



ALLIANCE FOR INNOVATION
ON MATERNAL HEALTH

**Strategies for Implementation
of Regionalized Risk-Appropriate
Maternal Care on a National Scale**

Summary



Maternal mortality and severe maternal morbidity have been on the rise in the United States. One of the proposed solutions to address this increase is the adoption of a classification system that would identify maternal levels of care, which would establish levels of maternal care (LoMC) for basic care (level I), specialty care (level II), subspecialty care (level III), and regional perinatal health care centers (level IV). While there has been some forward movement to define and adopt levels of maternal care in the United States, the momentum, acceptance, and implementation vary greatly. The purpose of this report is to describe key implementation strategies for LoMC that address barriers and offer potential solutions.

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Note: Though not all people who experience pregnancy identify as women, this report includes the terms “woman” and “women” when specifically used within the studies to describe the population referenced.

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Introduction



Maternal mortality and severe maternal morbidity have increased in the United States by nearly 200% between 1993 and 2014.¹ One of the proposed solutions to address this increase is the adoption of a classification system for obstetric facilities that would identify levels of maternal care, similar to levels of neonatal care that exist across the United States.² Levels of Maternal Care (LoMC) aims to reduce preventable maternal morbidity and mortality by ensuring equitable and seamless access to facilities that are prepared to provide risk-appropriate collaborative care in alignment with the individual's medical and obstetric needs. The LoMC Obstetric Care Consensus, published by the American College of Obstetricians and Gynecologists (ACOG) and Society for Maternal-Fetal Medicine (SMFM):

- ▶ Establishes a classification system for basic care (level I), specialty care (level II), subspecialty care (level III), and regional perinatal health care centers (level IV)
- ▶ Defines capabilities and personnel needed for each level of care
- ▶ Encourages development of collaborative relationships between providers and facilities of differing levels of maternal care in regions to enable consultation and transfer of care when appropriate

With LoMC defined, facilities can identify and address gaps in capabilities and personnel to align with national standards, and regions and health systems can examine the capabilities of their facilities and define criteria for care locally allowing for designated transfer of care based on risk. States and other jurisdictions can map the geographic distribution of facilities and resources to identify needs for improved access to maternity care.

A strong body of evidence exists to support that neonatal morbidity and mortality decrease after levels of neonatal care are implemented as part of a system of risk-appropriate care.³ Current evidence suggests that higher-risk obstetric patients experience improved outcomes when receiving care at high-acuity facilities.⁴ There has been some forward movement to define and adopt LoMC in the United States. However, the momentum, acceptance, and implementation strategies vary greatly. Challenges associated with successful implementation of LoMC include data limitations,^{4,5,6,7,8} lack of specialist availability,^{4,8,9} inability to transport patients to appropriate level facilities in a timely manner,^{7,8} disincentivizing payment structures,^{1,8} and varied approaches to regionalized care across the country.¹⁰

Background



In 2015, ACOG and SMFM released the Obstetric Care Consensus #2: Levels of Maternal Care (also referred to as LoMC OCC), which described the need for levels of maternal care. The document was updated in 2019 and, as described above, provides standardized descriptions of maternity facility capabilities and offers a framework for integrated systems that address maternal health needs.¹¹

Risk-appropriate care highlights the importance of adequately staffed and equipped facilities; regionalized care with defined relationships between different level facilities; initial and continuous risk assessment; and the potential benefit of caring for patients with a high risk of maternal morbidity in centers with higher-level, acuity-focused resources and specialty and subspecialty personnel.¹ Low-acuity birthing settings are often the preferred and appropriate option for most pregnant people, particularly in rural areas where travel distance to a high-volume or high-acuity hospital can be a barrier to care. The goal of creating systems for risk-appropriate care is to support the safe care for all pregnant people in all facilities.

LoMC provides a framework for the implementation of patient safety bundles (PSBs), which were developed by the Alliance for Innovation on Maternal Health (AIM), a national data-driven maternal safety and quality improvement initiative. AIM's mission is to support best practices that make birth safer, improve maternal health outcomes, and save lives. Its mission is carried out through the implementation of PSBs, external partnerships with state and jurisdiction-based teams, data and reporting, provision of technical assistance and capacity building to participating organizations, and development of materials and communities of learning to support PSB implementation.

In addition, AIM's core PSBs address clinically specific conditions in pregnant and postpartum people and contain associated metrics related to structure, process, and outcome. The structure of PSBs offers a standardized approach to implement evidence-based practices consistently with all patients. Aspects of the LoMC framework, such as measuring quality improvement, establishing a system for escalation and consultation, and facilitating appropriate maternal transport, when necessary, are included within elements of AIM's core PSBs to reduce preventable maternal morbidity and mortality. Reciprocally, the AIM PSBs are designed to be executed across all levels of maternal care, with distinctions of specific bundle elements to be adapted and adjusted for the level of care of an implementing facility.

Regionalization of care facilitates the adoption of PSBs. For example, Obstetric Hemorrhage and the Cardiac Conditions in Obstetrical Care PSBs include elements that recommend establishing multidisciplinary teams for the management and care coordination of patients presenting with these conditions and takes into

consideration a facility's level of care. Regional centers can support and encourage their referring hospitals to successfully implement AIM PSB elements, utilizing the framework that LoMC provides.

Defining Risk and Obstetric Complications by Level

The framework for LoMC is defined along a continuum of low risk (I) to highest risk (IV) based on matching the services available to the expected care needs of the patient. Additional clarification of the definitions of risk categories for obstetric patients was a common request following the 2015 publication and considered during the revision process. Although it may be seen as beneficial to provide further specificity for these categories, the complexity of factors impacting risk is too great to set a national standard. There is variation between facilities and regions in what constitutes or defines these risk levels and/or indication for transport. Local and regional guidelines are highly dependent on the population served, the prevalence of comorbidities, available resources at the facility level, geography, and potential impact of weather on obtaining supplies or transport considerations. Determinations of risk level and appropriate facility for birth are ideally made by a multidisciplinary team at each individual facility, including obstetric providers, nurses, and representatives from other services involved in care of obstetric patients, considering the available resources that all these entities contribute.

Likewise, ACOG was asked to provide a more comprehensive list of examples of conditions that could be cared for at certain levels. The creation of such a list was ultimately not included in the 2019 revision of the LoMC OCC for similar reasons as described above. Due to variances of available resources, it would be nearly impossible at a national level to create a comprehensive list of obstetric complications or maternal comorbidities and categorize them into specific levels of care. The conditions included in the current LoMC OCC are examples but not considered to be resolute. Certain obstetric complications or maternal comorbidities may be appropriate for a level II facility in one area, but more appropriately cared for at level III facility in another location based on specific resources. Within a given region, it is strongly recommended that a multidisciplinary team, with representation from each facility, collaborate to define which obstetric complications or maternal comorbidities are appropriate for care at each facility, as well as the types of patients that would be more appropriate to transfer to a different level facility. This approach would potentially decrease variance between individual providers caring for the patient and help standardize transport protocols within a specified region.

High-Risk Deliveries and Levels of Maternal Care

When regionalized risk-appropriate care is working, the rate of severe maternal morbidity (SMM) should be higher at the facilities with a higher LoMC, reflecting the shift of higher risk patients to the appropriate level of care facility. The goal is to identify those patients at higher risk of experiencing SMM and refer them to the appropriate LoMC prior to their delivery if possible. In a study that analyzed data from 845,545 deliveries across seven states, Easter et al. found that a small fraction (2.4%) had risk factors that warranted delivery at a level III or level IV facility. Among the 19,988 women with high-risk conditions

that required level III or IV care, 43.3% delivered at level I or level II centers, considered inappropriate for their needs. This study assigned each patient to a minimum required level of maternal care (I-IV) based on comorbidities captured in the State Inpatient Database. Authors concluded that an important step to improve maternal outcomes is to ensure that patients with high-risk medical conditions are identified pre-delivery and have access to risk-appropriate care.⁵

Another study reviewed whether hospitals with a higher level of care had better maternal outcomes. Srinivas et al. collected data from obstetric hospitals in nine states and designed a telephone survey based on the LoMC OCC to assign a level of maternal care to participating hospitals.⁶ They linked survey responses to Statewide Inpatient Databases hospital discharge data. Verification of the assigned levels was not performed, which may have led to misclassification. Of the 236 hospitals surveyed, hospitals with higher levels of maternal care had higher delivery volume, were more likely to have neonatal intensive care units, and were more likely to be affiliated with hospital systems. The survey-reported levels were then compared to 247,383 birth outcomes. Although a higher proportion of high-risk pregnancies were managed within level IV units, there was a lack of evidence the births analyzed had superior outcomes. Deliveries occurring in hospitals with lower levels of care had lower odds of severe morbidity compared with those in level IV hospitals. The authors acknowledged this may be due to women with more severe diagnoses seeking treatment at or being transferred to the highest-level hospitals, biasing the results toward higher-level hospitals appearing to have poorer outcomes.⁶

Researchers also found that hospitals with a higher level of maternal care were more likely to treat women with high-risk conditions of placenta previa with accreta, placenta previa without accreta, severe preeclampsia/eclampsia, and cardiac conditions compared to hospitals with lower levels of maternal care.^{5,6} Women with cardiac disease or placenta previa with prior uterine surgery were at the highest risk of delivery at an inappropriate level center.⁵ Given that these two diagnoses particularly require 24-hour subspecialty care, identifying such women with high-risk medical conditions for transfer and risk-appropriate care is a necessary step to improving maternal outcomes.

Health Equity

Health equity is achieved when every person has the opportunity to “attain his or her full health potential” and no one is “disadvantaged from achieving this potential because of social position or other socially determined circumstances.”¹² Health inequities can be reflected in differences in length and quality of life; rates of disease, disability, and, death; severity of disease; access to treatment, and other health outcome disparities, including maternal mortality. From 2007 to 2016, non-Hispanic Black and non-Hispanic American Indian/Alaska Native women experienced higher pregnancy-related mortality ratios (40.8 and 29.7, respectively) than all other racial/ethnic populations. Cardiomyopathy, thrombotic pulmonary embolism, and hypertensive disorders of pregnancy contributed more to pregnancy-related deaths among Black women than among White women. When these types of conditions are recognized

in the prenatal period, patients can be subsequently referred to a higher level of care. In addition, pregnancy-related mortality increases with pre-existing chronic diseases, such as hypertension.¹³ Even when controlling for socio-economic factors such as education and income, Black women still die at a higher rate than White women during pregnancy.¹⁴ Combined with geographical challenges faced by those living in rural areas or on a reservation, these inequities are even more apparent.¹⁵

According to the Centers for Disease Control and Prevention (CDC), “Ensuring that pregnant women at high risk for complications receive care in facilities prepared to provide the required level of specialized care can improve outcomes.”¹³ While there is not yet data to show how disparate outcomes related to inequities might be addressed by LoMC, identifying these conditions or risk for these conditions during the prenatal period could allow for a referral or transport to a facility with an appropriate level of maternal care. Therefore, successful implementation of LoMC could have the potential to advance health equity.

Framework for Implementation



I. Defining Levels of Maternal Care

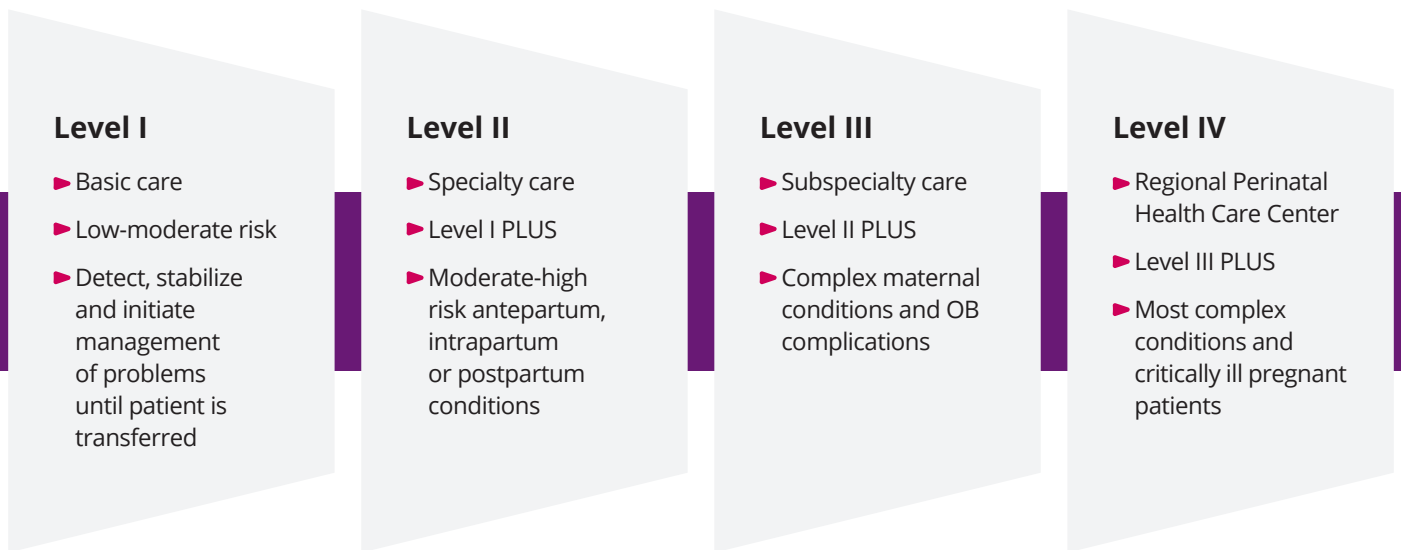
The ACOG/SMFM Levels of Maternal Care Obstetric Care Consensus defines the required minimal capabilities, physical facilities, and medical and support personnel for each level of maternal care. The guidance has expert input from leaders in the fields of obstetrics, maternal-fetal medicine, nursing, obstetric anesthesia, and family medicine. The criteria in the document are based on these expert opinions coupled with the most recent scientific evidence.

ACOG and SMFM encourage facilities to utilize the guidance as a framework for their level definitions and develop guidelines whereby maternal criteria is separate from neonatal criteria. With the current lack of LoMC research, certain requirements deliberately lack specificity, and therefore, some jurisdictions, health systems, and facilities have opted to adapt the guidance criteria in accordance with local needs. Examples include adding specific time frames at which a provider is required at bedside, reporting of specific data metrics, and implementation of other quality improvement projects. Still other jurisdictions embed maternal care requirements within their perinatal guidelines with or without separating criteria by level. The guidance provides a standard reference point to guide policy and program development and clarifies that the ultimate result is a system of care, rather than implementation at one or a handful of facilities.

An assessment of publicly available LoMC state guidelines discovered that one third of states had perinatal guidelines incorporating LoMC criteria (as of January 2018).¹⁰ Among these states, definitions, criteria, and nomenclature for levels of care varied. Utilizing different criteria for level definitions limits monitoring and evaluation of health outcomes for regionalized systems of maternal care. This results in difficulty comparing studies and generating sufficient scientific evidence to suggest that implementation of LoMC impacts maternal health outcomes.

The LoMC OCC encourages and supports healthcare provided at a facility that best matches the risk of the woman and newborn independently. The guidance states, "Levels of maternal and neonatal care may not match within facilities. However, a pregnant woman should be cared for at the facility that best meets her needs as well as her neonate's needs."¹¹ This is an important consideration, as approximately 50% of facilities with subspecialty neonatal care do not provide subspecialty maternal care, presenting a challenge when both high-risk maternal and neonatal conditions are present. Moreover, there are no data that support better outcomes when maternal and neonatal levels of care are the same.^{4,8} Additional maternal and neonatal outcome data that compare congruent and noncongruent facilities are needed.

2019 Levels of Maternal Care Definitions



(Kilpatrick et al., 2019)

II. Assessing and Verifying Levels of Maternal Care

Facilities must have an accurate understanding of the level of care they are able to provide, and the level of care provided by other facilities in their region so that patients can receive care in alignment with their health risk. Although perinatal risk-appropriate care was first promoted by the March of Dimes in the 1976 report titled, “Toward Improving the Outcome of Pregnancy,” subsequent revisions focused primarily on neonatal criteria and outcomes.¹⁶ In more recent efforts to effectively define and monitor maternal and neonatal levels of care among facilities, states and other jurisdictions engaged in the Collaborative Improvement and Innovation Network to Reduce Infant Mortality, an initiative of the U.S. Health Resources and Services Administration’s Maternal and Child Health Bureau. This group worked with staff at the CDC to develop the CDC Levels of Care Assessment Tool or LOCATe[®], which addressed the need for a user-friendly and standardized approach to assess facility resources and capabilities for both maternal and neonatal care. Since 2013, states, U.S. territories, perinatal regions, and other organizational bodies have implemented CDC LOCATe[®]. The assessment is completed by the appropriate respondents within facilities to answer questions about personnel and services, including subspecialists and their availability, drills and protocols for emergent situations, transport, facility-level statistics, and self-reported levels of neonatal and maternal care.¹⁷ The assessment tool aligns with American Academy of Pediatrics guidelines for assessing levels of neonatal care and ACOG/SMFM guidelines for assessing levels of maternal care.

A study examined the accuracy of LoMC self-assessment by facilities compared with their LOCATe® result and found that of 418 facilities, nearly half (194) self-reported a different level of maternal care than the LOCATe®-assessed level of care.⁹ The majority of those facilities (89.2%) had a higher self-assessed level than their LOCATe®-assessed level. There were three common discrepancies reported between perceived maternal care capabilities and recommendations in the LoMC guidelines: lack of maternal-fetal medicine specialist availability, lack of availability of an obstetric-specializing physician anesthesiologist, and lack of obstetric ultrasound services.⁹

To expand on the work achieved with CDC LOCATe®, members representing ACOG, CDC, SMFM, American Academy of Family Physicians, American College of Nurse-Midwives, Arizona Perinatal Trust, and the National Perinatal Information Center (NPIC) conducted the LoMC verification program pilot in 2017, designed to assess levels of maternal care in an obstetric facility according to the LoMC OCC criteria.¹⁸ The multidisciplinary team with expertise in maternal risk-appropriate care piloted this program with 14 facilities that had completed LOCATe® across Georgia, Illinois, and Wyoming. The team developed a site visit process that included an on-site checklist that served to corroborate the facility's LOCATe® responses and validate the assessment tool. Following the site visit, facilities were provided with a verified level of maternal care and other recommendations from the site visit team. Out of the 14 facilities that participated in the verification pilot, 50% had a LOCATe®-assessed level that matched the verified level. In response, CDC staff refined the assessment tool and the guidance provided to facilities completing LOCATe®. Following the pilot, ACOG launched a verification program in Texas in response to a new state statute requiring that hospitals providing maternity services obtain a level of maternal care designation to receive Medicaid reimbursement for obstetrical care.

After implementing a pilot verification program and launching the LoMC verification program in Texas, there was an increased demand for LoMC verification across states. In response, ACOG partnered with The Joint Commission to launch a verification program on January 1, 2022, with standards based on the LoMC OCC. The program enables a broader, more streamlined, consistent, and rapid expansion of LoMC across the country and gives states and hospitals an opportunity to further their efforts to improve maternal health outcomes. The new program involves an on-site comprehensive review of the maternal services available in hospitals that informs a level of maternal care determination. This program will help hospitals gain a clear understanding of their capabilities, resources, and personnel, thereby enabling them to define the types of conditions that the hospital is equipped to manage and circumstances when transfer of care is needed.

Legislation, Regulation, and Designation

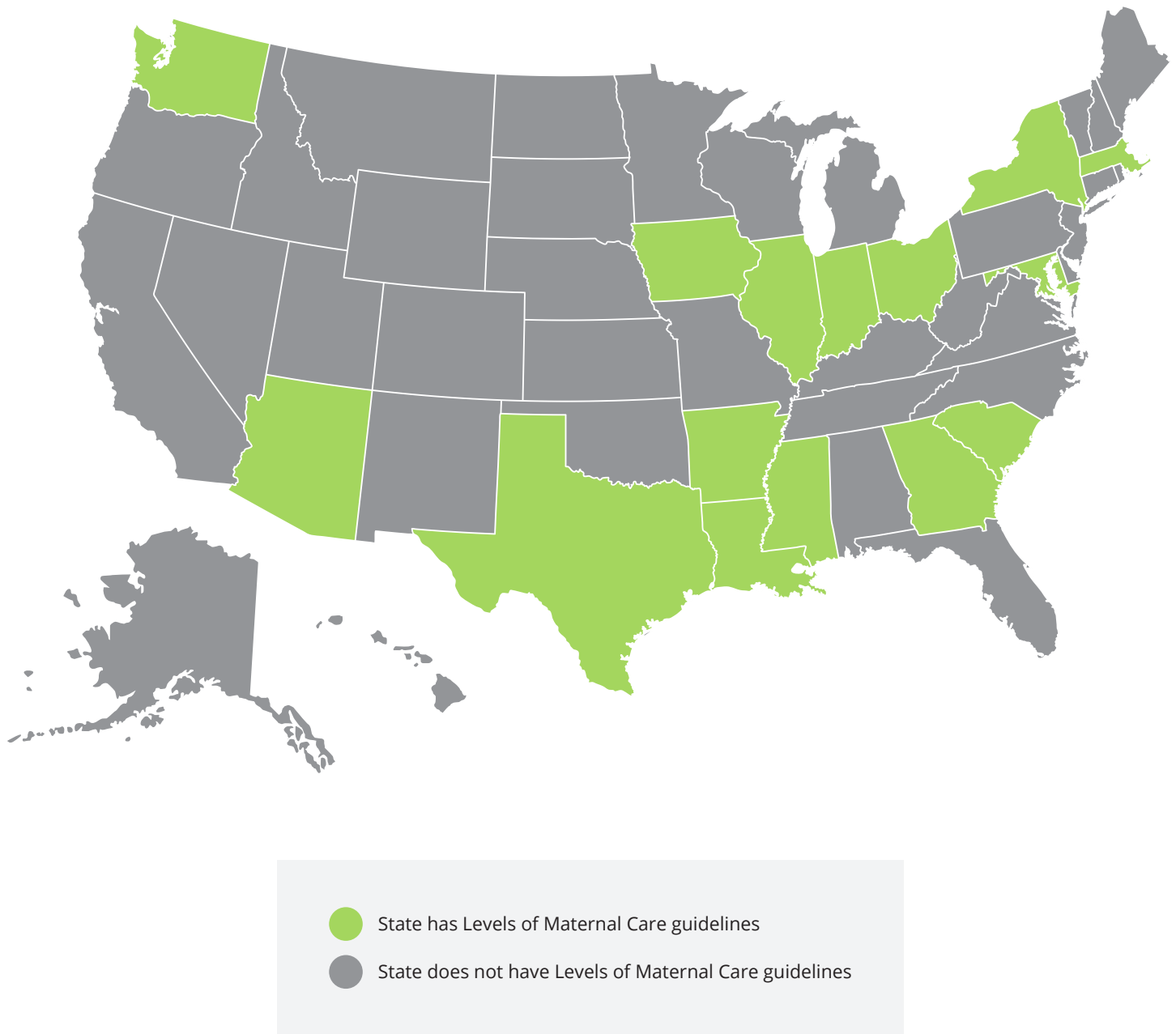
The LoMC OCC was a critical first step toward defining levels of maternal care in the U.S. For states or jurisdictions with guidelines that define levels of maternal care, the approach to implementation has varied based on the components below:

- ▶ If the state or jurisdiction has passed specific legislation to establish level of care designation for hospitals that provide maternity care, including maternal-specific designation.
- ▶ If LoMC criteria by hospital level is specified in regulations that govern hospitals in the state.
 - If included in regulations, if hospital designation is mandatory or voluntary.
- ▶ Method in which the level of care is determined and how often the level of care designation is reviewed.

From 2019 to 2020, ACOG surveyed all 50 states and the District of Columbia to gauge their current approach to LoMC. In addition to the information above, the following information was collected for each state:

- ▶ Published state guidelines that define hospital levels of maternal care by specifying minimum capabilities and personnel for every level. Maternal guidelines were further defined as:
 - “Distinct maternal and neonatal criteria” whereby maternal criteria by level is separate from neonatal criteria.
 - “Maternal and neonatal criteria not distinct” whereby maternal criteria by level are blended with neonatal criteria. Maternal criteria may be included in documents titled, “Perinatal Guidelines” or “Neonatal Levels of Care Guidelines.”
- ▶ Identification of the organization that sets the criteria for each level designation.
- ▶ As applicable, if the state has begun collecting LOCATe® data.¹⁹

ACOG published the survey findings on its website. As of November 2020, 16 states had levels of maternal care guidelines, defined either as distinct or not distinct. Two additional states used the LoMC OCC for their criteria.



Please Note: ACOG did not evaluate if states' guidelines are aligned with the criteria and definitions in the Levels of Maternal Care Obstetric Care Consensus.

It is important to note that given the complexity of risk-appropriate care, the landscape is constantly changing. Although evidence-based practices have yet to be developed around level assessment and verification, validating the capabilities, staffing, and equipment of each facility is critical to enhancing patient safety and outcomes. While this is true, the cost of site surveys is a potential barrier, especially for level I and II facilities. To mitigate expenses, the Georgia Department of Public Health offers to pay approximately half of the survey fee for The Joint Commission verification. In addition, some healthcare systems have expressed interest in applying for verification together, which could make a significant impact in the ability of lower-level facilities to participate.

III. Establishing Regional Systems of Risk-Appropriate Maternal Care

The journey to establishing a system of risk-appropriate maternal care can be complex and lengthy. As discussed, the initial steps of defining criteria and assessing and verifying levels are critical in this process. While each state, jurisdiction, or healthcare system may approach these steps in a slightly different way, the next section outlines important and universal considerations in establishing connectivity and systems between facilities.

Key Stakeholders in Implementation of Risk-Appropriate Maternal Care

Successful implementation of a system of risk-appropriate care requires consistent engagement with local, state, and regional stakeholders. Successful regional implementation of any LoMC system cannot be achieved without establishing clear and respectful relationships between providers, institutions, and various other stakeholders. The groups of stakeholders involved in risk-appropriate care is diverse and can vary depending on the entity implementing the system. Potential stakeholders include:

- ▶ **Public Health Departments**

Public health entities are charged with creating and maintaining conditions that keep people healthy. State, regional, or local health departments, depending on the location, are key stakeholders in risk-appropriate care. Public health organizations often receive and analyze data related to maternal health, which can be useful in monitoring and evaluating the system once established.

- ▶ **State Hospital Associations**

Most states have a hospital association, which is often the organization that represents hospitals and other healthcare systems, and their interests. Securing the buy-in of the hospital association can be imperative for successful communication with facilities, as well as ensuring the desired approach is not in conflict with any existing policy, regulation, or other initiative.

- ▶ **Healthcare Facilities and Systems**

A substantial proportion of hospitals and healthcare facilities are part of a larger system with standard policies and procedures. Each individual facility is responsible for the care of its patients and is critical to include in implementing LoMC. Hospital administration plays a key role in implementing LoMC and regional systems. In Texas, one obstetrician-gynecologist (OB/GYN) shared

that after passing LoMC legislation, “administrators [are] more engaged with women’s care. There is more acceptance of standardization and the integration of quality improvement at all levels.”

► **Individual Practitioners**

The team providing maternal care varies based on type of facility, patient population, and location but may include OB/GYNs, Maternal-Fetal Medicine Specialists (MFMs), family medicine physicians, nurses, nurse practitioners, Certified Nurse-Midwives, and others. Individual practitioners willing to champion the implementation of LoMC can have a positive effect, as they often have relationships with their peers and can serve to bridge the gap with those who may be skeptical.

► **Payers**

Payers play a vital role in implementation of LoMC. Some states have opted to engage payers by requiring level designation for Medicaid reimbursement. For example, in Arizona and Texas, any facility that registers as a Medicaid provider for obstetric care is required to have LoMC designation to receive reimbursement. Around 40% of the births in the United States are covered by Medicaid, and this percentage is even higher in some states. As such, engaging payers can have a significant impact on a facility’s motivation to achieve designation.

► **Perinatal Quality Collaboratives (PQCs)**

PQCs are state or multistate networks of teams working to improve the neonatal and maternal quality of care. PQCs have contributed to important improvements in maternal health care and outcomes and often choose specific initiatives to focus on based on a state or regional priority. PQCs have strong relationships with facilities and other stakeholders and can serve as champions for LoMC implementation, assessment of facilities, and communicating the positive potential impact of establishing a system of risk-appropriate care.

► **ACOG Districts and Sections**

ACOG has 12 districts and 98 sections that represent various regions in North, South, and Central America. District and section leadership can leverage state, local, and national relationships to engage stakeholders and promote system implementation.

► **Patients and Patient Advocates**

Increasing the understanding by patients and patient advocates of how LoMC improves maternal outcomes may foster better implementation of LoMC. Discussion of delivery facility or setting selection is an opportunity for collaborative shared decision-making between a patient and practitioner. The medical practitioner offers expertise and advice while engaging the patient in a conversation to identify the patient’s needs, values, and preferences for delivery. When, where, and why a certain level of maternal care is needed and recommended should be understood and agreed upon by the patient as part of respectful, equitable, and supportive care. This extent of collaborative interconnected care cannot be achieved unless maternal levels of care designations are public and easily understood, allowing both patient and practitioner to advocate for the best location for the patient’s care.

Collaboration with Other Facilities

The LoMC guidance emphasizes the importance of developing collaborative relationships among facilities of differing levels of maternal care to improve systems of care and facilitate quality improvement efforts based on the resources, opportunities, and needs specific to the region. Champions for establishing systems of risk-appropriate care recommend that honest dialogue around facility capabilities and opportunities for partnership is a critical first step in developing collaboration between facilities. The resources, time, and energy required to establish, cultivate, and maintain collaborative inter-facility relationships are significant but worthwhile to improve patient care.

When facilities develop collaborative relationships, systems and patient care can be improved, including timely and safe maternal transport. For example, the obstetrics department leadership at facility A and facility B agree to hold joint quarterly Quality Assurance and Performance Improvement (QAPI) meetings to review their interfacility maternal transports. During the initial meeting, they determine format, frequency, ability for both facilities to provide equal feedback, and mutual respect. The receiving facility offers comments on whether the patient was sufficiently stabilized prior to transport and completeness of the medical record, medication, and nursing documentation. The sending facility provides feedback on whether there was timely consultation, effective communication, and response to the request for transfer. This discussion helps the facilities and the transport teams to improve their processes and identify opportunities for improvement and education.

Collaboration has been critical during the COVID-19 pandemic. It has been an important time for regional maternal health leaders to collaborate with their counterparts to share information, identify best practices, and coordinate plans to facilitate transfers of maternal patients. In Texas, these leaders conducted regular calls within their regions to address challenges in caring for patients during the pandemic. During meetings, leaders from each facility in the region described their experiences, best practices, lessons learned, challenges, and questions.

Some states, such as Illinois, Indiana, and New York, have regional perinatal centers (RPCs) to coordinate regional access to optimal and appropriate maternal and neonatal health care. These facilities are usually the highest level of care in their region and can provide transport, consultation, and outreach and training to lower-level facilities. The role of the RPC is crucial when establishing a system of risk-appropriate maternal care, and leadership and staff at the RPC should establish a relationship of trust and collaboration with all facilities in their region and remove any focus on the competition between institutions. The number and designation of RPCs are dependent on geography and population density of regions.

CASE STUDY: Indiana

In 2019, Indiana added Article 39, Perinatal Hospital Services, to the Indiana State Department of Health Administrative Code Title 410. This legislation requires all hospitals in Indiana that offer obstetric and neonatal care to be certified as level I-IV, based on the services offered. The rule also requires all Indiana birth centers to be accredited by the Commission for the Accreditation of Birth Centers.

The rule directs the Indiana Department of Health (IDOH) to conduct certification surveys when facilities apply for their desired level of care and places facilities on a three-year certification cycle. Neonatal and maternal level surveys are done at the same time to capitalize on availability of staff and decrease disruption of patient care. Perinatal Centers in Indiana have specific requirements, including to affiliate with at least one hospital not in-network. Every hospital is required to partner with one of the designated perinatal centers, which provide education and outreach, consultations, and potential transport. Perinatal centers do not currently receive funds from the state and incurring expenses are not currently reimbursed.

Indiana staff established a Perinatal Center Taskforce and each center has two representatives at a quarterly learning committee. The task force focuses on joint problem solving and discusses education and training opportunities for facilities. The IDOH, in conjunction with the Indiana Hospital Association, have generated reports based on metrics from the birth record and discharge data for each of the Perinatal Centers. The centers can use that data to help facilitate discussions with each of their affiliate hospitals.

Maternal Transport

Ideally, a patient experiencing a high-risk pregnancy is recognized during the prenatal period and is referred to receive care—and ultimately delivers at a level of maternal care facility—that is best positioned for their needs. When clinical events or conditions present during labor or delivery that require management beyond the capabilities of the facility, it is critical that transport agreements with higher-level facilities are in place. Severe maternal morbidity (SMM) rates are relatively low, less than 2.5% of the deliveries, suggesting that the actual number of patients needing referral to higher levels of care is small.²⁰

The Ohio Maternal Mortality Review Committee (MMRC) found that transfer to a higher level of care might have improved the outcome or changed the course of events for 11% (15) of the pregnancy-related deaths in the state from 2010 to 2016.⁷ Of the 15 deaths, 40% (6) had a maternal transport documented in the Maternal Mortality Review Information Application (MMRIA), a data system designed by the CDC to support and standardize maternal mortality reviews. Additionally, one of the most common recommendations in a report that analyzed MMRIA data from nine MMRCs was to adopt levels of maternal care and ensure appropriate level of care determination.²¹

For five of the six patients that were transported from one hospital to another, the committee recommended earlier transfers to a higher level of care and noted “inadequately trained personnel” as a contributing factor to the death, such as emergency department staff leading a delivery.⁷ Recommendations made based on these findings included implementation of Emergency Medical Services trainings, policies, and maternal transport protocols and clear plans for transport of pregnant patients, including how transport will be facilitated and how long transport will take.⁷

Another study on maternal transport reported that women with high-risk conditions delivered in facilities without subspecialty care nearly one-third of the time.⁴ However, 35% of these women delivered in a county with subspecialty maternal care and theoretically could have been transported to the higher level of care facility. For high-risk women who delivered in a county without a facility with subspecialty care, the median distance to the nearest county with subspecialty care was 50 miles. This distance presented a significant barrier and safety concern for many patients and can be associated with adverse perinatal outcomes.⁴ Numerous studies show that neonatal outcomes are improved when mothers are transported for fetal indications to neonatal risk-appropriate facilities via maternal transport systems.^{22,23} Additional data on maternal outcomes achieved through risk-appropriate transfer of care for maternal indications are needed.

The current payment structure for obstetric services can be a barrier to risk-appropriate transfer. Obstetric care services are typically paid for through global procedure codes. The primary current procedural terminology (CPT) global codes related to obstetric care services are for routine vaginal

delivery, cesarean delivery, vaginal delivery after cesarean, and cesarean delivery after attempted vaginal delivery. All four of these codes include approximately 10 months of prenatal, labor and delivery, and postpartum care services. Obstetrician-gynecologists and other obstetric practitioners typically file a claim for all these services after the end of pregnancy.

Currently, level I and level II facilities are disadvantaged when transferring a patient who has medical complications requiring a higher level of care prior to delivery. Even if that facility has managed the patient's labor for several hours and potentially provided all prenatal care, because the patient delivers at a higher level of care facility, the initial facility is not reimbursed for that patient's care. Value-based payments could be considered to incentivize appropriate transfers of care based on a patient's risk factors consistent with LoMC. This would ensure that lower-level facilities are able to transfer a patient who is at-risk or high-risk without being financially penalized.

In addition, practitioners often have to consider a patient's insurance status when determining where to transport a patient. If a patient is sent to a facility that is out of network, significant financial implications, such as surprise medical bills, may arise for the patient. Some facilities opt to establish transport agreements outside of their system, while others choose to only send patients within their network. For instance, Arizona established a maternal transport system over 40 years ago (see case study below), but the majority of jurisdictions lack a sophisticated transport structure. At times, transport to the nearest appropriate facility might require air transport, which can cost tens of thousands of dollars.

CASE STUDY: Arizona

In 1975, Arizona received a Robert Wood Johnson Foundation (RWJF) grant to develop regionalized perinatal care with a focus on designating appropriate obstetrical and newborn levels of care. Risk appropriate care included collaboration with the AZ Department of Health Services NICP Program for transport of mothers and infant. Carryover funds from the RWJF grant, combined with a grant from local hospitals, led to the creation of the Arizona Perinatal Trust (APT) in 1980. APT collaborates with the High-Risk Perinatal Program (HRPP), Arizona's Medicaid Agency (Arizona Health Cost Containment System, or AHCCCS), and the Arizona Department of Health Services (ADHS) to establish current standards of care. Since the inception of levels of care in Arizona, transport has been a crucial component. In 2020 alone, there were 648 critically ill pregnant women transported to a higher level of care in Arizona.

The HRPP contracts with air and ground transport companies to provide transport and team services for high-risk pregnant women and critically ill newborns. These transports are coordinated by HRPP contracted MFM specialists and neonatologists via the State Consult and Transport Line. The 1-800 line, which is available to physicians 24 hours a day, 7 days a week, provides a mechanism for assuring risk-appropriate

transport and medical care is available and accessible regardless of geographic location and ability to pay. When transport is provided, the patient must be taken to the highest level of care closest to them. HRPP will also provide back transport when authorized by a contracted MFM specialist or neonatologist.

Though the patient's financial responsibility is taken into consideration by the MFM and transport company, services are paid for primarily by private insurance, AHCCCS, and the HRPP if qualified. AHCCCS pays for a large share of transports, as 48% of births in Arizona are financed by Medicaid. Payment can be made by HRPP for authorized back transports to APT-certified facilities when families meet distance and income requirements. Consult services to the 1-800 line are paid for by ADHS.

Rural Health

Access to obstetric care in rural communities is declining. Between 2004 and 2014, approximately 179 rural counties lost hospital-based obstetric services, resulting in a 9% increase from 45% to 54% of rural counties without hospital-based obstetric services.²⁴ Additionally, more than half of rural women live more than a 30-minute drive to the nearest hospital offering perinatal services.²⁵ These realities have resulted in increased numbers of out-of-hospital births, births in hospitals without an obstetric unit, higher rates of delayed prenatal care, pregnancy-related hospitalizations, low birth weight infants, preterm births, and infant mortality.²⁶

To further confound rural access, the obstetrician-gynecologist professional workforce is experiencing a physician shortage and maldistribution, which disproportionately impacts rural areas. Approximately half of counties in the United States do not have a single obstetrician-gynecologist.²⁷ In those rural communities with no obstetrician-gynecologists, LoMC recognizes the importance of family medicine physicians in the provision of obstetric care. For a level II facility, the LoMC OCC states, "Based upon available resources and facility determination of the most appropriate staffing, it may be acceptable for a family physician with obstetric fellowship training or equivalent training and skills in obstetrics, and with surgical skill and privileges to perform cesarean delivery to meet the criteria for being readily available at all times."

A coordinated system of regionalized maternal care involves multiple components, and implementation must be considered within the context of rural health challenges. LoMC framework specifically directs higher-level facilities to collaborate with lower-level facilities to coordinate transport, support quality assurance initiatives, analyze regional data, and assist with education. The state of Iowa has addressed this challenge by connecting MFMs and neonatologists to non-birthing facilities for education and training. During the COVID-19 pandemic, the University of Iowa Health Care system facilitated virtual education for greater collaboration and relationship building.

The concept of adding a “level 0” has been suggested to address healthcare facilities that do not provide obstetric services, which are often the only facility available in rural and frontier areas. Although there are currently no criteria for these facilities in the LoMC OCC, it is important for these facilities to have policies and procedures in place to address the potential for an obstetric patient arriving for care. This concept is directly related to regionalization, as it would be beneficial for non-obstetric facilities, such as critical access hospitals and free-standing emergency departments to develop communications and relationships with facilities that do provide obstetric care to develop systems for consultation, coordination of care, and transport as indicated.

“ The U.S. has not maintained [a] commitment to fund systems in place for birth, a year after birth, for complete wrap-around coverage of care. Maternity care is market-based. Rural small volume facilities cannot compete because you will never get enough reimbursement to cover the costs.”

—Hospital administrator and rural health advocate

“ [There are] no staff hours, money, or time to do drills. Hospitals cannot send someone four hours away for training. This leads to gaps in capacity and experience.”

—Public health professional

Telemedicine/Telehealth *(please note these terms are used interchangeably)*

Telehealth presents a significant opportunity to address eroding access to obstetric care due to the closure of rural obstetric units, critical access hospitals, and the shortage of obstetrician-gynecologists in rural areas of the country. The applicability of telehealth across professions and among health care physicians, and its flexibility in being able to be used in nontraditional venues not only increases access, but also makes it cost-effective.²⁸ For those who struggle with transportation, securing childcare, and not having the ability to take time off work, postpartum telehealth visits can improve attendance rates and ensure that opportunities to identify postpartum risk factors are not missed.

Telehealth services have been linked to improvements in perinatal health outcomes and schedule optimization for high-risk obstetrics.²⁹ In an observational study of a tele-MFM program based in Pittsburgh comparing telemedicine-based care to traditional pregnancy care, researchers found similar obstetric outcomes with high patient satisfaction scores and substantial cost savings.³⁰ Similar findings were reported in a rapid review of 42 maternal telehealth studies for a variety of clinical conditions,

concluding that replacing or supplementing in-person maternal care with telehealth-delivered care generally results in comparable, and sometimes better, clinical outcomes and patient satisfaction.³¹ In Arkansas, the ANGELS program launched a statewide telemedicine and clinic network to provide MFM consultation between facilities, resulting in an improvement in neonatal outcomes.³² Utilization of telehealth allows people to seek care in their home community and provides a consistent touchpoint with their own provider as well as any specialty providers they may need.

The benefits of telemedicine are recognized in the LoMC OCC, which states that access to certain providers in-person, via telemedicine, or telephone is considered acceptable for some levels. In a level II, for example, it is acceptable for a maternal-fetal medicine specialist to be consulted via telephone or telemedicine. In addition, as highlighted by the ANGELS program, utilization of telemedicine is particularly helpful in consultations between higher-level and lower-level facilities.

In response to the COVID-19 pandemic, the Centers for Medicare and Medicaid Services relaxed several regulations that were inhibiting the use of telehealth. Lifting those barriers has allowed obstetric care practitioners to use telehealth services to provide necessary evaluations and check-ins for their pregnant patients while minimizing exposure to COVID-19. Its advantages for virtual patient care, facility and provider education, and quality improvement efforts are clear, as well as its use in bridging geographic distances.

“ COVID highlighted that telemedicine works. Our goal was to expand telemedicine, as we lost 50% of our MFMs...and are way under where they should be based on population. We opened two other sites and started telehealth for lactation consultants. We hope to provide salary for a maternal mental health person, then provide that via telemedicine.”

—MFM Specialist

“ In many cases, [successful telehealth] is dependent on the OB assessing appropriately. 99/100 times you just need someone to tell you a plan or what to do. Do not necessarily need to be in person.”

—OB/GYN & subject matter expert in LoMC

IV. Quality Improvement, Data Monitoring, and Evaluation

Quality Improvement

Typically used as a framework to continually improve patient care, quality improvement (QI) plays an important role in LoMC and risk-appropriate maternal care. Experts agree that QI needs to be framed in a positive way and as an encouragement for facilities to improve outcomes. Focusing on QI creates an opportunity to standardize guidelines, protocols, and procedures related to maternal care. These documents are commonly evidence-based and can include topics such as massive transfusion protocols and standing orders for patients with hypertension.³³ QI may also include implementation of AIM PSBs, collections of clinically specific condition-related best practices which can be applied to every patient, in every care setting, every time.

Morbidity and mortality reviews are an important public health tool to examine poor outcomes and determine preventability. Facilities are encouraged to review all pregnancy-associated deaths and cases of severe maternal morbidity that occurred within their facility with a multidisciplinary review team.^{34,35} The intent of these reviews is to:

- ▶ Evaluate care
- ▶ Identify any opportunities for improvement and develop an improvement plan
- ▶ Communicate the interventions (e.g., education, policy, systems) in the plan to staff
- ▶ Continue to monitor for compliance with new policies and improvement in outcomes

Utilization of a monthly multi-disciplinary SMM review process has been associated with a significant decrease in rate of cases that needed improvement.³⁶ While some would like to see these reviews required, the reality is that low volume delivery centers may not have the financial incentives, quality improvement capabilities, or staff hours to commit to this endeavor. In a regionalized system, the level III or IV facility can assist the lower-level hospitals with QI. Some states have allocated specific funding for QI in each facility, which is often supported at a regional or state level by dedicated staff.

An advantage to requiring LoMC designation in a jurisdiction is the opportunity to require QI work for all facilities. In Texas, there are stipulations as to how the QAPI program should be performed; requirements regarding leadership and oversight; and an expectation that levels III and IV facilities provide outreach and education, including QAPI, to lower-level facilities. Examples include:

- ▶ Drills that are ongoing, regular, and sufficient in clinical scope along with documentation that shows that all active medical and hospital staff demonstrate necessary competencies
- ▶ Outreach, education, and assistance with quality improvement by higher-level facilities with hospitals in their regional system
- ▶ Reviews to assess if documented maternal patients were triaged and transferred appropriately

- ▶ Outcomes tracking for patients with complex maternal conditions, along with a comparison of those outcomes to regional, state, or national benchmarks
- ▶ Case review of patients who have conditions outside the scope of services but remained in the hospital
- ▶ Identification of key quality indicators based on what the facility deems significant as affecting maternal morbidity and mortality, accompanied by goals, tracking, and comparing their data to regional or national norms

It is also important to learn from other initiatives implemented in states to improve quality and safety of maternal care. These elements are included in the AIM PSBs for Obstetric Hemorrhage and Severe Hypertension in Pregnancy, which Louisiana has widely implemented. With the implementation of the AIM hemorrhage PSB, the SMM rate among people with hemorrhage decreased 35% for non-Hispanic Black women and 40% for non-Hispanic White women in Louisiana, leading to an overall reduction of 39% as reported to the AIM program for the 2021 Impact Statement.

CASE STUDY: University of Pittsburgh Medical Center (UPMC)

A \$24 billion health care provider and insurer, Pittsburgh-based UPMC is inventing new models of patient-centered, cost-effective, accountable care. The largest nongovernmental employer in Pennsylvania, UPMC integrates 92,000 employees, 40 hospitals, 800 doctors' offices and outpatient sites, and a 4.1-million-member Insurance Services Division, the largest medical insurer in western Pennsylvania.

At UPMC Magee-Womens Hospital and many regional locations, they deliver approximately 25,000 babies every year and have implemented Levels of Maternal Care (LoMC). UPMC leaders believe in the role of LoMC to improve maternal outcomes and view pregnancy as a yearlong event, not just the short time surrounding the delivery. Motivated by this mindset, UPMC has implemented a process of centralized monitoring for all high-risk pregnancies.

In addition, regional directors are standardizing policies, protocols, education, and the prenatal care model to ensure all patients are receiving evidence-based care and are sent to an appropriate facility at time of delivery. A critical analytics dashboard was developed as a model for perinatal data collection and quality improvement metrics. The dashboard was built to include The Joint Commission metrics, NPIC, ICD-10 (International Classification of Diseases 10th Revision) and Diagnosis-Related Group (DRG) codes for all process and outcome metrics captured during the episode of pregnancy and postpartum for both mom and baby. It utilizes electronic health record systems Epic and Cerner to collect data on patient conditions, such as preeclampsia, anemia, preterm births, and COVID-19. This data collection has enabled UPMC staff to provide treatment and vaccine education to obstetric patients who tested positive for COVID-19. UPMC has seen many positive outcomes, including reduction in fourth trimester admissions, as a result of these efforts.

Data Monitoring and Evaluation

Do systems with LoMC show a reduction in preventable maternal morbidity and mortality? Although there are several data resources that collect maternal care outcomes, including birth certificate data, hospital discharge data, and insurance claims, each have challenges related to data completeness and accuracy. At this time, there is no guidance around what metrics and outcomes to measure for LoMC. Maternal mortality is a rare event, making it nearly impossible to use as a research outcome. A pregnant person is more than 50 times more likely to experience a severe maternal morbidity (SMM), making it a more feasible outcome to measure.

The CDC has identified 21 indicators available in administrative hospital discharge data to identify deliveries with an SMM.³⁷ Some of the SMM indicators can and have been used as outcomes in research studies examining the impact of LoMC. However, there are important caveats to consider with the SMM indicators:

- ▶ Administrative hospital discharge data is generated based on billing codes which may result in some inaccuracies.
- ▶ Certain labor and delivery complications can arise without any prior indication that result in an SMM.
- ▶ Higher level of care facilities may have a higher SMM rate because they have a high-risk patient population.
- ▶ For researchers and other external entities, there can exist administrative and bureaucratic barriers to accessing data.
- ▶ Data access can vary widely by state or region.
- ▶ Many of the SMM indicators are rare.

The key with utilizing SMM indicators is to separate those that are identifiable and potentially preventable from those that occur without warning. For example, when a diagnosis of placenta accreta is identified pre-delivery, a researcher could compare outcomes for the patients who delivered at a higher level of care facility versus those who did not. Another option is to identify high-risk conditions related to pregnancy and the potential negative outcomes associated with those conditions. In theory, if a patient delivers at an appropriate level facility for their high-risk condition, the likelihood of a negative outcome would decrease. To address the low occurrence of some SMM indicators, researchers could consider aggregating data across states and potentially nationwide to allow for more robust analyses and findings. This type of collaborative work could lead to the creation of more concrete evidence to support the implementation of LoMC.

The CDC Division of Reproductive Health (DRH) is currently leading efforts to advance the scientific research agenda for LoMC. CDC DRH is testing the hypothesis outlined above with specific maternal

conditions and outcomes identified by subject matter experts. It is also spearheading a learning community in partnership with the Association of State and Territorial Health Officials and four states: Iowa, Massachusetts, Montana, and West Virginia. The states participating will link their LOCATe® data and hospital discharge data. This linked data set will be used to analyze the prevalence of both maternal risk conditions and outcomes, as well as the impact of LOCATe®-assessed level of care on those outcomes.

Some health systems have designed data dashboards based on specific maternal patient data points to assist with examining outcomes and identifying quality improvement opportunities. With the advent of electronic medical records, the amount of available patient data continues to increase. This plethora of data is welcomed by administrators and clinicians alike but not without a recognition of the challenges it can present, particularly when the gold standard for maternal outcomes has yet to be identified.

“ We used to have a data desert...now we have a data ocean but it is equally as difficult to figure out.”

—Hospital administrator

CASE STUDY: Providence

Providence, a health system that serves Alaska, Montana, Oregon, Washington, and California, has 120,000 employees across 52 hospitals and 1,085 clinics. Seven Providence facilities in Oregon have implemented LoMC on a regional level. There is a formal designation embedded into a system-wide policy and includes a process if a facility wants to change their level. All facilities report metrics using a standard data sheet which includes maternal obesity/BMI, hypertension, and preeclampsia rates. The regional system is organized around standardized clinical care and quality and has funded specific regional roles that are well-defined. A system-wide advisory group works on reviewing and editing the standardized protocols for the management of obstetrical patients. Providence has a dedicated data team for LoMC, including an analyst who uploads and links data and a nurse who helps validate and disseminate the findings. This team is working to develop a levels of care dashboard to look at different data points. A maternal data center advisory committee meets monthly and quality improvement is a standing agenda item. For maternal transportation, there is an MFM group that provides 24/7 consultation and assists in facilitating transport. Providence hospitals take into consideration the overall cost of care and the patient experience as part of their approach.

Recommendations



The goal of Levels of Maternal Care is to reduce preventable maternal morbidity and mortality by ensuring equitable and seamless access to high-quality, risk-appropriate maternity care. Based on the information discussed in this report, ACOG proposes the following recommendations.

1. Establish a national coordinating center for LoMC implementation.

This national coordinating center could provide technical assistance to states and other jurisdictions interested in implementing LoMC, assist in adapting the national guidelines to their local needs, work collaboratively to verify hospitals, and identify barriers and facilitators to implementation. In addition, establishing a national center would enable more streamlined communication, allowing for critical stakeholders to be brought together to develop a research agenda for LoMC. The center could also create an implementation guide that includes the following items:

- ▶ Fact sheets on evaluating LoMC and establishing successful partnerships
- ▶ A process guide for identifying barriers and facilitators to implementation
- ▶ A process guide for adapting national guidelines to local context
- ▶ A detailed process guide for assessment and verification of facilities
- ▶ Guidance on what data to measure and how to collect it
- ▶ Success stories and best practices
- ▶ Sample job aids (e.g., transport checklist, scope of service)

The implementation guide could be posted on a dedicated website with other resources such as webinars, videos, slides sets and relevant references that would be useful to implementation teams.

2. Provide funding to states or other jurisdictions to build sustainable systems of LoMC.

The current funding mechanisms for LoMC are dependent on individual states or other jurisdictions, hospitals, or healthcare systems prioritizing levels of maternal care and securing the financial support for LoMC implementation. This funding is often term-limited or linked to a specific project. Providing seed funding for LoMC that is available for states and other jurisdictions to apply for could contribute to implementing LoMC nationwide. This funding could assist jurisdictions in following the steps outlined in this report to implement LoMC, including assessing facilities, identifying regions, and generating relationships for transport and telemedicine agreements. Successful applicants could be supported by the national coordinating center.

3. Perform public health research studies to build the evidence base.

It is critical to create a robust body of evidence to support the implementation of LoMC. It is not well understood how the implementation of LoMC impacts maternal outcomes or how variations in availability of specific personnel and services may impact health outcomes among pregnant people with high-risk health conditions. More data is needed to inform efforts to develop comprehensive, regionalized perinatal care delivery systems.⁸ To this end, HRSA could consider strategies for demonstrating the effectiveness of LoMC implementation. Although there are data challenges, building the evidence base is important to better understanding if maternal outcomes are improved by an LoMC system.

The coordinating center described above could work with a selection of states to verify a level of maternal care for each facility and compile data from states to track maternal indicators and outcomes. The center could also work with jurisdictions to stratify data for specific conditions by race and ethnicity to identify disparities and implement strategies to reduce disparities and improve outcomes.

4. Expand grant programs to develop new Rural Training Tracks through the Rural Residency Planning and Development Program.

This would support the development of new rural residency programs in obstetrics and gynecology. The residents should be trained with the skills needed to successfully collaborate within a system that ensures risk-appropriate care.

5. Create an additional National Performance Measure 3 for Title V Maternal and Child Health (MCH) block grant for maternal risk-appropriate care.

The current Title V MCH block grant performance measure for risk-appropriate perinatal care is defined as the percent of very low birth weight infants born in a hospital with a level III+ Neonatal Intensive Care Unit (NICU). This indicator has been used historically for monitoring systems of risk-appropriate care, yet it focuses solely on a neonatal outcome. Currently, 14 states have chosen performance measure 3 to report on and four of them incorporate CDC LOCATe® into their evidence-based measures to demonstrate how the Title V program tracks programmatic investments that are designed to impact the performance measures. An additional performance measure could be developed that specifically measures a maternal outcome related to risk-appropriate care. A task force of subject matter experts could be convened to provide recommendations on the outcome. The public health research outlined in recommendation #3 could assist to inform the types of outcomes that could be considered as performance measures.

6. Engage payers as stakeholders in LoMC to improve payment structure for obstetrical care, including transport.

The current reimbursement structure discussed in this report does not incentivize facilities or providers to work within a regionalized system of care. Changes to the current reimbursement structure, such

as unbundling the delivery fee to pay each facility for their services, is needed as well as enhanced reimbursement for appropriate transport and back transport.

7. Equity

While the current LoMC guidelines do not include equity components, there are opportunities to address health equity during implementation of LoMC.

In order to better understand what can be done to improve the quality of maternal health care and reduce racial and ethnic disparities in maternal morbidity and mortality in Massachusetts, the Perinatal-Neonatal Quality Improvement Network of Massachusetts added these questions to LOCATe® for their facilities to respond to, which could then be addressed during subsequent conversations with hospitals about risk-appropriate care:

- ▶ Has your hospital provided anti-racism or implicit bias training within the past two years?
- ▶ Does your hospital have a dedicated system or process for patients or families to report discrimination, racism, and bias?
- ▶ Does your hospital have a dedicated system or process for staff to report discrimination, racism, and bias?
- ▶ Does your hospital provide a regular program of education on peripartum racial and ethnic disparities?
- ▶ How frequently do debriefings after adverse clinical events for obstetric patients in your hospital systematically address patient race, ethnicity, language, poverty, literacy or other social determinants of health?
- ▶ How frequently do severe maternal morbidity reviews at your hospital systematically address patient race, ethnicity, language, poverty, literacy or other social determinants of health?

While LOCATe® does not include an on-site assessment, the responses to these questions could be verified via a site visit.

Another consideration for a coordinating center (as described in recommendation #1) is to work with a selection of jurisdictions to determine if their hospitals apply an equity lens during case review while examining adverse events. If not, there could be an opportunity to offer strategies for incorporating discussion of equity into the peer review and educational processes, including grand rounds and morbidity and mortality reviews.³⁸

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