Announcement: Release of New Maternal Health Indicators (MHI) Beta Software v2024

AHRQ is releasing a new Maternal Health Indicators (MHI) module that will broadly address healthcare quality in the domain of maternal health and identify opportunities to improve complications during the antepartum, intrapartum, and postpartum periods. The intent of the module is to allow users to leverage claims data to generate area level measures of maternal health.[1] The initial release of measures described below addresses severe maternal morbidity (SMM) and death associated with delivery hospitalization. Future measures in the MHI module may address antepartum, postpartum, and other intrapartum maternal health indicators.

The beta software of the MHI module includes three measures related to SMM and in-hospital death identified via delivery discharge claims data that can be used for population health analysis, surveillance, quality assurance, and research purposes:

i. **MHI 01 Severe Maternal Morbidity Rate (20 Indicators)**
   - This measure replicates the 20 SMM indicators used by the Centers for Disease Control and Prevention (CDC), AHRQ Fast Stats, the Health Resources and Services Administration (HRSA) Title V MCH Block Grant Program, and the Alliance for Innovation on Maternal Health (AIM) (excluding blood transfusions[2]).[3]

ii. **MHI 02 Severe Maternal Morbidity (20 Indicators) Plus In-Hospital Mortality Rate**
   - This measure includes the 20 SMM indicators used by the CDC and HRSA (excluding blood transfusions) and adds in-hospital death.
   - The inclusion of in-hospital death in MHI 02 aligns more closely with the approach in the Center for Medicare & Medicaid Services (CMS)'s Severe Obstetric Complications (SOC) measure (PC-07, CMS1028v2). However, since MHI 02 is based on administrative claims data exclusively, it cannot include risk adjustment for laboratory or clinical values in the way the CMS SOC measure does.[4]

[1] The MHI software currently outputs rates at the state level and by race/ethnicity, payer, poverty category based on zip code, year, and custom stratum.
[2] Blood transfusion is excluded because ICD coding of blood transfusion varies widely across facilities and regions and over time. There is general clinical consensus that transfusion of 1 unit of blood products does not in itself constitute SMM. However, current ICD coding cannot distinguish how many units of blood products were transfused. Blood transfusions account for the greatest proportion of patients identified as having an obstetric complication, but patients for whom this is the only identified numerator event represent a less severe outcome experience.
[3] The MHI measures are calculated using fiscal year 2025 ICD-10-CM/PCS coding.
[4] Severe Obstetrics Complications Electronic Clinical Quality Measure (eCQM) Methodology Report, October 2021: https://www.cms.gov/files/document/measure-methodology-report.pdf

iii. MHI 03 Refined Severe Maternal Morbidity (20 Indicators) Plus In-Hospital Mortality Rate, Beta

- This measure starts from the 20 SMM indicators used by CDC and HRSA (excluding blood transfusions), adds in-hospital mortality, and ***adds refinements to***:
  - ***Acute Renal Failure: Requires dialysis;***
  - ***Coagulopathy (including disseminated intravascular coagulation [DIC]): Removes non-specific codes from code set.***
- Please see the report entitled "Scientific Rationale and Empirical Testing: Refinements to the Severe Maternal Morbidity Measure" for more information.

The three MHIs include the following maternal health conditions that are identified by International Classification of Diseases, Tenth Revision, Clinical Modification/Procedure Coding System (ICD-10-CM/PCS) diagnosis and procedure codes and administrative discharge disposition data:

- Acute myocardial infarction
- Aneurysm
- Acute renal failure (with and without refinement)
- Acute respiratory distress syndrome
- Amniotic fluid embolism
- Cardiac arrest/Ventricular fibrillation
- Conversion of cardiac rhythm
- Coagulopathy (including disseminated intravascular coagulation) (with and without refinement)
- Eclampsia
- Heart failure/Arrest during surgery or procedure
- Puerperal cerebrovascular disorders
- Pulmonary edema/Acute heart failure
- Severe anesthesia complications
- Sepsis
- Shock
- Sickle cell disease with crisis
- Air and thrombotic embolism
- Hysterectomy
- Temporary tracheostomy
- Ventilation
- In-hospital mortality (MHI 02 and MHI 03 only)

For further details in the MHI 01, MHI 02, and MHI 03 measures, as well as comparisons to the CMS SOC measure, please see the Frequently Asked Questions (FAQ) document.

This version of the software is a beta version. AHRQ encourages users to conduct validation testing with the beta software and to submit any inquiries and suggestions for revisions to the Technical Support

inbox: QIsupport@ahrq.hhs.gov. The MHI [Beta] software module does not currently offer risk adjustment and is not designed for accountability purposes[5] but rather for population health analysis, surveillance, quality assurance, and research purposes. AHRQ envisions that future iterations of the software may include risk adjustment options.

[5] For users seeking an accountability measure, the CMS Severe Obstetric Complications measure was developed and designed for hospital-level accountability and comparison purposes. Please see the specifications for more details: https://ecqi.healthit.gov/ecqm/eh/2023/cms1028v1?qt-tabs_measure=measure-information.