

# Announcement: Release of New Maternal Health Indicators (MHI) <sup>Beta</sup> Software v2025

Version 2025 (v2025) of the AHRQ QI software includes an updated Maternal Health Indicators (MHI)<sup>Beta</sup> module which aims to address healthcare quality in the domain of maternal health during the delivery stay and postpartum period. The intent of the module is to allow users to leverage hospital-based claims data to generate area-level measures of maternal health, including severe maternal morbidity (SMM) and behavioral health.<sup>1</sup> The v2024 release included measures capturing SMM and maternal deaths associated with the delivery hospitalization. The v2025 release expands the measurement of SMM to the postpartum period and adds measures of behavioral health during the delivery hospitalization and postpartum period. For more information on the MHI Beta software module, including limitations and potential implications, please see the [MHI FAQs](#) and the [Scientific Rationale and Empirical Testing](#) for Postpartum Severe Maternal Morbidity and Maternal Behavioral Health Measures.

## A. Maternal Health Indicators

The v2025 MHI <sup>Beta</sup> module includes 11 measures that capture SMM, in-hospital death, and maternal mental and behavioral health identified via hospital discharge data from delivery as well as postpartum emergency department visits and inpatient readmissions. The measures can be used for surveillance, quality assurance, and research purposes. [Appendix A](#) lists and describes the measures.

## B. Conditions and Diagnoses Included in MHIs

The SMM MHIs (MHI 01 – MHI 03 and MHI 05 – MHI 07) 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) (refined definition for MHI 03 and MHI 07)
- 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, MHI 03, MHI 06, and MHI 07 only)

The mental and behavioral health conditions used in MHI 04, and MHI 08 – MHI 11 are listed in the technical specifications and are identified by International Classification of Diseases, Tenth Revision,

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<sup>1</sup> The MHI software currently outputs rates at the state level and by race/ethnicity, payer, and poverty category (based on ZIP Code), year, and custom stratum.

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Clinical Modification (ICD-10-CM) diagnosis codes. Technical specifications can be found at the following website: [https://qualityindicators.ahrq.gov/measures/MHI\\_TechSpec](https://qualityindicators.ahrq.gov/measures/MHI_TechSpec).

### C. Additional Information

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](mailto:QIsupport@ahrq.hhs.gov). The MHI<sup>Beta</sup> software module does not currently offer risk adjustment and is not designed for accountability purposes<sup>2</sup> but rather for population-level analysis, surveillance, quality assurance, and research purposes. AHRQ envisions that future iterations of the software may include risk adjustment options.

AHRQ is also releasing a research tool for postpartum maternal behavioral health measures (EXP 01 – EXP 04) that extends the follow-up period of MHIs 08 – 11 to 365 days and modifies the list of diagnosis codes. The research tool information will be available on the AHRQ QI website under the “Resources” menu: <https://qualityindicators.ahrq.gov>. For additional information on the research tool, including the rationale for extending the follow-up period and including a revised code list, please see the Scientific Rationale and Empirical Testing for Postpartum Severe Maternal Morbidity and Maternal Behavioral Health Measures:

[https://qualityindicators.ahrq.gov/Downloads/Resources/v2025\\_MHI\\_Scientific\\_Rationale\\_and\\_Empirical\\_Testing.pdf](https://qualityindicators.ahrq.gov/Downloads/Resources/v2025_MHI_Scientific_Rationale_and_Empirical_Testing.pdf).

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<sup>2</sup> 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](https://ecqi.healthit.gov/ecqm/eh/2023/cms1028v1?qt-tabs_measure=measure-information).

## Appendix A- MHI Module measures

| Release                  | Measure title and type                                                                                                             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Timing                   | Data Source              |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------|
| <b>Delivery measures</b> |                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                          |                          |
| v2024                    | MHI 01 Inpatient Severe Maternal Morbidity Rate, at Delivery (20 indicators)                                                       | <ul style="list-style-type: none"> <li>Replicates the 20 indicator SMM measure<sup>3</sup> used by the <u>Centers for Disease Control and Prevention (CDC)</u>, <u>AHRQ Fast Stats</u>, the <u>Health Resources and Services Administration (HRSA) Title V MCH Block Grant Program</u>, and the <u>Alliance for Innovation on Maternal Health (AIM)</u> (excluding blood transfusions<sup>4</sup>).<sup>5</sup></li> </ul>                                                                                                                | Delivery hospitalization | Inpatient discharge data |
| v2024                    | MHI 02 Inpatient Severe Maternal Morbidity Plus In-Hospital Mortality Rate, at Delivery (20 indicators plus in-hospital mortality) | <ul style="list-style-type: none"> <li>Starts from the 20 indicator SMM measure<sup>3</sup> used by the CDC and HRSA (excluding blood transfusions) and adds in-hospital death.</li> <li>Aligns more closely with the approach in the Center for Medicare &amp; Medicaid Services (CMS)'s Severe Obstetric Complications (SOC) measure (PC-07, CMS1028v2) by including in-hospital death in MHI 02. However, since MHI 02 is based on administrative claims data exclusively, it cannot include risk adjustment for laboratory</li> </ul> | Delivery hospitalization | Inpatient discharge data |

<sup>3</sup> See Section B for the 20 indicators included in MHI 01 – MHI 03 and MHI 05 – MHI 07.

<sup>4</sup> 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.

<sup>5</sup> The MHIs are calculated using fiscal year 2025 ICD-10-CM/PCS coding.

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| Release                                     | Measure title and type                                                                                                                           | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Timing                   | Data Source              |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------|
|                                             |                                                                                                                                                  | or clinical values in the way the CMS SOC measure does. <sup>6</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                          |                          |
| v2024                                       | MHI 03 Refined Inpatient Severe Maternal Morbidity Plus In-Hospital Mortality Rate, at Delivery, Beta (20 indicators plus in-hospital mortality) | <ul style="list-style-type: none"> <li>Starts from the 20 indicator SMM measure<sup>3</sup> used by CDC and HRSA (excluding blood transfusions), adds in-hospital death, and <i>adds refinements</i>:               <ul style="list-style-type: none"> <li><i>Acute Renal Failure: Requires dialysis</i></li> <li><i>Coagulopathy (including disseminated intravascular coagulation [DIC]): Removes non-specific codes from code set</i></li> </ul> </li> <li>Please see the document entitled “<a href="#">Scientific Rationale and Empirical Testing: Refinements to the Severe Maternal Morbidity Measure</a>” for more information.</li> </ul> | Delivery hospitalization | Inpatient discharge data |
| v2025                                       | MHI 04 Inpatient Mental Health and Substance Use Disorders Rate, at Delivery, Beta                                                               | <ul style="list-style-type: none"> <li>Calculates rate of comprehensive mental health and substance use disorder diagnoses at delivery,<sup>7</sup> including:               <ul style="list-style-type: none"> <li>Perinatal Mood and Anxiety Disorders</li> <li>Schizophrenia, schizotypal, delusional, and other non-mood psychotic disorders</li> <li>Dissociative and somatoform disorders</li> <li>Intentional self-harm</li> <li>Substance use disorders and accidental overdose</li> </ul> </li> </ul>                                                                                                                                     | Delivery hospitalization | Inpatient discharge data |
| <b>Delivery and postpartum SMM measures</b> |                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                          |                          |

<sup>6</sup> Severe Obstetric Complications Electronic Clinical Quality Measure (eCQM) Methodology Report, October 2021: <https://www.cms.gov/files/document/measure-methodology-report.pdf>.

<sup>7</sup> See technical specifications for the full list of behavioral health diagnoses included in MHI 04 and MHI 08 – MHI 11. Technical specifications are available at the following website: [https://qualityindicators.ahrq.gov/measures/MHI\\_TechSpec](https://qualityindicators.ahrq.gov/measures/MHI_TechSpec).

## AHRQ Quality Indicators

| Release                                                 | Measure title and type                                                                                                                                                   | Description                                                                                                                                                                                                                                             | Timing                              | Data Source                                       |
|---------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|---------------------------------------------------|
| v2025                                                   | MHI 05 Inpatient Severe Maternal Morbidity Rate, Delivery through 42 Days Postpartum, Beta (20 indicators)                                                               | <ul style="list-style-type: none"> <li>Includes codes from MHI 01, extends measurement period to include delivery through 42 days postpartum.</li> </ul>                                                                                                | Delivery through 42 days postpartum | Inpatient discharge data                          |
| v2025                                                   | MHI 06 Inpatient Severe Maternal Morbidity Plus In-Hospital Mortality Rate, Delivery through 42 Days Postpartum, Beta (20 indicators plus in-hospital mortality)         | <ul style="list-style-type: none"> <li>Includes codes from MHI 02, extends measurement period to include delivery through 42 days postpartum.</li> </ul>                                                                                                | Delivery through 42 days postpartum | Inpatient discharge data                          |
| v2025                                                   | MHI 07 Refined Inpatient Severe Maternal Morbidity Plus In-Hospital Mortality Rate, Delivery through 42 Days Postpartum, Beta (20 indicators plus in-hospital mortality) | <ul style="list-style-type: none"> <li>Includes codes from MHI 03, extends measurement period to include delivery through 42 days postpartum.</li> </ul>                                                                                                | Delivery through 42 days postpartum | Inpatient discharge data                          |
| <b>Postpartum mental and behavioral health measures</b> |                                                                                                                                                                          |                                                                                                                                                                                                                                                         |                                     |                                                   |
| v2025                                                   | MHI 08 Emergency Department and Inpatient Mental Health and Substance Use Disorders Rate, Days 1 to 42 Postpartum, Beta                                                  | <ul style="list-style-type: none"> <li>Includes codes from MHI 04, adds postpartum-specific codes, changes measurement period to days 1 to 42 postpartum (excludes delivery), includes inpatient admissions and emergency department visits.</li> </ul> | 1 to 42 days postpartum             | Emergency department and inpatient discharge data |
| v2025                                                   | MHI 09 Emergency Department and Inpatient Encounters for Intentional Self-Harm Rate, Days 1 to 42 Postpartum, Beta                                                       | <ul style="list-style-type: none"> <li>Calculates rate of intentional self-harm diagnoses,<sup>7</sup> days 1 to 42 postpartum</li> </ul>                                                                                                               | 1 to 42 days postpartum             | Emergency department and inpatient discharge data |
| v2025                                                   | MHI 10 Emergency Department and Inpatient Substance Use Disorders and Accidental Overdose Rate, Days 1 to 42 Postpartum, Beta                                            | <ul style="list-style-type: none"> <li>Calculates rate of substance use disorder and accidental overdose diagnoses,<sup>7</sup> days 1 to 42 postpartum.</li> </ul>                                                                                     | 1 to 42 days postpartum             | Emergency department and inpatient discharge data |

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| Release | Measure title and type                                                                                             | Description                                                                                                                                                                                                                                                                                                                                                                                    | Timing                  | Data Source                                       |
|---------|--------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|---------------------------------------------------|
|         |                                                                                                                    | <ul style="list-style-type: none"> <li>Includes two sub-indicators:<sup>8</sup> <ul style="list-style-type: none"> <li>MHI 10A: Emergency Department and Inpatient Substance Use Disorders Rate, Days 1 to 42 Postpartum, Beta</li> <li>MHI 10B: Emergency Department and Inpatient Accidental Overdose Rate, Days 1 to 42 Postpartum, Beta</li> </ul> </li> </ul>                             |                         |                                                   |
| v2025   | MHI 11 Emergency Department and Inpatient Perinatal Mood and Anxiety Disorders Rate, Days 1 to 42 Postpartum, Beta | <ul style="list-style-type: none"> <li>Calculates rate of perinatal mood and anxiety disorder diagnoses,<sup>7</sup> days 1 to 42 postpartum, including: <ul style="list-style-type: none"> <li>Depression</li> <li>Anxiety</li> <li>Anxiety-related disorders</li> <li>Obsessive-compulsive disorder</li> <li>Bipolar disorder</li> <li>Post-traumatic stress disorder</li> </ul> </li> </ul> | 1 to 42 days postpartum | Emergency department and inpatient discharge data |

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<sup>8</sup> MHI 10 only includes the first instance of substance use disorders or accidental overdose in the numerator. Sub-indicators include the first instance of substance use disorder (MHI 10A) or accidental overdose (MHI 10B). That is, if a patient had at least one encounter for substance use disorder and at least one separate encounter for accidental overdose, then she would be included once in the numerator for MHI 10A, once in the numerator for MHI 10B, and once in the numerator for MHI 10. Therefore, the numerator for MHI 10 is not the sum of the numerators for MHI 10A and MHI 10B.