, blood type, maternal substance use that can affect babies (tobacco, alcohol, opiates), behavioral health disorders, and heritable genetic conditions. Associating maternal information with a newborn is important to the well-being of children in inpatient hospitals and upon transfer to an outpatient pediatric setting or another hospital.

Linkages allow provision of appropriate infant care (e.g., to determine if RSV nirsevimab immunization is indicated based on mother's RSV vaccination status), identification of risk factors for children from prenatal exposures (e.g., substance use), and identification and addressing unmet social needs at the family level (e.g., food insecurity).

Having the ability to link parental health (usually referred to as maternal health) to the infant, can make it less challenging and more efficient in making clear health decisions for both the parent and the child. The secondary use of data from clinical settings would also benefit from a standardized approach to parent/child linkages. Technical solutions should ensure consent and privacy for situations such as adoption (see clinical focus area #7). This clinical focus area further suggests that a minimum set of data related to maternal health and demographics is available to an authorized care team member.

- Health IT Standards Adopted under PHSA §§ 3001 and 3004:Content/Structure - Summary Care Record
    - HL7 Implementation Guide for CDA® Release 2: IHE Health Story Consolidation, DSTU Release 1.1 (US Realm) Draft Standard for Trial Use July 2012
    - HL7 Implementation Guide for CDA® Release 2: Consolidated CDA Templates for Clinical Notes (US Realm), Draft Standard for Trial Use, Volume 1 - Introductory Material, Release 2.1, August 2015

  - HL7 Implementation Guide for CDA® Release 2: Consolidated CDA Templates for Clinical Notes (US Realm), Draft Standard for Trial Use, Volume 2 - Templates and Supporting Material, Release 2.1, August 2015
  - HL7® CDA R2 Implementation Guide: C-CDA Templates for Clinical Notes R2.1 Companion Guide, Release 2-US Realm, October 2019 (adoption expires January 1, 2026)
  - HL7® CDA® R2 Implementation Guide: C–CDA Templates for Clinical Notes STU Companion Guide, Release 4.1—US Realm
- Vocabulary/Code Set/Terminology – Family Health History
  - SNOMED CT® [Systematized Nomenclature of Medicine Clinical Terms] U.S. Edition, March 2022 Release
- Vocabulary/Code Set/Terminology – Demographics including Race and Ethnicity
  - CDC Race and Ethnicity Code Set Version 1.2
- United States Core Data for Interoperability
  - United States Core Data for Interoperability (USCDI) v3

**ONC Certification Criteria for Health IT Adopted under PHSA §§ 3001 and 3004:**

**Care plan** - 45 C.F.R. § 170.315(b)(9)

- Demographics - 45 C.F.R. § 170.315(a)(5)
- Family health history - 45 C.F.R. § 170.315(a)(12)
- Social, psychological, and behavioral data - 45 C.F.R. § 170.315(a)(15)

**Additional Standards and Specifications:**

- ONC Pediatric Health Information Technology Informational Resource, "Recommendation 8: Associate Maternal Health Information and Demographics with Newborn" for implementation resources and other technical resources and tools supporting this clinical focus area/priority.
- USCDI+ Maternal Health
- HL7 FHIR resources
  - FamilyMemberHistory
  - RelatedPerson
  - Encounter.partOf
- HL7 V2 Patient Identification Segment (PID.21)

- Birth and Fetal Death Reporting Implementation Guide (IG): This implementation guide (IG) defines a series of Health Level Seven (HL7®) Fast Healthcare Interoperability Resources (FHIR®) profiles to represent electronic birth and fetal death reporting (BFDR). It includes the content of medical/health information on live births and fetal deaths for select state and federal birth and fetal death reporting, as indicated in the 2003 Revision of the U.S. Standard Certificate of Live Birth and the 2003 Revision of the U.S. Standard Report of Fetal Death. Additionally, it includes the content related to the prenatal and labor and delivery periods that is exchanged between electronic health record (EHR) systems, vital records offices (VROs) and from VROs to the CDC National Center for Health Statistics (NCHS).
- Longitudinal Maternal & Infant Health Information for Research FHIR Implementation Guide (IG). This H7 FHIR (IG) defines a framework to enable maternal health researchers to aggregate, calculate, and analyze clinical information of research populations to explore the root causes for maternal and child morbidity and mortality and includes how to link maternal longitudinal record with associated child/children records.
    - HL7 FHIR Maternal and Infant Health Research IG Home Page - FHIR v4.0.1

## Clinical Focus Area 3: Severe Maternal Morbidity/Mortality

**Description:**

Severe maternal morbidity (SMM)[8] refer to the unexpected outcomes of labor and delivery that affect a person's short- and long-term health, and without proper treatment, can result in maternal mortality. SMM is a significant clinical issue as the incidence of these events is increasing, much like maternal mortality rates. Interoperability[9,5] efforts should report SMM events during pregnancy and through the first year postpartum so that providers can access the details of critical health events for patients and appropriately provide care.

**Health IT Standards Adopted under PHSA §§ 3001 and 3004:**

- Content/Structure – Public Health Reporting
    - CDC PHIN Messaging Guide for Syndromic Surveillance: Emergency Department, Urgent Care, Inpatient and Ambulatory Care Settings, Release 2.0, April 21, 2015
    - Erratum to the CDC PHIN 2.0 Implementation Guide, August 2015; Erratum to the CDC PHIN 2.0 Messaging Guide, April 2015 Release for Syndromic Surveillance: Emergency Department, Urgent Care, Inpatient and Ambulatory Care Settings

[8] https://www.cdc.gov/nchs/data/nhsr/nhsr166.pdf
[9] https://www.cdc.gov/nchs/data/hestat/maternal-mortality/2021/maternal-mortality-rates-2021.htm

- HL7® CDA® R2 Implementation Guide: Healthcare Associated Infection (HAI) Reports, Release 3 - US Realm, December 2020
- HL7 Implementation Guide for CDA® Release 2: National Health Care Surveys (NHCS), Release 1 - US Realm, HL7 Draft Standard for Trial Use, Volume 1 - Introductory Material, December 2014
- HL7 Implementation Guide for CDA® Release 2: National Health Care Surveys (NHCS), Release 1 - US Realm, HL7 Draft Standard for Trial Use, Volume 2 - Templates and Supporting Material, December 2014
- HL7 v2.5.1 IG: Electronic Laboratory Reporting to Public Health (US Realm), Release 1 Errata and Clarifications, September, 29, 2011
- ELR 2.5.1 Clarification Document for EHR Technology Certification, July 16, 2012

- Vocabulary/Code Set/Terminology – Family Health History, Encounter Diagnosis, Assessment and Plan, Labs, Medications, and Clinical Notes
  - SNOMED CT® [Systematized Nomenclature of Medicine Clinical Terms] U.S. Edition, March 2022 Release (SNOMED link is example for family health history, standard is used for multiple data classes)
  - Logical Observation Identifiers Names and Codes (LOINC®) version 2.72, February 2022
  - RxNorm, Full Update Release, July 5, 2022
- Vocabulary/Code Set/Terminology – Social, Psychological, and Behavioral Data
  - Logical Observation Identifiers Names and Codes (LOINC®) version 2.72, February 2022
- Vocabulary/Code Set/Terminology – Demographics including Race and Ethnicity
  - CDC Race and Ethnicity Code Set Version 1.2
- United States Core Data for Interoperability
  - United States Core Data for Interoperability (USCDI) v3
- Services/Exchange – Query (Application Programming Interfaces) - Fast Healthcare Interoperability Resources (FHIR)
  - HL7 Fast Healthcare Interoperability Resources Specification (FHIR®) Release 4, Version 4.0.1: R4, October 30, 2019, including Technical Correction #1, November 1, 2019
  - HL7 FHIR® US Core Implementation Guide STU 3.1.1, August 28, 2020

**ONC Certification Criteria for Health IT Adopted under PHSA §§ 3001 and 3004:**

- Computerized provider order entry [CPOE] – medications - 45 C.F.R. § 170.315(a)(1)
- Computerized provider order entry– laboratory - 45 C.F.R. § 170.315(a)(2)
- Computerized provider order entry– diagnostic imaging - 45 C.F.R. § 170.315(a)(3)
- Drug-drug, drug-allergy interaction checks for CPOE - 45 C.F.R. § 170.315(a)(4)
- Demographics - 45 C.F.R. § 170.315(a)(5)
- Clinical decision support (CDS) - 45 C.F.R. § 170.315(b)(11)
- Family health history - 45 C.F.R. § 170.315(a)(12)
- Social, psychological, and behavioral data - 45 C.F.R. § 170.315(a)(15)
- Transmission to public health agencies — syndromic surveillance - 45 C.F.R. § 170.315(f)(2)
- Transmission to public health agencies – reportable laboratory tests and values/results -45 C.F.R. § 170.315(f)(3)
- Transmission to public health agencies — antimicrobial use and resistance reporting - 45 C.F.R. § 170.315(f)(6)
- Transmission to public health agencies — health care surveys - 45 C.F.R. § 170.315(f)(7)
- Standardized API for patient and population services - 45 C.F.R. § 170.315(g)(10)

**Additional Standards and Specifications:**

- USCDI+ Maternal Health
- Longitudinal Maternal & Infant Health Information for Research FHIR Implementation Guide (IG): This H7 FHIR (IG) defines a framework to enable maternal health researchers to aggregate, calculate, and analyze clinical information of research populations to explore the root causes for maternal and child morbidity and mortality and includes how to link maternal longitudinal record with associated child/children records.
    - HL7.FHIR.US.MIHR\Home Page - FHIR v4.0.1
    - Maternal and Infant Health Research (FHIR IG) (hl7.org)
- HL7 new and updated electronic laboratory order and results implementation specifications:
    - HL7 Version 2.5.1 Implementation Guide: Laboratory Orders (LOI) from EHR, Release 1, STU Release 4 - US Realm

  - HL7 Version 2.5.1 Implementation Guide: Laboratory Results Interface, Release 1 STU Release 4 - US Realm (LRI)
  - HL7 FHIR USLab Report
- HL7 Vital Records Death Reporting (VRDR) FHIR Implementation Guide 2.0.0 – STU 2
- HL7 FHIR® Vital Records Birth and Fetal Death Reporting–1.1.0 - STU 1.1, November 10, 2023

## Clinical Focus Area 4: Hypertension

**Description:**

Elevated blood pressure, either as a result of chronic hypertension (i.e., pre-existing to pregnancy) or preeclampsia/gestational hypertension (i.e., elevated blood pressures due to pregnancy), has tremendous implications for pregnancy and the postpartum period. Data has demonstrated that developing preeclampsia/gestational hypertension in pregnancy has significant long term cardiovascular health implications[10] (e.g., elevated risk of hypertension and cardiovascular disease later in life). In caring for a pregnant person, it can often be difficult to understand whether they had a diagnosis of hypertension prior to pregnancy, or the type of hypertension care they received in inpatient, outpatient, and postpartum settings. Enabling both obstetric and non-obstetric providers to understand the details, including chronicity, of a person's hypertension care in pregnancy can be important in minimizing morbidity during pregnancy and the postpartum period as well as in coordinating appropriate care and follow-up for their general health.

**Health IT Standards Adopted under PHSA §§ 3001 and 3004:**

- Vocabulary/Code Set/Terminology – Family Health History, Encounter Diagnosis, Assessment and Plan, Labs, Medications, and Clinical Notes
  - SNOMED CT® [Systematized Nomenclature of Medicine Clinical Terms] U.S. Edition, March 2022 Release (SNOMED link is example for family health history, standard is used for multiple data classes)
  - Logical Observation Identifiers Names and Codes (LOINC®) version 2.72, February 2022
  - RxNorm, Full Update Release, July 5, 2022
- Vocabulary/Code Set/Terminology – Social, Psychological, and Behavioral Data
  - Logical Observation Identifiers Names and Codes (LOINC®) version 2.72, February 2022
- Vocabulary/Code Set/Terminology – Demographics including Race and Ethnicity

[10] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10060641/

  - CDC Race and Ethnicity Code Set Version 1.2
- United States Core Data for Interoperability
  - United States Core Data for Interoperability (USCDI) v3
- Services/Exchange – Query (Application Programming Interfaces) - Fast Healthcare Interoperability Resources (FHIR)
  - HL7 Fast Healthcare Interoperability Resources Specification (FHIR®) Release 4, Version 4.0.1: R4, October 30, 2019, including Technical Correction #1, November 1, 2019
  - HL7 FHIR® US Core Implementation Guide STU 3.1.1, August 28, 2020

**ONC Certification Criteria for Health IT Adopted under PHSA §§ 3001 and 3004:**

- Demographics - 45 C.F.R. § 170.315(a)(5)
- Clinical decision support (CDS) - 45 C.F.R. § 170.315(a)(9) until December 2024 or (b)(11)
- Family health history - 45 C.F.R. § 170.315(a)(12)
- Social, psychological, and behavioral data - 45 C.F.R. § 170.315(a)(15)
- Standardized API for patient and population services - 45 C.F.R. § 170.315 (g)(10)

**Additional Standards and Specifications:**

- USCDI+ Maternal Health
- Longitudinal Maternal & Infant Health Information for Research FHIR Implementation Guide (IG): This H7 FHIR (IG) defines a framework to enable maternal health researchers to aggregate, calculate, and analyze clinical information of research populations to explore the root causes for maternal and child morbidity and mortality and includes how to link maternal longitudinal record with associated child/children records.
  - HL7.FHIR.US.MIHR\Home Page - FHIR v4.0.1
  - Maternal and Infant Health Research (FHIR IG) (hl7.org)

## Clinical Focus Area 5: Mental Health and Mood Disorders

**Description:**

Depression and anxiety are significant contributors to an individual's health status prior to, during, and after pregnancy. Maternal mental health conditions are a leading cause of maternal more

pregnancy-related deaths,[11] and postpartum depression is the most common complication for those who have just had a baby, with nearly 1 in 7 women receiving the diagnosis[12]. Ensuring the interoperability of maternity care records include diagnosis and treatment details of mental health or mood disorders can enable providers to provide ongoing and consistent care, the latter of which is difficult to attain, particularly in the postpartum period where care often becomes fragmented.

**Health IT Standards and Certification Criteria Adopted under PHSA §§ 3001(c)(5) and 3004:**

- Content/Structure - Summary Care Record
  - HL7 Implementation Guide for CDA® Release 2: IHE Health Story Consolidation, DSTU Release 1.1 (US Realm) Draft Standard for Trial Use July 2012
  - HL7 Implementation Guide for CDA® Release 2: Consolidated CDA Templates for Clinical Notes (US Realm), Draft Standard for Trial Use, Volume 1 - Introductory Material, Release 2.1, August 2015
  - HL7 Implementation Guide for CDA® Release 2: Consolidated CDA Templates for Clinical Notes (US Realm), Draft Standard for Trial Use, Volume 2 - Templates and Supporting Material, Release 2.1, August 2015
  - HL7® CDA R2 Implementation Guide: C-CDA Templates for Clinical Notes R2.1 Companion Guide, Release 2-US Realm, October 2019 (adoption expires January 1, 2026)
  - HL7® CDA® R2 Implementation Guide: C–CDA Templates for Clinical Notes STU Companion Guide, Release 4.1—US Realm
- Content/Structure - Security Tags for Sensitive Information - Data Segmentation for Privacy
  - HL7 Version 3 Implementation Guide: Data Segmentation for Privacy (DS4P), Release 1, Part 1: CDA R2 and Privacy Metadata Reusable Content Profile, May 16, 2014
- United States Core Data for Interoperability
  - United States Core Data for Interoperability (USCDI) v3
- Vocabulary/Code Set/Terminology – Social, Psychological, and Behavioral Data
  - Logical Observation Identifiers Names and Codes (LOINC®) version 2.72, February 2022

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[11] Pregnancy-related deaths and associate maternal mental health conditions from the CDC: https://www.cdc.gov/media/releases/2022/p0919-pregnancy-related-deaths.html

[12] https://www.marchofdimes.org/find-support/topics/postpartum/postpartum-depression#:~:text=PPD%20is%20the%20most%20common,symptoms%20of%20depression%20during%20pregnancy.

- Vocabulary/Code Set/Terminology – Demographics including Race and Ethnicity
  - CDC Race and Ethnicity Code Set Version 1.2
- Vocabulary/Code Set/Terminology – Goals and Preferences – Treatment Intervention Preferences and SDOH Goals
  - Logical Observation Identifiers Names and Codes (LOINC®) version 2.72, February 2022
  - SNOMED International, Systematized Nomenclature of Medicine Clinical Terms (SNOMED CT®) U.S. Edition, March 2022 Release
- Services/Exchange – Query (Application Programming Interfaces) - Fast Healthcare Interoperability Resources (FHIR)
  - HL7 Fast Healthcare Interoperability Resources Specification (FHIR®) Release 4, Version 4.0.1: R4, October 30, 2019, including Technical Correction #1, November 1, 2019
  - HL7 FHIR® US Core Implementation Guide STU 3.1.1, August 28, 2020

**ONC Certification Criteria for Health IT Adopted under PHSA §§ 3001 and 3004:**

- Transitions of care - 45 C.F.R. § 170.315(b)(1)
- Security Tags – summary of care - send - 45 C.F.R. § 170.315 (b)(7)
- Security Tags- summary of care - receive - 45 C.F.R. § 170.315 (b)(8)
- Standardized API for patient and population services -45 C.F.R. § 170.315 (g)(10)
- Demographics - 45 C.F.R. § 170.315(a)(5)
- Family health history - 45 C.F.R. § 170.315(a)(12)
- Social, psychological, and behavioral data - 45 C.F.R. § 170.315(a)(15)

**Additional Standards and Specifications:**

- USCDI+ Maternal Health
- Longitudinal Maternal & Infant Health Information for Research FHIR Implementation Guide (IG): This H7 FHIR (IG) defines a framework to enable maternal health researchers to aggregate, calculate, and analyze clinical information of research populations to explore the root causes for maternal and child morbidity and mortality and includes how to link maternal longitudinal record with associated child/children records.
  - HL7.FHIR.US.MIHR\Home Page - FHIR v4.0.1
  - Maternal and Infant Health Research (FHIR IG) (hl7.org)

- Bidirectional Services eReferral (BSeR) FHIR IG: This IG provides guidance for using the HL7 FHIR standard as an exchange format for clinical and non-clinical referrals to be communicated in the form of service requests. The goal of the BSeR project is to streamline and enhance the efficacy of the exchange of health information between health care systems and community services organizations involved in addressing chronic health conditions by establishing information exchange standards for electronic referrals and referral outcome reporting.
- ONC Neonatal Abstinence Syndrome Informational Resource (NAS IR): The NAS IR supports the implementation of health IT products used by clinicians that provide healthcare for infants with NAS and includes clinical priority focus areas aligned with supporting mental health.

## Clinical Focus Area 6: Obesity

**Description:**

Obesity is a common, serious, and costly disease and regarded as a great threat to public health for this century. Its systemic impact affects multiple organ systems, making it a common co-morbid condition in a healthcare setting. Pregnant people are at a much higher risk of developing venous thromboembolism, hypertensive disorder of pregnancy associated with adverse long-term cardiovascular impact, diabetes, obstructive sleep apnea, preterm labor, and wound infection, particularly following surgery[13]. Cesarean sections are also more common among obese pregnant people, and all these conditions can be life-threatening in severity.[14]

**Health IT Standards and Certification Criteria Adopted under PHSA §§ 3001(c)(5) and 3004:**

- Vocabulary/Code Set/Terminology – Family Health History, Encounter Diagnosis, Assessment and Plan, Labs, Medications, and Clinical Notes
  - SNOMED CT® [Systematized Nomenclature of Medicine Clinical Terms] U.S. Edition, March 2022 Release (SNOMED link example for family health history, standard is used for multiple data classes)
  - Logical Observation Identifiers Names and Codes (LOINC®) version 2.72, February 2022
  - RxNorm, Full Update Release, July 5, 2022
- Vocabulary/Code Set/Terminology – Social, Psychological, and Behavioral Data
  - Logical Observation Identifiers Names and Codes (LOINC®) version 2.72, February 2022

[13] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6888512/
[14] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8880764/

- Vocabulary/Code Set/Terminology – Demographics including Race and Ethnicity
  - CDC Race and Ethnicity Code Set Version 1.2
- United States Core Data for Interoperability
  - United States Core Data for Interoperability (USCDI) v3
- Services/Exchange – Query (Application Programming Interfaces) - Fast Healthcare Interoperability Resources (FHIR)
  - HL7 Fast Healthcare Interoperability Resources Specification (FHIR®) Release 4, Version 4.0.1: R4, October 30, 2019, including Technical Correction #1, November 1, 2019
  - HL7 FHIR® US Core Implementation Guide STU 3.1.1, August 28, 2020

**ONC Certification Criteria for Health IT Adopted under PHSA §§ 3001 and 3004:**

- Demographics - 45 C.F.R. § 170.315(a)(5)
- Clinical decision support (CDS) - 45 C.F.R. § 170.315(a)(9) until December 2024 or (b)(11)
- Standardized API for patient and population services - 45 C.F.R. § 170.315 (g)(10)

**Additional Standards and Specifications:**

- USCDI+ Maternal Health
- Longitudinal Maternal & Infant Health Information for Research FHIR Implementation Guide (IG): This H7 FHIR (IG) defines a framework to enable maternal health researchers to aggregate, calculate, and analyze clinical information of research populations to explore the root causes for maternal and child morbidity and mortality and includes how to link maternal longitudinal record with associated child/children records.
  - HL7.FHIR.US.MIHR\Home Page - FHIR v4.0.1
  - Maternal and Infant Health Research (FHIR IG) (hl7.org)
- IHE Quality, Research and Public Health Technical Framework Supplement – Healthy Weight (HW), March 16, 2022 for Trial Implementation

## Clinical Focus Area 7: Maternal and Child Health Information Privacy and Security

**Description:**

This focus area addresses maternal and pediatric privacy concerns including sensitive data elements and the use of security tagging enabled by computer systems to recognize the existence of

sensitive elements and to help ensure that only the appropriate individuals and entities can access it. While identifying and controlling sensitive information (such as sexual health, mental health, and social history) is challenging as pertains to patients of all ages, it is a particular challenge with adolescent populations, as described in the ONC Pediatric Health IT IR, and also with supporting NAS care as described in the ONC Neonatal Abstinence Syndrome Informational Resource. Both IR documents detail health IT tools and approaches to help address privacy concerns and outline considerations for providers and developers explaining how tagging is not a fully automated segmentation of the record but rather a first, technological step or tool to support providers to replace burdensome manual processes for tagging sensitive information. Specific policies and constraints can then determine data segmentation for tagged sensitive information.

**Health IT Standards and Certification Criteria Adopted under PHSA §§ 3001(c)(5) and 3004:**

- Content/Structure - Summary Care Record
    - HL7 Implementation Guide for CDA® Release 2: IHE Health Story Consolidation, DSTU Release 1.1 (US Realm) Draft Standard for Trial Use July 2012
    - HL7 Implementation Guide for CDA® Release 2: Consolidated CDA Templates for Clinical Notes (US Realm), Draft Standard for Trial Use, Volume 1 - Introductory Material, Release 2.1, August 2015
    - HL7 Implementation Guide for CDA® Release 2: Consolidated CDA Templates for Clinical Notes (US Realm), Draft Standard for Trial Use, Volume 2 - Templates and Supporting Material, Release 2.1, August 2015
    - HL7® CDA R2 Implementation Guide: C-CDA Templates for Clinical Notes R2.1 Companion Guide, Release 2-US Realm, October 2019 (adoption expires January 1, 2026)
    - HL7® CDA® R2 Implementation Guide: C–CDA Templates for Clinical Notes STU Companion Guide, Release 4.1—US Realm
- Content/Structure - Security Tags for Sensitive Information - Data Segmentation for Privacy
    - HL7 Version 3 Implementation Guide: Data Segmentation for Privacy (DS4P), Release 1, Part 1: CDA R2 and Privacy Metadata Reusable Content Profile, May 16, 2014
- Vocabulary/Code Set/Terminology – Social, Psychological, and Behavioral Data
    - Logical Observation Identifiers Names and Codes (LOINC®) version 2.72, February 2022
- United States Core Data for Interoperability
    - United States Core Data for Interoperability (USCDI) v3

- Services/Exchange – Query (Application Programming Interfaces) - Fast Healthcare Interoperability Resources (FHIR)
    - HL7 Fast Healthcare Interoperability Resources Specification (FHIR®) Release 4, Version 4.0.1: R4, October 30, 2019, including Technical Correction #1, November 1, 2019

**HL7 FHIR® US Core Implementation Guide STU 3.1.1, August 28, 2020 ONC Certification Criteria for Health IT Adopted under PHSA §§ 3001 and 3004:**

- Transitions of care - 45 C.F.R. §170.315 (b)(1)
- Security tags – summary of care - send - 45 C.F.R. §170.315 (b)(7)
- Security tags- summary of care - receive - 45 C.F.R. §170.315 (b)(8)
- Standardized API for patient and population services - 45 C.F.R. §170.315 (g)(10)
- Social, psychological, and behavioral data - 45 C.F.R. § 170.315(a)(15)

**Additional Standards and Specifications:**

- ONC Pediatric Health IT IR Recommendation 4: Segmented Access to Information in the Pediatric Health Information Technology Informational Resource
- ONC Neonatal Abstinence Syndrome IR Priority 6: Transferrable Access Authority
- HL7® Implementation Guide: Data Segmentation for Privacy (DS4P) FHIR, Release 1

## Clinical Focus Area 8: Improving Outcomes for Underserved Populations and Advancing Health Equity

**Description:**

Research increasingly shows that maternal and child health are closely linked[15], yet the United States lacks consistent ways to collect, share, and analyze data to determine how maternal medical history and socioeconomic and demographic characteristics affect health outcomes for both the mother and infant. Results from a multi-state survey on health and social needs of Medicaid beneficiaries in the postpartum year suggest that postpartum Medicaid extensions should be coupled with state initiatives to address beneficiaries' health and social needs. National investments in data collection on postpartum people will be critical to support evidence-based policy making to improve maternal health and well-being.[16]

[15] https://www.mdpi.com/2218-1989/12/9/876
[16] https://www.healthaffairs.org/doi/abs/10.1377/hlthaff.2023.00541?journalCode=hlthaff

The USCDI includes the CDC code sets for race and ethnicity, which supports granular capture for race and ethnicity data. The USCDI also includes SDOH data elements which can support health equity by enabling more informed decision-making about patient-centered and whole person care.

**Health IT Standards and Certification Criteria Adopted under PHSA §§ 3001(c)(5) and 3004:**

- Vocabulary/Code Set/Terminology – Family Health History
- SNOMED CT® [Systematized Nomenclature of Medicine Clinical Terms] U.S. Edition, March 2022 Release Vocabulary/Code Set/Terminology – Goals and Preferences – Treatment Intervention Preferences and SDOH Goals
    - Logical Observation Identifiers Names and Codes (LOINC®) version 2.72, February 2022
    - SNOMED International, Systematized Nomenclature of Medicine Clinical Terms (SNOMED CT®) U.S. Edition, March 2022 Release
- Vocabulary/Code Set/Terminology – Social, Psychological, and Behavioral Data
    - Logical Observation Identifiers Names and Codes (LOINC®) version 2.72, February 2022
- Vocabulary/Code Set/Terminology – Demographics including Race and Ethnicity
    - CDC Race and Ethnicity Code Set Version 1.2
- United States Core Data for Interoperability
    - United States Core Data for Interoperability (USCDI) v3
- Services/Exchange – Query (Application Programming Interfaces) - Fast Healthcare Interoperability Resources (FHIR)
    - HL7 Fast Healthcare Interoperability Resources Specification (FHIR®) Release 4, Version 4.0.1: R4, October 30, 2019, including Technical Correction #1, November 1, 2019

**HL7 FHIR® US Core Implementation Guide STU 3.1.1, August 28, 2020 ONC Certification Criteria for Health IT Adopted under PHSA §§ 3001 and 3004:**

- Demographics - 45 C.F.R. § 170.315(a)(5)
- Clinical decision support (CDS) - 45 C.F.R. §170.315(a)(9) until December 2024 or (b)(11)
- Family health history - 45 C.F.R. § 170.315(a)(12)
- Social, psychological, and behavioral data - 45 C.F.R. § 170.315(a)(15)
- Standardized API for patient and population services - 45 C.F.R. §170.315(g)(10)

**Additional Standards and Specifications:**

- USCDI+ Maternal Health
- Longitudinal Maternal & Infant Health Information for Research FHIR Implementation Guide (IG): This H7 FHIR (IG) defines a framework to enable maternal health researchers to aggregate, calculate, and analyze clinical information of research populations to explore the root causes for maternal and child morbidity and mortality and includes how to link maternal longitudinal record with associated child/children records.
    - HL7.FHIR.US.MIHR\Home Page - FHIR v4.0.1
    - Maternal and Infant Health Research (FHIR IG) (hl7.org)
- Bidirectional Services eReferral (BSeR) FHIR IG: This IG provides guidance for using the HL7 FHIR standard as an exchange format for clinical and non-clinical referrals to be communicated in the form of service requests. The goal of the BSeR project is to streamline and enhance the efficacy of the exchange of health information between health care systems and community services organizations involved in addressing chronic health conditions by establishing information exchange standards for electronic referrals and referral outcome reporting.
- PRAPARE Tool: Nationally standardized and stakeholder-driven, the Protocol for Responding to & Assessing Patients' Assets, Risks & Experiences (PRAPARE) is a standardized patient risk assessment tool designed to equip healthcare providers and their community partners to better understand and act on individuals' health related social needs. PRAPARE, when paired with its corresponding Implementation and Action Toolkit, empowers users to leverage social determinants of health (SDOH) data to improve health equity at the individual, community, and systems levels.
- The Gravity Project: The Gravity Project defines SDOH information so it can be documented in and exchanged across disparate digital health and human service platforms. Gravity develops data standards to represent individual-level SDOH information in digital platforms. These national standards support the consistent use of the data across organizations, providers, and caregivers, and help to facilitate payment for social risk data collection and intervention activities such as referrals, counseling, and care coordination.

- SDOH Clinical Care HL7 IG: This HL7 Implementation Guide (IG) defines how to exchange coded content using the HL7 FHIR Standard for the following SDOH-focused care activities: screening, clinical assessment/diagnosis, goal setting, and the planning and performing of interventions. This IG addresses the need to gather SDOH information in multiple settings, share that information between stakeholders, and exchange referrals between organizations to address specific social risks and needs, all with appropriate patient consent. In addition, the IG demonstrates how to share clinical data to support secondary purposes such as population health, quality, and research.

## Clinical Focus Area 9: Substance Use Disorder Screening, Assessment, Treatment and Referrals

**Description:**

Substance use disorder screening, assessment, treatment, and referral needs are often linked with behavioral and mental health services. These essential healthcare priorities should be intentionally linked both in clinical and technology workflows. However, there are additional specific considerations for both maternal and child outcomes that are a direct result of substance use disorders which necessitate specific technology supports to improve maternal and child health outcomes. Several of the priorities included in the Neonatal Abstinence Syndrome Information Resource (NAS IR) that address technology supports are outlined at the end of this focus area entry below.

**Health IT Standards and Certification Criteria Adopted under PHSA §§ 3001(c)(5) and 3004:**

- Content/Structure - Summary Care Record
  - HL7 Implementation Guide for CDA® Release 2: IHE Health Story Consolidation, DSTU Release 1.1 (US Realm) Draft Standard for Trial Use July 2012
  - HL7 Implementation Guide for CDA® Release 2: Consolidated CDA Templates for Clinical Notes (US Realm), Draft Standard for Trial Use, Volume 1 - Introductory Material, Release 2.1, August 2015
  - HL7 Implementation Guide for CDA® Release 2: Consolidated CDA Templates for Clinical Notes (US Realm), Draft Standard for Trial Use, Volume 2 - Templates and Supporting Material, Release 2.1, August 2015
  - HL7® CDA R2 Implementation Guide: C-CDA Templates for Clinical Notes R2.1 Companion Guide, Release 2-US Realm, October 2019 (adoption expires January 1, 2026)
  - HL7® CDA® R2 Implementation Guide: C–CDA Templates for Clinical Notes STU Companion Guide, Release 4.1—US Realm

- Content/Structure - Security Tags for Sensitive Information - Data Segmentation for Privacy
    - HL7 Version 3 Implementation Guide: Data Segmentation for Privacy (DS4P), Release 1, Part 1: CDA R2 and Privacy Metadata Reusable Content Profile, May 16, 2014
- Vocabulary/Code Set/Terminology – Family Health History, Encounter Diagnosis, Assessment and Plan, Labs, Medications, and Clinical Notes
    - SNOMED CT® [Systematized Nomenclature of Medicine Clinical Terms] U.S. Edition, March 2022 Release (SNOMED link example for family health history, standard is used for multiple data classes)
    - Logical Observation Identifiers Names and Codes (LOINC®) version 2.72, February 2022
    - RxNorm, Full Update Release, July 5, 2022
- Vocabulary/Code Set/Terminology – Social, Psychological, and Behavioral Data
    - Logical Observation Identifiers Names and Codes (LOINC®) version 2.72, February 2022
- Vocabulary/Code Set/Terminology – Demographics including Race and Ethnicity
    - CDC Race and Ethnicity Code Set Version 1.2
- United States Core Data for Interoperability
    - United States Core Data for Interoperability (USCDI) v3
- Services/Exchange – Query (Application Programming Interfaces) - Fast Healthcare Interoperability Resources (FHIR)
    - HL7 Fast Healthcare Interoperability Resources Specification (FHIR®) Release 4, Version 4.0.1: R4, October 30, 2019, including Technical Correction #1, November 1, 2019
    - HL7 FHIR® US Core Implementation Guide STU 3.1.1, August 28, 2020

**ONC Certification Criteria for Health IT Adopted under PHSA §§ 3001 and 3004:**

- Standardized API for Patient and Population Services - 45 C.F.R. §170.315(g)(10)
- Clinical Decision Support (CDS) - 45 C.F.R. §170.315(a)(9) until December 2024 or (b)(11)
- Care plan - 45 C.F.R. § 170.315(b)(9)
- Transitions of Care - 45 C.F.R. §170.315(b)(1)
- Family health history - 45 C.F.R. § 170.315(a)(12)
- Social, psychological, and behavioral data - 45 C.F.R. § 170.315(a)(15)

**Additional Standards and Specifications:**

- USCDI+ Maternal Health
- Longitudinal Maternal & Infant Health Information for Research FHIR Implementation Guide (IG): This H7 FHIR (IG) defines a framework to enable maternal health researchers to aggregate, calculate, and analyze clinical information of research populations to explore the root causes for maternal and child morbidity and mortality and includes how to link maternal longitudinal record with associated child/children records.
    - HL7.FHIR.US.MIHR\Home Page - FHIR v4.0.1
    - Maternal and Infant Health Research (FHIR IG) (hl7.org)
- Bidirectional Services eReferral (BSeR) FHIR IG: This IG provides guidance for using the HL7 FHIR standard as an exchange format for clinical and non-clinical referrals to be communicated in the form of service requests. The goal of the BSeR project is to streamline and enhance the efficacy of the exchange of health information between health care systems and community services organizations involved in addressing chronic health conditions by establishing information exchange standards for electronic referrals and referral outcome reporting.
- Centers for Disease Control and Prevention. National Center for Injury Prevention and Control, Division of Overdose Prevention:
    - *2022 CDC Clinical Practice Guideline for Prescribing Opiods Implementation Guide*
      This guideline provides recommendations for clinicians providing pain care, including those prescribing opioids, for outpatients aged ≥18 years. It updates the CDC Guideline for Prescribing Opioids for Chronic Pain — United States, 2016 (MMWR Recomm Rep 2016;65[No. RR-1]:1–49) and includes recommendations for managing acute (duration of <1 month), subacute (duration of 1–3 months), and chronic (duration of >3 months) pain. (See **Recommendation 12**)
    - *Opioid Use Disorder: Preventing and Treating (For Healthcare Professionals)*
      This is a resource to help clinicians offer or arrange treatment with evidence-based medications to treat patients with opioid use disorder (**Recommendation 12**).
- Centers for Medicare & Medicaid Services:

- *Maternal Opioid Misuse (MOM) Model*
  This model addresses fragmentation in the care of pregnant and postpartum Medicaid beneficiaries with opioid use disorder (OUD) through state-driven transformation of the delivery system surrounding this vulnerable population.

- ONC Neonatal Abstinence Syndrome (NAS) Informational Resource (IR)
  The NAS IR supports the implementation of health IT products used by clinicians that provide healthcare for infants with NAS. This resource is intended to help healthcare providers work with their health IT developers to implement 12 priorities including the three highlighted below:
  - **Priority 1:** Implementation of NAS Scoring and Assessment Tool- Pg. 11. This clinical priority supports the implementation and documentation of quantitative NAS scoring and assessment tools intended for use after infants are identified as at-risk for NAS.
  - **Priority 7:** Flag Special Healthcare Needs- Pg. 30. This clinical priority supports integration of EHR tools that appropriately serve children with special healthcare needs. Flagging these infants as having special healthcare needs allows healthcare providers to identify infants that may benefit from specialized screening and assessment, decision support, care management, health surveillance, and other focused attention or intervention.
  - **Priority 10:** Associate Maternal Health Information and Demographics with Newborn- Pg.10. This clinical priority supports healthcare providers by allowing access, at the point of decision-making, to information about the birthing parent needed for care of the infant at-risk for or with NAS. This priority also ensures that healthcare providers do not need to copy information from the birthing parent's chart to the infant's chart, thereby decreasing the risk of documentation errors and increasing documentation efficiency.

## Clinical Focus Area 10 Assessment, Care Plan, Discharge Plan

**Description:**

This clinical focus areas involves conducting patient assessment, care planning, and discharge planning for pregnant and postpartum individuals including screening for health-related social needs and social risk factors and behavioral or mental health care services to inform the care plan upon discharge. The screening will assist with identifying psychosocial factors that may affect family function and the family adjustment to the newborn.[17] Incorporating and coordinating individual SDOH needs into the discharge process will give individuals, caregivers and their families access to

[17] https://www.aap.org/en/patient-care/early-childhood/early-childhood-health-and-development/maternal-health-and-well-being/

[13] https://www.whitehouse.gov/wp-content/uploads/2022/06/Maternal-Health-Blueprint.pdf#page=6

information that will help them to make informed decisions about their post-acute care, while addressing their goals of care and treatment preferences. This priority aligns with the White House Blueprint for Addressing the Maternal Health Crisis, Goal 5: Strengthen Economic and Social Supports for People Before, During, and After Pregnancy, which states "Maternal health outcomes are markedly worse when pregnant and postpartum women are housing insecure, hungry, live in areas with toxic environmental chemicals, face financial instability, lack workplace protections and benefits, and/or are repeatedly exposed to crime and violence, including sexual assault, domestic violence and other forms of gender-based violence" and notes a commitment to "increase screening among pregnant women for social risk factors like homelessness and food insecurity."[13]

**Health IT Standards and Certification Criteria Adopted under PHSA §§ 3001(c)(5) and 3004:**

- Content/Structure - Summary Care Record
  - HL7 Implementation Guide for CDA® Release 2: IHE Health Story Consolidation, DSTU Release 1.1 (US Realm) Draft Standard for Trial Use July 2012
  - HL7 Implementation Guide for CDA® Release 2: Consolidated CDA Templates for Clinical Notes (US Realm), Draft Standard for Trial Use, Volume 1 - Introductory Material, Release 2.1, August 2015
  - HL7 Implementation Guide for CDA® Release 2: Consolidated CDA Templates for Clinical Notes (US Realm), Draft Standard for Trial Use, Volume 2 - Templates and Supporting Material, Release 2.1, August 2015
  - HL7® CDA R2 Implementation Guide: C-CDA Templates for Clinical Notes R2.1 Companion Guide, Release 2-US Realm, October 2019 (adoption expires January 1, 2026)
  - HL7® CDA® R2 Implementation Guide: C–CDA Templates for Clinical Notes STU Companion Guide, Release 4.1—US Realm
- Content/Structure - Security Tags for Sensitive Information - Data Segmentation for Privacy
  - HL7 Version 3 Implementation Guide: Data Segmentation for Privacy (DS4P), Release 1, Part 1: CDA R2 and Privacy Metadata Reusable Content Profile, May 16, 2014
- Vocabulary/Code Set/Terminology – Family Health History
  - SNOMED International, Systematized Nomenclature of Medicine Clinical Terms (SNOMED CT®) U.S. Edition, March 2022 Release
- Vocabulary/Code Set/Terminology – Family Health History, Encounter Diagnosis, Assessment and Plan, Labs, Medications, and Clinical Notes

  - SNOMED CT® [Systematized Nomenclature of Medicine Clinical Terms] U.S. Edition, March 2022 Release (SNOMED link example for family health history, standard is used for multiple data classes)
  - Logical Observation Identifiers Names and Codes (LOINC®) version 2.72, February 2022
  - RxNorm, Full Update Release, July 5, 2022
- Vocabulary/Code Set/Terminology – Social, Psychological, and Behavioral Data
  - Logical Observation Identifiers Names and Codes (LOINC®) version 2.72, February 2022
- Vocabulary/Code Set/Terminology – Demographics including Race and Ethnicity
  - CDC Race and Ethnicity Code Set Version 1.2
- United States Core Data for Interoperability
  - United States Core Data for Interoperability (USCDI) v3
- Services/Exchange – Query (Application Programming Interfaces) - Fast Healthcare Interoperability Resources (FHIR)
  - HL7 Fast Healthcare Interoperability Resources Specification (FHIR®) Release 4, Version 4.0.1: R4, October 30, 2019, including Technical Correction #1, November 1, 2019
  - HL7 FHIR® US Core Implementation Guide STU 3.1.1, August 28, 2020

**ONC Certification Criteria for Health IT Adopted under PHSA §§ 3001 and 3004:**

- Care plan - 45 C.F.R. § 170.315(b)(9)
- Transitions of care - 45 C.F.R. §170.315(b)(1)
- Standardized API for patient and population services - 45 C.F.R. §170.315(g)(10)
- Clinical Decision Support - 45 C.F.R. §170.315(a)(9) until December 2024 or (b)(11)

**Additional Standards and Specifications:**

- ONC Neonatal Abstinence Syndrome NAS Informational Resource
  - **Priority 9:** Document Social Determinants of Health Implementing this priority benefits NAS care by providing more structured data on social determinants of health (SDOH) for infants with NAS, which may affect clinical care and facilitate connecting families with appropriate social supports and educational resources through community partnerships as well as further potential for new research on the impact of SDOH on infants with NAS.

# Addendum: Additional Tools and Resources

## Office of the National Coordinator for Health Information Technology (ONC)

### Health IT for Pediatric Care and Practice Settings

**Description:** ONC's online health IT resources for pediatric care and practice settings includes Information Resources (IR) specific to pediatric care and neonatal abstinence syndrome (NAS). The content on pediatric health IT compiles relevant documents as part of ONC's 21st Century Cures Act final rulemaking[18] to improve the interoperability of health information, including recommendations for pediatric health IT voluntary certification criteria. ONC, in collaboration with Centers for Medicare & Medicaid Services (CMS), also developed the NAS IR to improve care for infants with NAS. As part of this work, a diverse panel of clinical and informatics experts identified five new clinical priorities for providers treating NAS. The NAS IR also repeated the identification of seven other priorities previously called out in the other pediatric information resources mentioned above. The ONC site dedicated to pediatric care and practice settings includes all available IRs issued to date as part of ONC's non-regulatory initiative to inform the technical and implementation specifications for developers of health IT products used by clinicians that provide healthcare for children. This includes the NAS IR as well as a dedicated resource to help healthcare providers work with their health IT developers.

### United States Core for Data Interoperability Plus (USCDI+) Maternal Health

**Description:** ONC is developing a comprehensive data element list, USCDI+ Maternal Health, which expands USCDI to include data elements that are necessary for high quality maternal care, equitable outcomes, maternal health research, and to support maternal public health initiatives. USCDI+ Maternal Health outlines the information regarding the peri- and post-natal periods that should be electronically available and standardized to support appropriate terminology standards to use within health information technology systems. This, in turn, supports the interoperable flow of information that follows the patient and is part of care coordination across the various provider types that are part of the patient's care team. USCDI+ Maternal Health serves as the reference to guide development and adoption of data standards, making the data usable for public health initiatives and research. ONC is exploring ways to foster adoption among federal partners and industry

[18] https://www.federalregister.gov/documents/2020/05/01/2020-07419/21st-century-cures-act-interoperability-information-blocking-and-the-onc-health-it-certification

stakeholders of this standards-based approach within technical innovations and harmonization of these data elements that are tied to improved maternal health outcomes.

# National Institutes of Health (NIH)

## NICHD-Developed Maternal & Infant Health Information for Research Implementation Guide

**Description:** A new guide (2023) developed by the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development (NICHD), part of the National Institutes of Health (NIH), along with federal and private partners, promises to standardize the exchange of clinical data on maternal and infant health. The Maternal & Infant Health Information for Research Implementation Guide enables researchers, developers, and others to capture, aggregate, and analyze data from different electronic health records (EHR) systems in support of critical public health research.

The guide is an important step toward establishing a common framework to help clinicians and scientists better understand the root causes and high rates of maternal morbidity and mortality, which have been rising in the United States for two decades. Research increasingly shows that maternal and child health are closely linked, yet the United States lacks consistent ways to collect, share, and analyze data to determine how maternal medical history and socioeconomic and demographic characteristics affect health outcomes for both the mother and infant.

## Severe Maternal Morbidity and Mortality- Electronic Health Record (EHR) Data Infrastructure

**Description:** The Department of Health and Human Services funded this PCOR project, led by NIH in collaboration with ONC and the Centers for Disease Control and Prevention (CDC), to develop the foundational EHR infrastructure for patient-centered outcomes research on maternal morbidity and mortality and to reaching a consensus on harmonized information requirements and definitions to create a means of accessing these data through a Fast Healthcare Interoperability Resources (FHIR®) application programming interface (API). See HL7 FHIR IG described below.

## Longitudinal Maternal & Child Health Information for Research FHIR R4 implementation guide (IG)

**Description:** The Longitudinal Maternal & Child Health Information for Research FHIR R4 implementation guide (IG) defines a framework to enable maternal health researchers to aggregate, calculate, and analyze clinical information of research populations to explore the root causes for maternal and child morbidity and mortality. It uses Clinical Quality Language (CQL) expressions to assist researchers in capturing clinical data based on population study cohort criteria. This IG focuses on information relevant to longitudinal maternal care, which includes antepartum (including pre-pregnancy), intrapartum, and postpartum care of a pregnant person. It includes how to link maternal longitudinal record with associated child/children records.

This US Realm IG supports the use of US Core profiles where possible, as well as base FHIR and Vital Records Common Profiles FHIR IG data model for the structural linkage of mother and child clinical records.

### NICHD-Developed Guide Sets Framework to Link Maternal, Infant Health Data

**Description:** MaternalHealthLink, tooling developed compliant with the guide, was piloted successfully with a health information exchange in February 2023 and the guide was published in March 2023. Both the guide and MaternalHealthLink are now publicly available for researchers to use.

### National Institute for Children's Health Quality National Network of Perinatal Quality Collaboratives

**Description:** The National Network of Perinatal Quality Collaboratives (NNPQC) provides resources and expertise to nationwide state-based perinatal quality collaboratives (PQCs) with the goal of deepening and accelerating improvement efforts for maternal and infant health outcomes.

## Centers for Disease Control and Prevention (CDC)

### National Center on Birth Defects and Developmental Disabilities

**Description:** CDC's National Center on Birth Defects and Developmental Disabilities hosts MATLINK, the clinical surveillance component of SETNET, which involves electronic health records (EHR) and novel technology in partnership with 11 academic centers across the US. CDC worked with the Council of State and Territorial Epidemiologists (CSTE) to identify and add pregnancy related data elements to appropriate data exchange standards between healthcare and public health. CDC engaged in efforts to create exchange standards between healthcare and public health for birth defects, other infant outcomes, and other pregnancy related data elements.

### National Center for Chronic Disease Prevention and Promotion

**Description:** CDC's National Center for Chronic Disease Prevention and Promotion supports the Pregnancy Risk Assessment Monitoring System (PRAMS) in 46 states, the District of Columbia, New York City, Northern Mariana Islands, and Puerto Rico. PRAMS collects jurisdiction-specific, population-based data on maternal attitudes and experiences before, during, and shortly after pregnancy. Federal agencies, state, territory, and local governments use PRAMS data to plan and review programs and inform policies aimed at improving health outcomes among mothers and infants.

### CDC partnership with the National Association of Community Health Centers (NACHC)

**Description:** CDC partners with the National Association of Community Health Centers (NACHC) to develop quality improvement measures that can be integrated into EHR systems on critical outcomes related to pregnancy related mortality and morbidity- including hypertension and mental health

screening. CDC and NACHC are also partnering to establish a model for health centers to partner with perinatal quality collaboratives (PQCs) to improve maternal health in health center patients.

### CDC Resources on Maternal Mental Health

**Description:** CDC reproductive health resources focused on depression among women can be found online and includes resources for clinicians and public health professionals listed below:

- U.S. Preventive Services Task Force Recommends Depression Screenings for Pregnant and Postpartum Women
- Alliance for Innovation on Maternal Health Patient Safety Bundle—Perinatal Mental Health Conditions
- Perinatal Mental Health and Social Support
- Lifeline for Moms Perinatal Mental Health Tool Kit™
- ACOG Clinical Practice Guideline: Screening and Diagnosis of Mental Health Conditions During Pregnancy and Postpartum

It is possible to view a state's prevalence of self-reported postpartum depressive symptoms using the Pregnancy Risk Assessment Monitoring System.

### Perinatal Quality Collaboratives

**Description:** Perinatal Quality Collaboratives (PQCs) are state or multistate networks of teams working to improve the quality of care for mothers and babies. PQC members identify health care processes that need to be improved and use the best available methods to make changes as quickly as possible.

PQCs have contributed to important improvements in health care and outcomes for mothers and babies, including:

- Reductions in deliveries before 39 weeks of pregnancy without a medical reason
- Reductions in health care–associated bloodstream infections in newborns
- Reductions in severe pregnancy complications

### Hear Her® Campaign

**Description:** CDC's Division of Reproductive Health is committed to healthy pregnancies and deliveries for every person. The **Hear Her**® campaign supports CDC's efforts to prevent pregnancy-related deaths by sharing potentially life-saving messages about urgent warning signs. The campaign seeks to encourage partners, friends, family, coworkers, and providers—anyone who supports pregnant and postpartum people—to really listen when she tells you something doesn't feel right.

### CDC Surveillance Network: Maternal, Infant, and Child Health Outcomes Following Medication for Opioid Use Disorder (OUD) during Pregnancy (MAT-LINK)

**Description:** The purpose of the Maternal and Infant Network (MAT-LINK) was to establish a health outcomes surveillance network across multiple clinical sites to rapidly collect linked maternal and infant data and monitor the maternal, pregnancy, infant, and child health outcomes in the context of medications for opioid use disorder (MOUD) during pregnancy. The resulting dataset has clinical and health outcomes data for over 5,000 pregnant person-infant pairs, which supports patient centered outcomes research (PCOR) studies to assess the effects of different MOUD regimens on infant and child development and to understand the role of mediating and moderating factors (including exposure to multiple substances, maternal comorbidities, and other psychosocial factors) on maternal and infant outcomes.

### National Center for Injury Prevention and Control, Division of Overdose Prevention

**Description:** Training for Healthcare Professionals: Buprenorphine for the Treatment of Opioid Use Disorder, Assessing and Addressing Opioid Use Disorder, and Managing Pain and Treating Opioid Use Disorder in the ED. These are CDC developed trainings to assist clinicians and other healthcare personnel to provide patient-centered care. Trainings are offered as full or mini modules and patient cases. Many of the trainings offer continuing education (CE).

### Clinical Decision Support for Alcohol and Brief Intervention

**Description:** In 2019, CDC funded MITRE, a federally-funded research and development center, to develop standards-based (FHIR Clinical Guidelines, or CPG-on-FHIR) clinical decision support tools for alcohol screening and brief intervention based on evidence-based guidelines. These publicly available tools can be integrated into electronic health record systems and other health information technology to improve health outcomes related to excessive alcohol use.

### Enhancing Surveillance of Maternal Health Clinical Practices and Outcomes with Federally Qualified Health Centers' (FQHCs) Electronic Health Records Visit Data

**Description:** Expanding and modernizing the data collection from federally qualified health centers (FQHCs) in the National Ambulatory Medical Care Survey (NAMCS) by collecting electronic health record (EHR) data from these centers provides more detailed data on healthcare utilization. Additionally, this project explores the ability to link FQHC data to outside data sources such as the National Death Index (NDI) and administrative data from the U.S. Department of Housing and Urban Development (HUD) to provide additional information on mortality post-FQHC visits and social determinants of health respectively.

# Agency for Healthcare Research and Quality (AHRQ)

## e-Care Plans

**Description:** The Joint NIH/NIDDK AHRQ Project on e-Care Plan aims to build capacity for pragmatic, patient-centered outcomes research by developing an interoperable electronic care plan to facilitate aggregation and sharing of critical patient-centered health data across various settings for people living with multiple chronic conditions. This work can also support maternal care as it involves interoperability of records between settings and data elements that should be available in a person-centered e-care plan.
Implementation Guide

## AHRQ Re-Engineered Discharge (RED) Toolkit

**Description:** A variety of forces are pushing hospitals to improve their discharge processes to reduce readmissions. Researchers at the Boston University Medical Center (BUMC) developed and tested the Re-Engineered Discharge (RED). Research showed that the RED was effective at reducing readmissions and posthospital emergency department (ED) visits. The Agency for Healthcare Research and Quality contracted with BUMC to develop this toolkit to assist hospitals, particularly those that serve diverse populations, to replicate the RED.

## Teach-Back Intervention

**Description:** Teach-Back is a technique for health care providers to ensure that they have explained medical information clearly so that patients and their families understand what is communicated to them. This intervention includes several materials to support adoption.

## AHRQ Quality Toolkit for Improving Perinatal Safety

**Description:** AHRQ developed the Safety Program for Perinatal Care (SPPC) to improve the patient safety culture of labor and delivery (L&D) units and decrease maternal and neonatal adverse events resulting from poor communication and system failures. The SPPC is organized around three program pillars, which include: Teamwork and Communication skills, Perinatal Safety Strategies, and In Situ Simulation training. This toolkit was developed to support implementation of the three program pillars. The toolkit helps L&D units improve patient safety, team communication, and quality of care for mothers and their newborns. It builds on knowledge gained from AHRQ's TeamSTEPPS® teamwork system, and from findings from AHRQ's patient safety and medical liability initiative demonstration grants. The tools can be customized to local unit processes and procedures.

## Digital Health Maternal Health Grants

**Description:** HHS- Agency for Healthcare Research and Quality (AHRQ). AHRQ funds many grants that intersect Digital Health/ Maternal Health and that focus on health information needs of pregnant women and context for interoperability of their records. These grants can be identified using the search function from the AHRQ site.

# Assistant Secretary for Planning and Evaluation (ASPE)

### Enhancing Data Infrastructure to Improve Women's Health Outcomes

**Description:** The Office of the Secretary's Patient Centered Outcomes Research Trust Fund (OS-PCORTF) funds projects that are paving the way for enhanced PCOR studies on maternal health that can help the nation make progress on high rates of maternal morbidity and mortality. Through better data infrastructure, including data standardization to improve data exchange and linking key data sources, researchers will be able to conduct complex and longitudinal studies to improve women's health. This document includes an overview of several of these projects throughout..

### Enhancing Surveillance of Maternal Health Clinical Practices and Outcomes with Federally Qualified Health Centers' (FQHCs) Electronic Health Records Visit Data

**Description:** This project aims to improve data capacity on patient-centered outcomes research on maternal health care provided at FQHCs. Expanding and modernizing the data collection from federally qualified health centers (FQHCs) in the National Ambulatory Medical Care Survey (NAMCS) by collecting electronic health record (EHR) data from these centers will provide more detailed data on healthcare utilization by pregnant and postpartum women included.

### Linking Federally Qualified Health Center EHR and TMSIS Implementing

**Description:** This proposed project is developing, evaluating, and linking the CY2021 National Ambulatory Medical Care Survey (NAMCS) and EHR data from federally qualified health centers (FQHCs) with the Centers for Medicare & Medicaid Services (CMS) Transformed Medicaid Statistical Information System (T-MSIS) administrative data. This will help improve data capacity on PCOR on maternal health care provided at FQHCs for those with Medicaid and enhance researchers' ability to analyze data on maternal health care provided at these health centers.

# Health Resources & Services Administration (HRSA)

### HRSA-Funded Rural Health Information Hub Rural Maternal Health Toolkit

**Description:** A national clearinghouse on rural health issues, RHIhub is a guide to improving health for rural residents— it provides access to current and reliable resources and tools to help you learn about rural health needs and work to address them. The RHIhub is the nation's rural health information source. The website offers a library of resources, coverage of rural issues, state guides, evidence-based toolkits, program models and more. Customized assistance is available by phone or email.

The Rural Maternal Health Toolkit compiles evidence-based and promising models and resources to support rural communities implementing maternal health programs across the United States.

The modules in the toolkit contain resources and information focused on developing, implementing, evaluating, and sustaining rural programs to address the factors that affect and influence maternal

health. Many factors can affect maternal health outcomes, including health status, health behaviors, access to healthcare and social services, and quality of healthcare, among other factors.

### State Maternal Health Innovation Program (State MHI)

**Description:** This program funds public health entities to establish state maternal health task forces, improve the collection of data on maternal mortality and severe maternal morbidity (SMM), and launch innovative maternal health service delivery activities. Interoperability efforts linked to the State MHI Program might utilize technology to standardize how maternal mortality and morbidity data are being collected at the state level, support data accessibility to maternal health clinical care providers to inform the care of patients, and, ultimately, could be used to analyze and describe maternal mortality and morbidity with greater granularity.

### Integrated Maternal Health Services Program (IMHS)

**Description:** The IMHS is a new HRSA program that seeks to foster the development and demonstration of maternity medical home models of care. With a focus towards maternal health equity, the models developed and demonstrated under this program will support comprehensive care (e.g., clinical, ancillary, and behavioral health and support services) for pregnant and postpartum people who experience health disparities and have limited access to health services. Program awards were made for a five-year project period beginning September 30th, 2023. Each of the award recipients under this program are required to propose a plan to successfully launch the IMHS demonstration at the state level or one or more regions within the state to support the population with the greatest unmet need. Under this program, interoperability efforts could support whole-person care and support the appropriate transfer of information across a variety of clinical providers (e.g., Primary Care, Obstetrics/Gynecology, Maternal-Fetal Medicine Specialists, Emergency Medicine, and Behavioral Health) during the pregnancy and postpartum periods.

### Screening and Treatment for Maternal Mental Health & Substance Use Disorder Program (MMHSUD)

**Description:** The MMHSUD Program seeks to expand health care providers' capacity to screen, assess, treat, and refer pregnant and postpartum people for maternal mental health and substance use disorders. HRSA currently funds 12 states to implement this program, and program objectives will be realized through the establishment or maintenance of statewide or regional networks that provide real-time psychiatric consultation, care coordination support services, and culturally appropriate training to maternity care providers and clinical practices. Interoperability efforts linked to the MMHSUD Program might aim to engage and expand provider knowledge on electronic health systems in the management of pregnant and postpartum individuals' behavioral health needs in the larger context of the individual's overall health status, and ultimately reduce fragmented services once patients leave the labor and delivery setting.

### Maternal Health Learning & Innovation Center

**Description:** The Maternal Health Learning & Innovation Center is a national resource center. The purpose is to improve public health systems so that everyone gets high quality and effective care

before, during, and following childbirth. The MHLIC aims to advance federal and state-level efforts to eliminate preventable maternal deaths and reduce severe maternal morbidity, using equity as the cornerstone of all services.

### Screening and Treatment for Maternal Mental Health and Substance Use Disorders Program

**Description:** The purpose of the Screening and Treatment for Maternal Mental Health and Substance Use Disorders program is to expand health care providers' capacity to screen, assess, treat, and refer pregnant and postpartum women for maternal mental health and substance use disorders. This is accomplished by establishing, improving, and/or maintaining statewide, tribal, or regional networks that provide real-time psychiatric consultation, care coordination support services, and culturally and linguistically appropriate training to maternity care providers and clinical practices.

### Alliance for Innovation on Maternal Health

**Description:** AIM improves maternity care across the country by developing and implementing patient safety bundles, which are sets of small, straightforward, evidence-based practices. When these practices are implemented collectively and reliably, they improve patient outcomes and reduce maternal mortality and severe maternal morbidity in delivery settings. Bundles include topics such as Care for Pregnant and Postpartum People with Substance Use Disorder.

### Women's Preventive Services Guidelines

**Description:** The HRSA-supported Women's Preventive Services Guidelines improve women's health across the lifespan by identifying preventive services ands screenings to be used in clinical practice. The Guidelines include several recommendations related to pregnant and postpartum care, including screening for diabetes before and after pregnancy, breastfeeding services and supplies, screening for HIV during pregnancy, screening for anxiety in adolescent and adult women, including those who are pregnant or postpartum, and well-woman visits, which may include prepregnancy, prenatal, postpartum, and interpregnancy visits. Under the Affordable Care Act, most private health insurers are required to provide coverage without cost sharing or preventive care and screenings for women, as provided for in the comprehensive guidelines supported by HRSA.

### National Maternal Mental Health Hotline

**Description:** The National Maternal Mental Health Hotline (1-833-TLC-MAMA or 1-833-852-6262) provides 24/7 free, confidential emotional support, information, and referrals for those who are pregnant or postpartum and their loved ones. The Hotline offers services in English and Spanish via phone and text. Additionally, interpreter services are available in 60 additional languages, and a relay service is available for people who are deaf or hard-of-hearing.

### Title V Maternal and Child Health (MCH) Block Grant

**Description:** The Title V State MCH Block Grant Program, a partnership between the federal government and states, awards formula grants to 59 states and jurisdictions to address the health needs of mothers, infants, and children, as well as children with special health care needs in their state or jurisdiction. The program tracks data through National Performance Measures (NPMs) that each state selects based on their identified MCH priority needs. These NPMs include women/maternal health and perinatal/infant health as reporting domains.

## Centers for Medicare & Medicaid Services (CMS)

### Transforming Maternal Health Model

**Description:** The TMaH Model's primary focus is to improve health outcomes for mothers and their infants enrolled in Medicaid and the Children's Health Insurance Program (CHIP). State Medicaid agencies (SMAs) selected to participate in the TMaH Model will receive support to develop a whole-person approach to pregnancy, childbirth, and postpartum care. This includes enhanced data collection, exchange, and linkage through improvements in electronic health records and health information exchanges. The TMaH Model seeks to support access for midwives, birth centers, and doula services. Each participating SMA will be eligible for up to $17 million during the model's 10-year period.

The TMaH Model aims to foster an environment where mothers and their infants feel safe and supported throughout pregnancy and postpartum by providing them with the care and resources needed to support their physical and mental health, as well as screening for their social needs. CMS will release a Notice of Funding Opportunity (NOFO) for state Medicaid agencies in Spring 2024.

### CMS Cross Cutting Initiative: Maternity Care Action Plan

**Description:** This document outlines the CMS action plan to address the maternity care crisis including data, social supports, workforce, coverage, and other relevant, critical topics. It additionally references the Maternal Infant Health Initiative (MIHI) that works directly with states to improve maternal and infant health policies and implement evidence-based best practices.

### Care Compare – Birthing Friendly Designation

**Description:** CMS will begin displaying the 'Birthing-Friendly' designation icon on CMS's Care Compare online tool. CMS created the new designation to identify hospitals and health systems that participate in a statewide or national perinatal quality improvement collaborative program and that implement evidence-based care to improve maternal health. The public can use the Care Compare tool — along with a complementary interactive map — to find a hospital or health system with the 'Birthing-Friendly' designation in their area.

### Maternal and Infant Health Care Quality

**Description:** Maternal and infant health improvement initiatives and related resources in Medicaid are available at this site including affinity group and collaborative learning resources focused on postpartum care as well as the Maternal and Infant Health (MIH) Beneficiary Profile that provides an overview of the demographics, health status, health outcomes, risk factors, and health care utilization among reproductive age women, women with a recent live birth, and infants covered by Medicaid and CHIP.

## Office of the Assistant Secretary for Health (OASH)

### Maternal Morbidity and Mortality Data and Analysis Initiative

**Description:** The U.S. Department of Health and Human Services (HHS) OASH- Office on Women's Health (OWH) supports the Maternal Morbidity and Mortality Data and Analysis Initiative to improve maternal health data and create a network of at least 200 hospitals to deploy clinical, evidence-based best practices in maternity care. This vital data will inform policy and validate evidence-based practice to improve maternal and infant health outcomes.

OWH's efforts are part of the HHS overarching plan to improve maternal health and reduce disparities that contribute to negative health outcomes. By collecting and analyzing maternal health data and identifying evidence-based actions, OWH aims to improve maternal and infant health outcomes and reduce disparities. The Initiative consists of two approaches: the National HHS Perinatal Improvement Collaborative with over 200+ hospitals and the National Maternal Infant Mortality and Morbidity Analysis that is synthesizing approximately 1 million births/year from a national in-patient database.

## Non-Government / Additional Resources

### Alliance for Innovation in Maternal Health (AIM)

**Description:** The AIM Program is implemented by the American College of Obstetricians and Gynecologists (ACOG), and fully funded by HRSA, and serves as a cross-sector effort to improve the quality and safety of maternal health across the country. By using clinical patient safety bundles, AIM offers guidelines to address issues such as severe hypertension, postpartum hemorrhage, and cardiac disease. The program is also preparing an Obstetric Readiness Toolkit. Interoperability efforts under the AIM

### The Joint Commission Provision of Care, Treatment, and Services Standards for Maternal Safety

**Description:** Effective July 1, 2020, 13 new elements of performance (EPs) will be applicable to Joint Commission-accredited hospitals. These new requirements are within the Provision of Care, Treatment, and Services (PC) chapter at PC.06.01.01 and PC.06.03.01 and are designed to improve

the quality and safety of care provided to women during all stages of pregnancy and postpartum. The United States ranks 65th among industrialized nations in terms of maternal death. Because of worsening maternal morbidity and mortality, The Joint Commission evaluated expert literature to determine what areas held the most potential impact. The literature review revealed that prevention, early recognition, and timely treatment for maternal hemorrhage and severe hypertension/preeclampsia had the highest impact in states working on decreasing maternal complications. This approach was supported by a technical advisory panel assembled by The Joint Commission, resulting in the development of EPs that focus on these complications. The Joint Commission has been a global driver of quality improvement and patient safety in health care. We believe that all people should always experience the safest, highest quality, and consistently excellent health care.

### Maternal HealthCARE

**Description:** Maternal HealthCARE, a partnership between March of Dimes and the U.S. Department of Health and Human Services, is a quality improvement collaborative created to advance equity and provide safe and equitable maternity care for all.

### U.S. Department of Health and Human Services and March of Dimes Public Private Partnership

**Description:** March of Dimes and HHS are working to implement evidence-based interventions to improve the quality of the maternal healthcare provided. Through this public-private partnership, March of Dimes and HHS are conducting a data-driven quality improvement program to support hospitals in providing safe, equitable, and respectful care.

## Looking Forward

HHS recognizes there are industry led initiatives with current or future potential to expand maternal health and safety as involves intersections with technology. This involves, but is not limited to, the following:

- Engaging health IT developers
- Exploring hospital emergency department readiness to treat obstetrical emergencies
- Ensuring EHR functionality is utilized to further enable provider and patient to access and understanding of prenatal care information
- Exploring new AI tools for maternal health
- Harnessing prenatal and post-partum data for quality improvement activities