The American College of Obstetricians and Gynecologists
WOMEN'S HEALTH CARE PHYSICIANS

Society for Maternal-Fetal Medicine

OBSTETRIC CARE CONSENSUS

Levels of Maternal Care

Number 9
(Replaces Obstetric Care Consensus Number 2, February 2015)

ABSTRACT: Maternal mortality and severe maternal morbidity, particularly among women of color, have increased in the United States. The leading medical causes of maternal mortality include cardiovascular disease, infection, and common obstetric complications such as hemorrhage, and vary by timing relative to the end of pregnancy. Although specific modifications in the clinical management of some of these conditions have been instituted, more can be done to improve the system of care for high-risk women at facility and population levels. The goal of levels of maternal care is to reduce maternal morbidity and mortality, including existing disparities, by encouraging the growth and maturation of systems for the provision of risk-appropriate care specific to maternal health needs. To standardize a complete and integrated system of perinatal regionalization and risk-appropriate maternal care, this classification system establishes levels of maternal care that pertain to basic care (level I), specialty care (level II), subspecialty care (level III), and regional perinatal health care centers (level IV). The determination of the appropriate level of care to be provided by a given facility should be guided by regional and state health care entities, national accreditation and professional organization guidelines, identified regional perinatal health care service needs, and regional resources. State and regional authorities should work together with the multiple institutions within a region, and with the input from their obstetric care providers, to determine the appropriate coordinated system of care and to implement policies that promote and support a regionalized system of care. These relationships enhance the ability of women to give birth safely in their communities while providing support for circumstances when higher level resources are needed. This document is a revision of the original 2015 Levels of Maternal Care Obstetric Care Consensus, which has been revised primarily to clarify terminology and to include more recent data based on published literature and feedback from levels of maternal care implementation.

The American Association of Birth Centers; the American College of Nurse-Midwives; the Association of Women's Health, Obstetric and Neonatal Nurses; the Commission for the Accreditation of Birth Centers; and the Society for Obstetric Anesthesia and Perinatology endorse this document. The American Academy of Family Physicians and the American Hospital Association support this document. The American Society of Anesthesiologists has reviewed this document. This document was developed jointly by the American College of Obstetricians and Gynecologists and the Society for Maternal-Fetal Medicine in collaboration with Sarah J. Kilpatrick, MD, PhD; M. Kathryn Menard, MD, MPH; Christopher M. Zahn, MD; and the Centers for Disease Control and Prevention's representative William M. Callaghan, MD, MPH. The findings, conclusions, and views in this Obstetric Care Consensus do not necessarily represent the official position of the Centers for Disease Control and Prevention or the U.S. government.

Purpose

1. To reaffirm the need for levels of maternal care, as initially presented in the 2015 Obstetric Care Consensus, which includes uniform definitions, a standardized description of maternity facility capabilities and personnel, and a framework for integrated systems that addresses maternal health needs.
2. To reaffirm that the goal of levels of maternal care is to reduce maternal morbidity and mortality, including existing disparities, by encouraging the growth and maturation of systems for the provision of risk-appropriate care specific to maternal health needs. Central to systems is the development of collaborative relationships between hospitals of differing levels of maternal care in proximate regions, which ensures that every maternity hospital has the personnel and resources to care for unexpected obstetric emergencies, that risk assessment is judiciously applied, and that consultation and referral are readily available when high-risk care is needed. These relationships enhance the ability of women to give birth safely in their communities while providing support for circumstances when higher level resources are needed.

3. To clarify definitions and revise criteria by applying experience from jurisdictions that are actively implementing levels of maternal care.

Background

Maternal mortality and severe maternal morbidity, particularly among women of color, have increased in the United States. The Centers for Disease Control and Prevention (CDC) reported that pregnancy-related deaths increased from 7.2 per 100,000 live births in 1987 to 18.0 in 2014 (1), and non-Hispanic black women had a 3.3 times greater pregnancy-related mortality ratio compared with non-Hispanic white women (1, 2). Furthermore, severe maternal morbidity increased by nearly 200% between 1993 and 2014 (1, 3–6). In addition, data shared by 13 maternal mortality review committees showed that as many as 60% of pregnancy-related deaths during 2013–2017 were potentially preventable (2). These data underscore the need to focus on the quality and safety of maternal care systems. Implementation of levels of maternal care has been identified as a common theme when identifying actionable opportunities to prevent maternal mortality (2, 7). The leading medical causes of maternal mortality include cardiovascular disease, infection, and common obstetric complications such as hemorrhage, and vary by timing relative to the end of the pregnancy (2). Although specific modifications in the clinical management of some of these conditions have been instituted (eg, the use of thromboembolism prophylaxis and development of hemorrhage and hypertension practice management bundles), more can be done to improve the system of care for high-risk women at facility and population levels (8, 9). This document is a revision of the original 2015 Levels of Maternal Care Obstetric Care Consensus, which has been revised primarily to clarify terminology and to include more recent data based on published literature and feedback from levels of maternal care implementation.

Regionalized Perinatal Care

In the 1970s, most states developed coordinated regional systems for perinatal care that were predominantly focused on neonatal outcomes (10). The designated regional or tertiary care centers provided the highest levels of obstetric and neonatal care and served smaller facilities' needs through education and transport services. Numerous studies validated the concept that improved neonatal outcomes were achieved through the application of risk-appropriate maternal transport systems (11, 12). A comprehensive meta-analysis showed an increased risk of neonatal mortality for very-low-birth-weight infants (less than 1,500 g) born outside of a neonatal intensive care unit level III hospital (38% versus 23%; adjusted odds ratio [adjusted OR], 1.62; 95% CI, 1.44–1.83) (13). Similarly, neonatal mortality was higher for very-low-birth-weight infants born in hospitals staffed by neonatologists in the absence of a more complete multidisciplinary team (level II), compared with those born in level III centers (14). However, although regionalized systems that promote maternal transfer to improve neonatal outcomes are well established, similar safety networks focused on maternal medical risk-based needs are not well defined and, thus, not established in many areas of the United States.

Importantly, accredited birth centers and hospitals that offer basic and specialty maternity services provide needed obstetric care for most women who are giving birth in the United States (15). Furthermore, they often provide maternity care in rural and underserved communities, which offers the benefit of keeping women with low- or moderate-risk pregnancies in their local communities. Closing hospitals with low-volume obstetric services could have counterproductive adverse health consequences (16, 17) and potentially increase health care disparities (18, 19) by limiting access to maternity care.

Women with complex high-risk conditions often benefit from giving birth in hospitals that offer a broad array of specialty and subspecialty services. Perhaps the most direct evidence that caring for the sickest women in higher acuity centers is associated with improved outcomes is that women with a high comorbidity index had a significantly higher adjusted relative risk of severe maternal morbidity when they gave birth in hospitals of low acuity (adjusted OR, 9.55; 95% CI, 6.83–13.35) compared with hospitals of high acuity (adjusted OR, 6.50; 95% CI, 5.94–7.09) (20). Additional recent data suggest that hospital delivery volume, health care provider patient volume, and hospital level or rating can all affect maternal outcomes (20–27). Furthermore, data indicate that outcomes are better if women with certain conditions, such as placenta previa or placenta accreta, are managed in hospitals with high delivery volume (28, 29).

This information should not be interpreted to imply that hospitals with low delivery volumes are not safe for care of women with low-risk pregnancies, or as a call to close hospitals with a lower volume or acuity. In remote or rural areas, hospitals with low delivery volumes are often the only local delivery option. Rather, these data, combined with the fact that 59% of hospital births in the United States occur at hospitals where fewer than 1,000 newborns are delivered annually (15), underscore the importance of adequately staffed and equipped level I and II hospitals; regionalized care with defined relationships between different level facilities; continuous risk assessment; and the potential benefit of caring for women with high risk of maternal morbidity in centers with higher level, acuity-focused resources and specialty and subspecialty personnel.

Goals for Regionalized Maternal Care

Regionalized maternal care is intended to maintain and increase access to care by developing, strengthening, and better defining relationships among facilities within a region. In turn, this should facilitate consultation and transfer of care when appropriate so that low- to

moderate-risk women can stay in their communities while pregnant women with high-risk conditions receive care in facilities that are prepared to provide the required level of specialized care. Each facility should have a clear understanding of its capability to handle increasingly complex levels of maternal care and should have a well-defined threshold to transfer women to health care facilities that offer a higher level of care. In emergency situations, the nearest level-appropriate hospital should be used if added travel to a farther level-appropriate hospital increases risk. An important goal of regionalized maternal care is for level III or IV facilities to provide training for quality improvement initiatives, support for education, and severe morbidity and mortality case review for hospitals in their regional system. These recommendations should be considered guidelines, not mandates, and it should be acknowledged that geographic and local issues will affect systems of implementation for regionalized maternal and neonatal care.

Ongoing Levels of Maternal Care Programs

Development of levels of maternal care programs are increasing. Several states, including Georgia, Indiana, Texas, and Iowa, passed legislation or changed their administrative codes to establish a specific maternal level of care designation for all hospitals that provide maternity care. An essential component of all of these programs is the concept of an integrated system in which level III or IV maternal centers provide education and consultation, including training for quality improvement initiatives and severe morbidity and mortality case review, to level I and II facilities and provide for a streamlined system for maternal transport when necessary.

The CDC developed the Levels of Care Assessment Tool (LOCATe) (30) in 2013 to address a need identified by states and national partners for a simple, web-based tool that standardizes the assessment of maternal and neonatal care capabilities of facilities. It is in alignment with the national guidelines published by the American College of Obstetricians and Gynecologists and the Society for Maternal-Fetal Medicine and the national guidelines published by the American Academy of Pediatrics. (31). The American College of Obstetricians and Gynecologists and the Society for Maternal-Fetal Medicine, in collaboration with the CDC, the Arizona Perinatal Trust, and the National Perinatal Information Center, expanded on the work achieved with LOCATe to develop the Levels of Maternal Care verification program. The verification program involves an on-site survey to assess levels of maternal care in an obstetric facility according to the Levels of Maternal Care Obstetric Care Consensus criteria. A multidisciplinary team that represents organizations with expertise in maternal risk-appropriate care piloted this program with 14 facilities across three states (Georgia, Illinois, and Wyoming). The team performed an on-site comprehensive review of the maternal services available in each facility using the hospital's LOCATe results as the initial step in the verification process (32). Experience from LOCATe and the pilot verification program have informed the revisions of this document to better enable implementation.

Definitions of Levels of Maternal Care

To standardize a complete and integrated system of perinatal regionalization and risk-appropriate maternal care, this classification system establishes levels of maternal care that pertain to basic care (level I), specialty care (level II), subspecialty care (level III), and regional perinatal health care centers (level IV). Definitions, capabilities, and health care providers for each of the four levels of maternal care and for birth centers are delineated in Table 1. Maternal care refers to all aspects of antepartum, intrapartum, and postpartum care. Table 1 also refers to low-, moderate-, and high-risk care; defining what constitutes these levels of risk should be individualized by facilities and regions, with input from their obstetric care providers. Accredited birth centers (freestanding facilities that are not hospitals) (see Accredited Birth Centers section for more information) are an integral part of many regionalized care systems and are, therefore, included in the table; however, capabilities and health care providers are not delineated in the table because well-established standards governing birth centers in the United States are already available (33).

One of the most common questions that arose subsequent to the publication of the first Levels of Maternal Care Obstetric Care Consensus was related to the availability of personnel, particularly the requirements for personnel to be "available" or "present" on-site. This revised document provides clarification related to the availability of personnel by providing more specific terminology as defined below.

- **Physically present at all times:** the specified person should be on-site in the location where perinatal care is provided, 24 hours a day, 7 days a week.
- **Readily available at all times:** the specified person should be available 24 hours a day, 7 days a week, for consultation and assistance, and able to be physically present on-site within a time frame that incorporates maternal and fetal or neonatal risks and benefits with the provision of care. Further defining this time frame should be individualized by facilities and regions, with input from their obstetric care providers. If referring to the availability of a service, the service should be available 24 hours a day, 7 days a week unless otherwise specified.

General Considerations Relevant for All Levels of Maternal Care

- All facilities need to have the capability to stabilize and provide initial care for any patient while being able to accomplish transfer if needed and, thus, must have resources to manage the most common

Table 1. Levels of Maternal Care: Definitions, Capabilities, and Health Care Providers*

Accredited Birth Center	
Definition	Care for low-risk women with uncomplicated singleton term vertex pregnancies who are expected to have an uncomplicated birth
Capabilities and health care providers	• Refer to birthcenters.org for American Association of Birth Centers' Standards for Birth Centers.
Level I (Basic Care)	
Definition	Care of low- to moderate-risk pregnancies with ability to detect, stabilize, and initiate management of unanticipated maternal–fetal or neonatal problems that occur during the antepartum, intrapartum, or postpartum period until the patient can be transferred to a facility at which specialty maternal care is available
Capabilities	• Capability and equipment to provide low-risk and appropriate moderate-risk maternal care and a readiness at all times to initiate emergency procedures to meet unexpected needs of women and newborns within the center. This includes ○ ability to begin emergency cesarean delivery within a time interval that best incorporates maternal and fetal risks and benefits. ○ limited obstetric ultrasonography with interpretation readily available at all times.† ○ support services readily available at all times†, including laboratory testing and blood bank. ○ capability to implement patient safety bundles‡ for common causes of preventable maternal morbidity, such as management of maternal venous thromboembolism, obstetric hemorrhage, and maternal severe hypertension in pregnancy.§ ○ ability at all times† to initiate massive transfusion protocol, with process to obtain more blood and component therapy as needed. • Stabilization and the ability to facilitate transport to a higher-level hospital when necessary. This includes ○ risk identification and determination of conditions necessitating consultation, referral, and transfer. ○ a mechanism and procedure for transfer/transport to a higher-level hospital available at all times.† ○ a reliable, accurate, and comprehensive communication system between participating hospitals, hospital personnel, and transport teams. • Ability, in collaboration with higher-level facility partners, to initiate and sustain education and quality improvement programs to maximize patient safety.
Health care providers	• Every birth attended by at least one qualified birthing professional (midwife‖, family physician, or ob-gyn) and an appropriately trained and qualified RN with level-appropriate competencies as demonstrated by nursing competency documentation. • Physician with privileges to perform emergency cesarean delivery readily available at all times.† • Primary maternal care providers, including midwives‖, family physicians, or ob-gyns readily available at all times.† • Appropriately trained and qualified RNs with level-appropriate competencies as demonstrated by nursing competency documentation readily available at all times.† • Nursing leadership has level-appropriate formal training and experience in maternal care. • Anesthesia providers, such as anesthesiologists, nurse anesthetists, or anesthesiologist assistants working with an anesthesiologist,¶ for labor analgesia and surgical anesthesia readily available at all times.†

(*continued*)

Table 1. Levels of Maternal Care: Definitions, Capabilities, and Health Care Providers* (*continued*)

Level II (Specialty Care)	
Definition	Level I facility plus care of appropriate moderate- to high-risk antepartum, intrapartum, or postpartum conditions
Capabilities	Level I facility capabilities plus • Computed tomography scan, magnetic resonance imaging, nonobstetric ultrasound imaging, and maternal echocardiography with interpretation readily available daily (at all times not required). • Standard obstetric ultrasound imaging with interpretation readily available at all times.[†]
Health care providers	Level I facility health care providers plus • Ob-gyn readily available at all times.[†] ○ 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. • Physician obstetric leadership is a board-certified[#] ob-gyn with experience in obstetric care. ○ Based upon available resources and facility determination of the most appropriate staffing, it may be acceptable for such leader to be board certified in another specialty with privileges and expertise in obstetric care including with surgical skill and privileges to perform cesarean delivery. • An MFM readily available at all times[†] for consultation onsite, by phone, or by telemedicine, as needed. • Anesthesiologist readily available at all times.[†] • Internal or family medicine physicians and general surgeons readily available at all times[†] for obstetric patients.

(*continued*)

Table 1. Levels of Maternal Care: Definitions, Capabilities, and Health Care Providers* (*continued*)

Level III (Subspecialty Care)	
Definition	Level II facility plus care of more complex maternal medical conditions, obstetric complications, and fetal conditions
Capabilities	Level II facility capabilities plus • In-house availability of all blood components. • Computed tomography scan, magnetic resonance imaging, maternal echocardiography, and nonobstetric ultrasound imaging services and interpretation readily available at all times.† • Specialized obstetric ultrasound and fetal assessment, including Doppler studies, with interpretation readily available at all times.† • Basic interventional radiology (capable of performing uterine artery embolization) readily available at all times.† • Appropriate equipment and personnel physically present at all times** onsite to ventilate and monitor women in labor and delivery until they can be safely transferred to the ICU. • Onsite medical and surgical ICUs that accept pregnant women and women in the postpartum period. The ICUs have adult critical care providers physically present at all times.** An MFM is readily available at all times† to actively communicate or consult for all obstetric patients in the ICU. • Documented mechanism to facilitate and accept maternal transfers/transports. • Provide outreach education and patient transfer feedback to level I and II designated facilities to address maternal care quality issues. • Provide perinatal system leadership if acting as a regional center (for example, in areas where level IV facilities are not available) (see Level IV).
Health care providers	Level II health care providers plus • Nursing leaders and adequate number of RNs who have special training and experience in the management of women with complex and critical maternal illnesses and obstetric complications • Board-certified# ob-gyn physically present** at all times • An MFM with inpatient privileges readily available at all times,† either onsite, by phone, or by telemedicine. Timing of need to be onsite is directed by urgency of clinical situation. However, MFM must be able to be onsite to provide direct care within 24 hours. • Director of maternal–fetal medicine service is a board-certified MFM. • Director of obstetric service is a board-certified ob-gyn or MFM. • Board-certified anesthesiologist# physically present** at all times. • Director of obstetric anesthesia services is board-certified anesthesiologist with obstetric anesthesia fellowship training or experience in obstetric anesthesia. • Full complement of subspecialists, such as subspecialists in critical care, general surgery, infectious disease, hematology, cardiology, nephrology, neurology, gastroenterology, internal medicine, behavioral health, and neonatology, readily available for inpatient consultation at all times.†

(*continued*)

Table 1. Levels of Maternal Care: Definitions, Capabilities, and Health Care Providers* (*continued*)

Level IV (Regional Perinatal Health Care Centers)	
Definition	Level III facility plus on-site medical and surgical care of the most complex maternal conditions and critically ill pregnant women and fetuses throughout antepartum, intrapartum, and postpartum care
Capabilities	Level III facility capabilities plus • On-site medical and surgical care of complex maternal conditions with the availability of critical care unit or ICU beds. • On-site ICU care for obstetric patients with primary or co-management by maternal–fetal medicine team. Co-management includes at least daily rounds by an MFM with interaction with the ICU team and other subspecialists with daily documentation. In some settings, the ICU is in an adjoining or connected building, which is acceptable as long as maternal–fetal medicine care is as noted above. If the woman must be transported by ambulance to the ICU, this is not considered onsite. • Perinatal system leadership, including facilitation of collaboration with facilities in the region, analysis and review of system perinatal outcome and quality data, provision of outreach education and assistance with quality improvement as needed.
Health care providers	Level III health care providers plus • Maternal–fetal medicine care team with expertise to manage highly complex, critically ill, or unstable maternal patients. A board-certified MFM attending with full inpatient privileges is readily available at all times[†] for consultation and management. This includes co-management of ICU-admitted obstetric patients. • Nursing Service Line leadership with advanced degree and national certification. • Continuous availability of adequate numbers of RNs who have experience in the care of women with complex medical illnesses and obstetric complications with close collaboration between critical care nurses and obstetric nurses with expertise in caring for critically ill women. • Board-certified anesthesiologist with obstetric anesthesia fellowship training or experience in obstetric anesthesia physically present at all times.** • At least one of the following adult subspecialties readily available at all times for consultation and treatment as needed onsite: neurosurgery, cardiac surgery, or transplant. If the facility does not have all three subspecialties available, there should be a process in place to transfer women to a facility that can provide the needed service.

Abbreviations: CMs, certified midwives; CNMs, certified nurse–midwives; ICU, intensive care unit; MFM, maternal–fetal medicine subspecialists; ob-gyns, obstetrician–gynecologists; RNs, registered nurses.

*These guidelines are limited to maternal needs. Consideration of fetal or neonatal needs and the appropriate level of care should occur following existing guidelines. In fact, levels of maternal care and levels of neonatal care may not match within facilities. Additionally, these are guidelines, and local issues will affect systems of implementation for regionalized maternal care, perinatal care, or both.

[†]Readily available at all times: the specific person should be available 24 hours a day, 7 days a week for consultation and assistance, and able to be physically present onsite within a time frame that incorporates maternal and fetal or neonatal risks and benefits with the provision of care. Further defining this time frame should be individualized by facilities and regions, with input from their obstetric care providers. If referring to the availability of a service, the service should be available 24 hours a day, 7 days a week unless otherwise specified.

[‡]Available at https://safehealthcareforeverywoman.org/patient-safety-bundles.

[§]See also Emergent therapy for acute-onset, severe hypertension during pregnancy and the postpartum period. ACOG Committee Opinion No. 767. American College of Obstetricians and Gynecologists. Obstet Gynecol 2019;133:e174–80.

[‖]Midwives who meet International Confederation of Midwives standards, such as certified nurse–midwives (CNMs) and certified midwives (CMs), and who are legally recognized to practice within the jurisdiction of the state.

[¶]Scope of practice for nurse anesthetists and anesthesiologist assistants may vary by state.

[#]Also includes physicians who have completed residency training and are eligible for board certification according to applicable board policies.

[**]Physically present at all times: the specific person should be onsite in the location where the perinatal care is provided, 24 hours a day, 7 days a week.

Table 2. Summary and Recommendations for Levels of Maternal Care

Summary and Recommendations	Grade of Recommendations
To standardize a complete and integrated regionalized system of perinatal care and risk-appropriate maternal care, the American College of Obstetricians and Gynecologists and the Society for Maternal-Fetal Medicine recommend a classification system for levels of maternal care as defined in Table 1. Each higher level of care includes and builds on the capabilities of the lower levels.	1C Strong recommendation, low quality evidence
All facilities need to have the capability to stabilize and provide initial care for any patient while being able to accomplish transfer if needed and, thus, must have resources to manage the most common obstetric emergencies such as hemorrhage and hypertension. To ensure optimal care of all pregnant women, all birth centers, basic (level I), and specialty care (level II) hospitals should collaborate with subspecialty care and regional perinatal health facilities to develop and maintain maternal transport plans and cooperative agreements to meet the health care needs of women who develop complications.	1C Strong recommendation, low quality evidence
Collaborating receiving hospitals should openly accept transfers. Of note, the decision to transfer a patient is not only based on guidelines but also dependent on the health care provider's judgment of the severity of illness, balancing the need for a higher level of care with risks associated with moving the woman out of her community.	1C Strong recommendation, low quality evidence
Pregnant women should receive the same level of trauma care as nonpregnant patients.	1C Strong recommendation, low quality evidence
The appropriate care level for patients should be driven by their medical need and not limited to or governed by financial constraints.	1C Strong recommendation, low quality evidence
Because obesity is extremely common throughout the United States, all facilities should have appropriate equipment for the care and delivery of pregnant women with obesity, including appropriate birth beds, operating tables and rooms, and operating equipment. The degree of obesity may be one of the factors that affect decisions for transfer of a woman to a higher level of care, although there are no well-established body mass index cut-off levels to determine level-specific care for pregnant women or women in the postpartum period with obesity.	1C Strong recommendation, low quality evidence
Because of the importance of accurate data for the assessment of outcomes and quality indicators, all facilities should have infrastructure and guidelines for data collection, storage, and retrieval that allow regular review for trends.	1C Strong recommendation, low quality evidence
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.	1C Strong recommendation, low quality evidence
All maternity facilities should have the necessary institutional support, including financial, to meet the needs of level-appropriate maternal care, including provision of health care personnel, facility resources, and collaborative relationships with perinatal hospitals within their region.	1C Strong recommendation, low quality evidence

obstetric emergencies such as hemorrhage and hypertension (Table 2). Because all facilities cannot maintain the breadth of resources available at subspecialty centers, interfacility transport of pregnant women or women in the postpartum period is an essential component of a regionalized perinatal health care system. To ensure optimal care of all pregnant women, all birth centers, basic (level I), and specialty care (level II) hospitals should collaborate with subspecialty care and regional perinatal health facilities to develop and maintain maternal transport plans and cooperative agreements to meet the health care needs of women who develop complications.

- Collaborating receiving hospitals should openly accept transfers. Of note, the decision to transfer a patient is not only based on guidelines but also dependent on the health care provider's judgment of the severity of illness, balancing the need for a higher level of care with the risks associated with moving the woman out of her community.
- Trauma is not integrated into the levels of maternal care because trauma center levels are already

established. Pregnant women should receive the same level of trauma care as nonpregnant patients.

- The appropriate care level for patients should be driven by their medical need and not limited to or governed by financial constraints.
- Because obesity is extremely common throughout the United States, all facilities should have appropriate equipment for the care and delivery of pregnant women with obesity, including appropriate birth beds, operating tables and rooms, and operating equipment (34). The degree of obesity may be one of the factors that affects decisions for transfer of a woman to a higher level of care, although there are no well-established body mass index cut-off levels to determine level-specific care for pregnant women or women in the postpartum period with obesity.
- Because of the importance of accurate data for the assessment of outcomes and quality indicators, all facilities should have infrastructure and guidelines for data collection, storage, and retrieval that allow regular review for trends.
- Although this document focuses on maternal care and does not include an in-depth discussion about risk-based neonatal care capability, optimal perinatal care requires synergy in institutional capabilities for the woman and the fetus or neonate. 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.
- Consistent with the levels of neonatal care published by the American Academy of Pediatrics (35), each level of maternal care reflects required minimal capabilities, physical facilities, and medical and support personnel. Each higher level of care includes and builds on the capabilities of the lower levels.
- All maternity facilities should have the necessary institutional support, including financial, to meet the needs of level-appropriate maternal care, including provision of health care personnel, facility resources, and collaborative relationships with perinatal hospitals within their region.

Accredited Birth Centers

The American Association of Birth Centers (AABC) initially published the *Standards for Birth Centers* in 1985; the most recent version was published in 2017 (33). Birth centers are freestanding facilities that are not considered hospitals. Birth centers provide peripartum care for low-risk women with uncomplicated singleton term vertex pregnancies who are expected to have an uncomplicated birth. Birth centers are part of the health care system in the United States. Although state regulations vary regarding licensure and accreditation, the AABC's national standards outline that each birth center should have an established consultation, collaboration, or referral system to meet the needs of the woman or infant (33). The Commission for the Accreditation of Birth Centers is the only accrediting agency that chooses to use the national AABC's *Standards for Birth Centers* in its accreditation process. The American College of Obstetricians and Gynecologists recognizes accredited birth centers as an integral part of regionalized care. Further details, including the standards for birth centers, are available from the AABC (www.birthcenters.org).

Implementation and Monitoring

Regional centers, which include all level IV facilities and any level III facility that functions in this capacity, should develop relationships with level I and level II hospitals in their referral network. Likewise, Level I and II hospitals should be open to collaboration and establishing relationships with a level III or IV facility in their region. Birth centers, according to the AABC 2017 Standards, should have relationships with a higher-level facility. The regional center should coordinate access to risk-appropriate health services, provide support for quality and safety monitoring, and provide outreach education. These functions are ideally accomplished in collaboration with, and supported by, public health agencies.

Listed in Table 3 are suggested examples of conditions or complications for which care may be provided at specific levels. It is important to emphasize that these examples are listed as suggested maternal conditions, and the table is not designed to be exhaustive or definitive. Some conditions present across a range of severity and, depending on the severity, geography, and available resources, it may be appropriate to care for some patients at a level different from what is listed in Table 3. Facilities, with input from their obstetric care providers, should individualize the types of conditions or complications that they are capable of caring for based on the actual resources available for their level of care, as well as other considerations such as location, availability of transport, access to readily available resources in the local or regional area, and coordination with other centers. To standardize approaches within and among facilities and regionalized systems, it may be reasonable for individual facilities and regionalized systems, with input from their obstetric care providers, to develop their own specific lists of conditions or complications that warrant consultation or consideration for transfer.

Concentrating care of women who have the most complex pregnancies at designated regional perinatal health care centers will allow these centers to maintain the expertise needed to achieve optimal outcomes. In agreement with this concept, a 2018 collaborative report from nine maternal mortality review committees recommended that adopting levels of maternal care would have a considerable effect nationally on reducing maternal mortality (6).

Table 3. Examples (Not Requirements) of Appropriate Patient by Level*

Level	Example (Not Requirement)
Accredited birth center	Women with an uncomplicated term singleton vertex fetus who are expected to have an uncomplicated birth
Level I	Low-risk women with uncomplicated pregnancies and women with higher-risk conditions such as the following: • uncomplicated twin gestation • labor after cesarean • uncomplicated cesarean delivery • preeclampsia† • well-controlled gestational diabetes
Level II	Any patient appropriate for level I care, plus higher-risk conditions such as the following: • placenta previa with no previous uterine surgery • maternal medical conditions that require additional monitoring such as pregestational diabetes, poorly controlled asthma, or poorly controlled or complicated chronic hypertension • anticipated complicated cesarean delivery
Level III	Any patient appropriate for level II care, plus higher-risk conditions or complications such as the following: • moderate maternal cardiac disease • suspected placenta accreta or placenta previa and previous uterine surgery • suspected placenta percreta • adult respiratory distress syndrome or other conditions that require ventilatory support antepartum or postpartum • acute fatty liver of pregnancy • coagulation disorders • complex hematologic or autoimmune disorders • expectant management of preeclampsia with severe features remote from term
Level IV	Any patient appropriate for level III care, plus higher-risk conditions or complications such as the following: • severe maternal cardiac conditions • severe pulmonary hypertension • pregnant women who require neurosurgery or cardiac surgery • pregnant women in unstable condition and in need of an organ transplant

*This list provides a series of examples and is not intended to serve as a comprehensive or definitive list of conditions appropriate to manage at each level. Some conditions present across a range of severity and, depending on the severity, geography, and available resources, it may be appropriate to care for some patients at a level different from what is listed above. Facilities, with input from their obstetric care providers, should individualize the types of conditions or complications that they are capable of caring for based on the actual resources available for their level of care, as well as other considerations such as location, availability of transport, access to readily available resources in the local or regional area, and coordination with other centers.

†Preeclampsia with severe features may warrant transfer to a higher-level facility. Delivery or expectant management of a woman with preeclampsia with severe features is best accomplished in a setting with resources appropriate for maternal and neonatal care.

Regionalization of maternal health care services requires that there be available and coordinated specialized services, professional continuing education to maintain competency, facilitation of opportunities for transport and back-transport, and collection of data on perinatal outcomes to evaluate the effectiveness of delivery of perinatal health care services and the safety and efficacy of new therapies. Because the health statuses of women and fetuses may differ in acuity, referral should be organized to meet the greatest needs of either or both. In some cases with specific care needs, optimal coordination of care will not be delineated by geographic area, but rather by availability of specific expertise (eg, transplant services or fetal surgery). However, it is

equally important to keep women in the care of the birthing facilities in their communities unless risk factors or comorbidities evolve such that the indicated level of care needed is beyond the capabilities of those birthing facilities. Regionalization and support of perinatal services in level I and II facilities would help to maintain such birthing facilities as opposed to threatening closure.

Measurement and Evaluation of Regionalized Maternal Care

If regionalization improves care, then implementation of levels of maternal care should be associated with a decrease in preventable maternal severe morbidity and mortality. There also should be a shift toward less severe morbidity in level I and II facilities. Therefore, facilities and regional systems should develop methods to track transports, severe maternal morbidity, and mortality and to assess preventability so that they can measure the efficacy of their system using levels of maternal care. Quantitative and qualitative evaluation of equity in outcomes should be an integral part of tracking and assessing the efficacy of the system.

Operational definitions are needed to compare data and outcomes between levels of maternal care. Two concepts to implement with the use of levels of maternal care are proposed: 1) identify women at highest risk of morbidity and 2) identify outcomes that may improve with appropriate assignments of levels of maternal care.

Some women at extreme risk of severe morbidities such as stroke, cardiopulmonary failure, or massive hemorrhage can be identified during the antepartum period and should give birth in the appropriate level-of-care hospital. Examples of such women include those with suspected placenta accreta spectrum disorders or those with severe heart disease, such as complex cardiac malformations and pulmonary hypertension, coronary artery disease, or cardiomyopathy. Other less predictable but high-acuity maternal conditions include preeclampsia with difficult to control hypertension, and hemolysis, elevated liver enzymes, and low platelet count (HELLP) syndrome.

Improved maternal outcomes that may accrue with appropriate use of levels of maternal care assignments include reduction in preventable severe morbidity and mortality such as stroke, returns to the operating room, complications from known or suspected placenta accreta, and unplanned intensive care unit admissions. The incidence of these outcomes could decrease or be shifted from level I and II to level III or IV hospitals. The development of comprehensive lists of conditions that comprise extreme morbidity risks and of which outcomes should be measured is currently an evolving process. Therefore, prospective measurement with continuous monitoring and evaluation of any regionalized maternal care system is critical to improving care processes and outcomes.

Determination and Implementation of Levels of Maternal Care

The determination of the appropriate level of care to be provided by a given facility should be guided by regional and state health care entities, national accreditation and professional organization guidelines, identified regional perinatal health care service needs, and regional resources (36). State and regional authorities should work together with the multiple institutions within a region, and with input from their obstetric care providers, to determine the appropriate coordinated system of care and to implement policies that promote and support a regionalized system of care.

The first step in implementation is development of the classification system for maternal care that is appropriate for the specific state or geographic area. The next step is establishing defined levels in all facilities that provide maternal care within the system. More information is needed to help optimize implementation, including further understanding of perceived barriers to implementation by hospitals and obstetric facilities, identifying or developing tools and resources to address these barriers, and identifying examples and best practice of successful implementation of a levels of care system. Making such information available to other facilities and systems that are in the process of or planning to implement a level of care system can accelerate the uptake. Furthermore, it is critical to implementation to identify how best to provide the financing needed to establish a levels of maternal care system, how to manage different payer programs, and how to identify which financial models are most sustainable. An important consideration related to the financial concerns is to ensure that facilities are not financially "penalized" for appropriately transferring a woman to a higher-level facility.

Interdisciplinary work groups are needed to further explore what is needed to adopt the proposed levels of maternal care classification system in all facilities that provide maternal care. In addition to information needed to optimize implementation, research is needed to assess the effect of implementing a levels of maternal care system on maternal and perinatal outcomes with a particular focus on reducing maternal morbidity and mortality.

For More Information

The American College of Obstetricians and Gynecologists has identified additional resources on topics related to this document that may be helpful for ob-gyns, other health care providers, and patients. You may view these resources at www.acog.org/More-Info/LOMC.

These resources are for information only and are not meant to be comprehensive. Referral to these resources does not imply the American College of Obstetricians and Gynecologists' endorsement of the organization, the organization's website, or the content of the resource. The resources may change without notice.

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Society for Maternal–Fetal Medicine Grading System: Grading of Recommendations Assessment, Development, and Evaluation (GRADE) Recommendations

Obstetric Care Consensus documents will use the Society for Maternal-Fetal Medicine's grading approach: http://www.ajog.org/article/S0002-9378%2813%2900744-8/fulltext. Recommendations are classified as either strong (Grade 1) or weak (Grade 2), and quality of evidence is classified as high (Grade A), moderate (Grade B), and low (Grade C)*. Thus, the recommendations can be one of the following six possibilities: 1A, 1B, 1C, 2A, 2B, 2C.

Grade of Recommendation	Clarity of Risk and Benefit	Quality of Supporting Evidence	Implications
1A. Strong recommendation, high quality evidence	Benefits clearly outweigh risk and burdens, or vice versa.	Consistent evidence from well performed randomized controlled trials or overwhelming evidence of some other form. Further research is unlikely to change confidence in the estimate of benefit and risk.	Strong recommendations, can apply to most patients in most circumstances without reservation. Clinicians should follow a strong recommendation unless a clear and compelling rationale for an alternative approach is present.
1B. Strong recommendation, moderate quality evidence	Benefits clearly outweigh risk and burdens, or vice versa.	Evidence from randomized controlled trials with important limitations (inconsistent results, methodologic flaws, indirect or imprecise), or very strong evidence of some other research design. Further research (if performed) is likely to have an effect on confidence in the estimate of benefit and risk and may change the estimate.	Strong recommendation, and applies to most patients. Clinicians should follow a strong recommendation unless a clear and compelling rationale for an alternative approach is present.
1C. Strong recommendation, low quality evidence	Benefits appear to outweigh risk and burdens, or vice versa.	Evidence from observational studies, unsystematic clinical experience, or from randomized controlled trials with serious flaws. Any estimate of effect is uncertain.	Strong recommendation, and applies to most patients. Some of the evidence base supporting the recommendation is, however, of low quality.
2A. Weak recommendation, high quality evidence	Benefits closely balanced with risks and burdens.	Consistent evidence from well-performed randomized controlled trials or overwhelming evidence of some other form. Further research is unlikely to change confidence in the estimate of benefit and risk.	Weak recommendation, best action may differ depending on circumstances or patients or societal values.
2B. Weak recommendation, moderate quality evidence	Benefits closely balanced with risks and burdens; some uncertainty in the estimates of benefits, risks, and burdens.	Evidence from randomized controlled trials with important limitations (inconsistent results, methodologic flaws, indirect or imprecise), or very strong evidence of some other research design. Further research (if performed) is likely to have an effect on confidence in the estimate of benefit and risk and may change the estimate.	Weak recommendation, alternative approaches likely to be better for some patients under some circumstances.
2C. Weak recommendation, low quality evidence	Uncertainty in the estimates of benefits, risks, and burdens; benefits may be closely balanced with risks and burdens.	Evidence from observational studies, unsystematic clinical experience, or from randomized controlled trials with serious flaws. Any estimate of effect is uncertain.	Very weak recommendation, other alternatives may be equally reasonable.
Best practice	Recommendation in which either (i) there is enormous amount of indirect evidence that clearly justifies strong recommendation (direct evidence would be challenging, and inefficient use of time and resources, to bring together and carefully summarize), or (ii) recommendation to contrary would be unethical.		

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