

March 3, 2024

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Submitted electronically via askahrq@ahrq.hhs.gov.

Re: Request for Information, Inpatient Severe Maternal Morbidity Measure Technical Specifications

Dear Dr. George:

Premier Inc. appreciates the opportunity to submit comments in response to the request for information (RFI) relating to inpatient severe maternal morbidity (SMM) measure technical specifications and the usability, feasibility and likely uptake of a measure of SMM. Premier is dedicated to improving maternal outcomes across the country using data-driven methods. Through our intensive maternal health focused work including the PINC AI™ Perinatal Improvement Collaborative (PPIC), Premier has identified significant gaps in maternal care and is collaborating with our members to implement evidence-based care interventions. As part of this work, Premier is utilizing industry standards in measurement to capture a clearer picture of information gaps as well.

Before delving into the specific questions outlined in the RFI, Premier's comments focus on the overarching issue relating to maternal morbidity measurement which concerns connecting the ambulatory episode to the birthing episode. Without this connection it is difficult to get the full picture of what is really happening with the birthing person and baby. Premier believes this must be addressed to effectively strengthen data collection and evaluation of maternal health.

In addition, Premier addresses the following issues raised in the RFI:

- The SMM measures Premier is currently using, their data sources and how we use these measures;
- Suggestions for the information that would be most helpful for improving maternal health services at various levels;
- Recommended changes for the current list of indicators used for the SMM measure and how these changes would be beneficial and useful; and
- Additional measures that would be effective for improving maternal health services.

I. BACKGROUND ON PREMIER'S LEADERSHIP IN INFANT-MATERNAL HEALTH

Premier is a leading healthcare improvement company and national supply chain leader uniting an alliance of 4,350 hospitals and approximately 300,000 continuum of care providers to transform healthcare. With integrated data and analytics, collaboratives, supply chain solutions, consulting and other services, Premier enables better care and outcomes at a lower cost. Premier's sophisticated technology systems contain robust standardized data gleaned from 45 percent of U.S. hospital discharges, 2.7 billion hospital outpatient and clinic encounters and 177 million physician office visits. Premier is focused on raising the bar on quality, safety, and cost of care for mothers and babies across the United States regardless of personal characteristics such as gender, race, ethnicity, geographic location and socioeconomic status.

To address the problem head-on, the Department of Health and Human Services (HHS) [Office of Women's Health](#) (OWH) through the [Maternal Morbidity and Mortality Data and Analysis Initiative](#) has tapped into

Premier's extensive data to understand why disparate maternal outcomes occur. The [HHS Perinatal Improvement Collaborative](#), a multi-year collaborative comprised of more than 225 hospitals from all 50 states and the District of Columbia, leverages standardized data and proven performance improvement methodology to scientifically identify root causes of maternal-infant mortality and morbidity. With these resources, the collaborative is implementing and analyzing evidence-based interventions to drive clinical quality improvement, advance health equity and help make America the safest place to have a baby.

In August of 2022, Premier responded to CMS' Maternity Care Action Plan with a [commitment](#) to collect population-specific data across the continuum of care to understand the scope of maternal and infant harm. Premier is conducting follow-up research to measure progress in maternal and infant social determinants of health (SDOH) data collection and publish outcomes to advance health equity and reduce healthcare-associated disparities.

II. RECOMMENDATIONS TO IMPROVE MATERNAL MEASURES

Premier appreciates the opportunity to provide input on this important topic. Unfortunately, the maternal mortality rates in the United States continue to be of grave concern. In 2021, the Centers for Disease Control and Prevention (CDC) [reported](#) U.S. maternal mortality rates were 32.9 deaths per 100,000 live births, up from [23.8 deaths per 100,000 live births in 2020](#). Maternal mortality rates also increased in correlation with maternal age as individuals 40 years of age and older experienced 138.5 deaths per 100,000 live births while individuals under age 25 experienced 20.4 deaths per 100,000 live births, [according to the CDC](#).

Premier's recent analysis, published in [JAMA](#) and reported in [CNN](#), shows the rate of pregnant persons dying of delivery-related causes in the hospital appears to have declined significantly – a 57 percent decrease from 2008-2021. However, this decline only reflects in-hospital maternal deaths, not the nation's overall maternal mortality rate, which has been on the rise. Using the PINC AI Healthcare Database (PHD), Premier identified that out of over six million deliveries, nearly fifty thousand patients experienced SMM between 2016 -2022 (179 SMMs per 10,000 deliveries).

Although the RFI focuses solely on inpatient measurement produced using administrative data, Premier believes it is important to call out the underlying critical issue of connecting the ambulatory episode to the birthing episode. In our collaborative work, Premier does not have access to data on what happened to the birthing person before delivery and to the person and baby post-delivery unless they are readmitted to the same facility. It becomes extremely difficult to analyze what factors are contributing to SMM with these major holes in our information. Because the data is in the electronic medical record, and our members are health systems, Premier can only capture the inpatient and maybe some emergency room admit episodes. Even with the new interoperability regulations, it remains extremely challenging to obtain the ambulatory data and attach it to the birthing person and baby and then execute the full analysis. Premier recognizes that this issue cannot be addressed by changes to the inpatient SMM measures but urges AHRQ to consider this complication when crafting measures based on the administrative data being used. Connecting all of the data aspects is critical to ensuring the development of an appropriate outcomes based measure that truly impacts the future quality and safety of the birthing experience.

III. RESPONSE TO AHRQ QUESTIONS

The remainder of Premier's comments are in direct response to the questions posted in the request for information.

- 1. If you are currently measuring severe maternal morbidity in your organization, what measure(s) are you or your organization using? How do you use these measures? What data sources are you using? Please specify the organization type in your answer.**

Premier's Severe Maternal Morbidity Measures Used

Through the capabilities outlined below, Premier supports hospitals nationwide in reporting SMM.

The key metrics reported are:

- Severe Maternal Morbidity (As reported by the CDC/AIM, including blood transfusions as an SMM indicator)
- Severe Maternal Morbidity (As reported by the CDC/AIM, NOT including blood transfusions as an SMM indicator)

Premier also provides these measures above among birthing populations affected by related conditions such as hemorrhage, preeclampsia, sepsis and more. These measures are used in alignment with national definitions for SMM. Premier has chosen these measures to align with national definitions since Premier has found that hospitals use SMM as a key identifier of maternal morbidity. Premier also recognizes that hospitals want to delve deeper into SMM to better understand the populations they serve to see if interventions focused on specific concerns are resulting in a reduction in SMM accordingly.

Use of Premier's Quality Advisor to Measure Severe Maternal Morbidity

Premier utilizes [QualityAdvisor™](#) (QA), which is a clinical benchmarking solution that enables users to identify opportunity for improvement, analyze resource utilization at the item level and mitigate unjustified variation through self-service analytics and executive-ready dashboards. Through Premier's robust QA database and Perinatal Quality Dashboard, Premier supports over 1,350 hospitals with capability to report on birthing populations including through customizable benchmarks and ability to drill down to many features, including the following, and more.

- Patient (Encounter Number and Medical Record Number)
- Demographics (Race, Ethnicity, Payor, Location)
- Visit characteristics (Physician, Patient Type, Discharge Dates)
- Diagnoses and procedures
- Resource utilization

Use of the PINC AI Healthcare Database to Measure Severe Maternal Morbidity

None of this work would be possible without PHD. It is one of the most comprehensive electronic healthcare data repositories in the country. More than 1,300 hospitals/healthcare systems contribute data to the PHD. It provides a unique source of real-world data to conduct evidence-based and population-based analyses of drugs, devices, other treatments, disease states, epidemiology, resource utilization, healthcare economics and clinical outcomes. The PHD comprises U.S. service-level, all-payer information on inpatient discharges and outpatient encounters, primarily from geographically diverse non-profit, non-governmental, and community and teaching hospitals and health systems from rural and urban areas. Hospitals and healthcare systems submit administrative, healthcare utilization and financial data from patient encounters. Inpatient admissions include more than 166 million visits with more than nine million per year since 2012, representing approximately 25 percent of annual United States inpatient admissions.¹ Outpatient encounters include more than 1.3 billion in total with over 100 million per year since 2012.

As of December 2023, 1,118 articles using the PHD have appeared in 264 scholarly journals.² Among such articles include publications focused on SMM, including an [article](#) co-published between the Health and Human Service Office on Women's Health and Premier.³

2. At what level - state, county, or some other level - would information be most helpful for improving maternal health services? In what ways?

¹ American Hospital Association. Trends in inpatient utilization in community hospitals, 1995-2016. U.S. Census Bureau; 2016.

² <https://offers.pinc-ai.com/PINC-AI-Healthcare-Database-White-Paper-LP.html>

³ <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2806478>

Information Levels

Through our extensive maternal work, Premier has identified several key levels where additional information would be advantageous, including federal, level of care, urban/rural, state and hospital type (critical access vs short term acute care).

1. Federal
 - a. Federal support / mandates for resources to support all birthing persons
 - i. Per the CDC, maternal mortality in the United States demonstrates gross disparities by race and ethnicity with our non-Hispanic Black birthing persons 2.6 times more likely to suffer a pregnancy related mortality.⁴
 - b. Federal support / mandates for coding Z codes to allow metrics and therefore resource allocation appropriate to support patient needs based on social drivers of health. Currently, there is little federal incentive to accurately code this information.
2. Level of Care/Hospital Type (level I-IV, critical access, short-term acute care, tertiary, quaternary)
 - a. According to the American College of Obstetricians and Gynecologists (ACOG), “women with complex high-risk conditions often benefit from giving birth in hospitals that offer a broad array of specialty and sub-specialty services... [and that] women with a high comorbidity index had a significantly higher adjusted relative risk of SMM when giving birth in hospitals of low acuity.”⁵
 - b. Disparities in birthing patients' access to higher level of care facilities exist. Exploration of proximity of higher level of care facilities may identify and confirm outcome inequities by socio-economic status (acknowledging housing availability and affordability in locations remote from tertiary and quaternary facilities).
3. Rural/Urban
 - a. Women in rural areas have had a consistently higher predicted probability of SMM, such as sepsis, pulmonary edema, and acute renal failure, as well as mortality, even after accounting for sociodemographic factors and clinical conditions. Rural and urban health disparities have continued to widen over time.⁶
 - b. Standardization of data collection with an equity lens for outcomes by location/distance travelled for care from primary zip code. Again, exploring resource allocation by location may confirm and allow for close monitoring of outcome inequities by local of care provision.
4. State
 - a. Reporting SMM outcomes by state should be mandatory. Federally mandated State Level Maternal Mortality Review Boards are necessary and should be required to observe and report SMM. Outcome comparison (SMM and mortality), as an equity measure comparison by state can provide insight into care practices and benchmarking for quality improvement to enhance patient safety.⁷
 - i. Maternity care deserts are growing in the United States, and according to the March of Dimes, “in maternity care deserts alone, approximately 2.2 million women of childbearing age and almost 150,000 babies are affected” and states with increasing care deserts are disbanding their Mortality Review

⁴ <https://www.cdc.gov/nchs/data/hestat/maternal-mortality/2021/maternal-mortality-rates-2021.pdf>

⁵ <https://www.acog.org/-/media/project/acog/acogorg/clinical/files/obstetric-care-consensus/articles/2019/08/levels-of-maternal-care.pdf>

⁶ [Rural-Urban Differences In Severe Maternal Morbidity And Mortality In The US, 2007–15](https://www.ruralurban.org/2019/08/20/rural-urban-differences-in-severe-maternal-morbidity-and-mortality-in-the-us-2007-15)

⁷ <https://idahocapitalsun.com/2023/06/30/as-us-maternal-mortality-rates-surge-idaho-abandons-panel-investigating-pregnancy-related-deaths/>

Boards as critical access and rural hospitals close and/or disband maternity care services.⁸

- ii. In the current environment of reproductive right restrictions, state level data may be vital in evaluating the contribution of legal changes in reproductive service access and the effect on maternal outcomes.
 1. Combining state level SMM data with the CDC Abortion Surveillance⁹ System will identify any influence legal reproductive restrictions may have on outcomes.
 - a. Although abortion services most often occur as outpatient services, patients who would have sought termination services that are no longer available to them because of state law, and therefore remained pregnant, may face different outcomes.
 - b. Medicaid/Medicare Obstetrical care
 - i. Provider maternity care service reimbursement varies by state. Reimbursement inequity can exert influence over the obstetrical care provider's decision to accept state/federal insurance plans, and thus directly restricting access to care based on insurance payor.

Within Premier's PINC AI Healthcare Database and QualityAdvisor products as described in our answer to Question 1 above, organizations can benchmark their SMM rates to those in various peer groupings, including nationwide, neonatal level of care, urban/rural, state, hospital type (critical access vs short term acute care) – provided that the peer grouping contains enough hospitals to meet minimum reporting capabilities to protect hospital anonymity. If these benchmarks were widely available, it would allow for transparency to the public and proper federal and state level resource allocation to vulnerable populations.

3. The measure currently used by AHRQ for severe maternal morbidity uses 21 indicators identified with ICD-10CM/PCS codes in administrative data. Considering these indicators, what codes might be missing? Are there changes you would you recommend?

Premier has several suggestions for adjustments and additions to the current indicators which are outlined below.

21 Indicators – Recommended Adjustments

- a. Birth Volume Denominator (base population)
 - a. Premier recommends changing definitions to solely utilize ICD-10-CM and ICD-10-PCS diagnoses/procedure codes in identifying the birthing population (i.e., removing the reference of MS-DRGs). As MS-DRGs are tied to reimbursement, Premier has found that patients will be assigned to an MS-DRG used as defining the birthing population in national definitions, even outside the birth encounter. This results in patients erroneously being included in the denominator of SMM results when they are not a true delivery encounter.
- b. Gender
 - a. Though the CDC site does not specify gender criteria, it does link to the AIM SMM Codes List which specifies "Females".
 - b. Not all patients who give birth identify as female. Removing this criterion may expand the population to allow reporting across genders and investigation of inequities.
- c. Age

⁸ <https://www.marchofdimes.org/maternity-care-deserts-report>

⁹ https://www.cdc.gov/reproductivehealth/data_stats/abortion.htm

- a. Currently the indicators state “delivery hospitalizations for patients aged 12 – 55 years inclusive.”
- b. There is the opportunity to increase age criteria, as patients may give birth outside of this range.
- d. Sepsis/infection code
 - a. This indicator should be expanded to include other gram-positive organisms.
- e. National Code Lists
 - a. Inconsistency of national code lists AIM, CDC, HRSA FAD do not update at the same time and often do not match.
 - b. Definitions should be adjusted to align across national organizations. This is important so that national data is comparable across organizations to allow for collaboration, learning, and improvement.
- f. Blood transfusion
 - a. Blood transfusions are widely known to be under coded due to lack of specificity in provider documentation and the complexity of the ICD-10-CM codes. As such, blood transfusion coding is variable and unreliable depending on the coding practices at hospitals. Although guidance exists for recommendations to improve blood transfusion coding accuracy, such as through the [Alliance for Innovation On Maternal Health's Alert on Blood Transfusion Procedure Coding](#), Premier has found in our experience in working with hospitals that accurate documentation remains an issue.
 - b. Even further, although blood transfusion can be indicative of another morbidity at play, it can be, itself, a life-saving treatment. Additionally, patients may receive blood transfusions for reasons which are not reflective of severe morbidity, such as for cases of anemia. As such, Premier recommends transfusion be EXCLUDED from the 21 indicators in the national definitions to focus SMM measurement and research on the underlying morbidity and to reduce confounding factors in studies due to known coding documentation opportunities.
 - c. Some organizations have removed blood transfusions as an SMM indicator; however, measurement remains inconsistent across organizations.

21 Indicators – Recommended Additions

- a. Other Conditions
 - a. There should be an increased focus on analyzing SMM among other condition-focused populations, including but not limited to hemorrhage, hypertension, mental health, substance use and diabetes. This will allow further study in how changing care practices for specific populations are impacting morbidity.
- b. Mental Health
 - a. The current state does not include SMM for mental health or substance use disorders – despite the fact that, according to the CDC, mental health conditions (including deaths to suicide and overdose/poisoning related to substance use disorder) are the leading cause of maternal mortality, accounting for 23 percentage of pregnancy-related deaths.”¹⁰
 - b. Mental Health DSM code expansion is necessary to expand on the post-partum period included in the DSM definition (currently four weeks) to include up to 365 days (about 12 months) post pregnancy.¹¹
- c. Substance Use
 - a. The current state does not include SMM for mental health or substance use disorders – despite the fact that they are the leading contributor to post-hospitalization mortality.¹²

¹⁰ <https://www.2020mom.org/blog/2022/9/26/maternal-mental-health-disorders-are-the-leading-cause-of-pregnancy-related-deaths>

¹¹ <https://www.cdc.gov/media/releases/2022/p0919-pregnancy-related-deaths.html>

¹² <https://www.cdc.gov/media/releases/2022/p0919-pregnancy-related-deaths.html>

The changes Premier has suggested would make a SMM measure more useful and have various beneficial effects, including the following:

- Expanding data reporting parameters would allow for the most robust data collection. Every morbidity and mortality event is significant and limiting data collection impacts the ability to identify areas of opportunity/trends in mortality and SMM.
- Agreement and adoption of a single standard definition would allow for a sole source of truth and benchmarking capability.
- A single standard definition of SMM would provide uniformity when healthcare consumers are evaluating and comparing data.
- Acceptance of one single standardized definition of SMM could reduce the tendencies of providers, facilities, systems, and local, state and federal governments to challenge the data – this may reduce the variance of narratives surrounding maternal health.

For perspective, there are four million births per year (average) in the United States. Every data point matters when you consider approximately 700 deaths per year, and even more when you consider that 70,000 pregnant people experience morbidity.¹³

The measure refinements Premier proposes would be useful for surveillance, population health management, clinical quality improvement, program evaluation, research and public reporting and accountability programs. For example, use of more comprehensive data as Premier suggested will identify the conditions that are driving SMM and mortality, thus informing clinical practice changes, quality improvement and foundational education in medical, nursing and midwifery programs.

4. What other measures of maternal health and/or morbidity would your organization find useful/effective for improving maternal health services, including any potential measures for use in either the prenatal or postpartum time periods?

Additional Measures

Premier suggests the following measures be added to improve maternal health services. Our extensive research in this space has led us to the conclusion that there is a tremendous opportunity to improve maternal care by expanding the data measurement that is currently in place.

- 1) SMM among birthing persons who intended to deliver a pregnancy at time of conception/realization of pregnancy.
- 2) SMM among birthing persons who did not intend to deliver a pregnancy at time of conception.
 - a. Similar SMM among birthing persons who sought and were unable to access or were denied pregnancy termination.
- 3) SMM among patients stratified by states with reproductive choice restrictions.
- 4) SMM among other condition-focused populations, including but not limited to hemorrhage, hypertension, mental health, substance use and diabetes. This will allow further study in how changing care practices for specific populations are impacting morbidity.
- 5) Pre-post-hospital SMM measure expansion to include SMM among substance use disorder and mental health data points.
 - a. As a leading cause of out-of-hospital morbidity and mortality¹⁴, substance use disorder and mental health should be included in the SMM lists.
- 6) Readmission data inclusive of indications for readmissions.

¹³ [Pregnancy-Related Deaths: Data from Maternal Mortality Review Committees in 36 US States, 2017–2019 | CDC](#)

¹⁴ <https://www.2020mom.org/blog/2022/9/26/maternal-mental-health-disorders-are-the-leading-cause-of-pregnancy-related-deaths>

- a. This data would allow for further understanding of morbidity in the fourth trimester and where to focus efforts on postpartum patient education.
- 7) Psychosocial/behavioral – captured in SMM
- 8) Public reporting of State Maternal Mortality Review Board Findings
 - a. Federal requirements that every state has a Maternal Mortality Review Board
 - i. Inclusive of morbidity review and reporting
 - b. Public reporting (similar to LeapFrog, etc.) of state level SMM data – with ease of access/transparency

Beyond these additional measures, Premier strongly urges the creation of a standard for prenatal data collection.

IV. CONCLUSION

In closing, Premier appreciates the opportunity to submit comments in response to the request for information regarding Inpatient Severe Maternal Morbidity Measure Technical Specifications. Premier looks forward to continuing our work in this space and collaborating with AHRQ to address SMM and the critical issue of maternal health measurement.

If you have any questions regarding our comments, or if Premier can further serve as a resource to the Agency, please do not hesitate to reach out to me at soumi_saha@premierinc.com.

Sincerely,



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Premier Inc.