Society for Maternal-Fetal Medicine
High-risk pregnancy experts

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Reproductive services for women at high risk for maternal mortality: a report of the workshop of the Society for Maternal-Fetal Medicine, the American College of Obstetricians and Gynecologists, the Fellowship in Family Planning, and the Society of Family Planning

Sean Blackwell, MD; Judette M. Louis, MD, MPH; Mary E. Norton, MD; Justin R. Lappen, MD; Christian M. Pettker, MD; Anjali Kaimal, MD, MAS; Uta Landy, PhD; Alison Edelman, MD, MPH; Stephanie Teal, MD, MPH; Roxanne Landis, JD, MPH

Women at high risk for maternal morbidity and mortality have unique needs for reproductive health services, including prenatal and postpartum care, contraception, and abortion. However, barriers such as restrictive state legislation, poor access to trained providers,[1] limits in insurance coverage, and clinical challenges in assessing and communicating risk often make it difficult for these women to obtain needed services.

To address these issues, leaders in obstetric care, family planning, and reproductive health law gathered for a two-day workshop entitled "Reproductive Services for Women at High Risk for Maternal Mortality." The workshop was held in conjunction with the 39th Annual Pregnancy Meeting (TM) in Las Vegas, NV, and cosponsored by the Society for Maternal-Fetal Medicine, the American College of Obstetricians and Gynecologists, the Fellowship in Family Planning, and the Society of Family Planning. The goals of the workshop were to review the following issues, discuss recommendations, and create consensus concerning assessment, counseling, and training:

- Current evidence about the role of family planning in the reduction of maternal mortality and existing barriers to accessing reproductive services.
- Risks and benefits of termination services for women at high risk of pregnancy complications or maternal mortality.
- Risks of pregnancy continuation versus termination in various clinical situations and considerations when assessing women at high risk of pregnancy complications or maternal mortality.
- Best practices for models of care to provide reproductive services for women at high risk of pregnancy complications or maternal mortality.

Corresponding author: The Society for Maternal-Fetal Medicine: Reproductive Health Project for Maternal-Fetal Medicine, RHProject@smfm.org.

Within this document, the term "high-risk" will be used to describe a woman who, following an assessment of relevant medical, nonmedical, and contextual factors, has an increased risk of experiencing pregnancy complications or maternal mortality if she is or becomes pregnant.

Background

Evidence presented at the workshop demonstrates that, although safe reproductive health services are needed and beneficial for high-risk women, access is limited and inequitable across the United States and presents the following significant ethical, quality, and safety issues:

- The maternal mortality ratio in the United States increased from 16.9 maternal deaths per 100,000 live births in 1999 to 26.4 per 100,000 in 2015.[2] This increase in mortality was most pronounced among non-Hispanic black women as ratios rose from 39 to 49 per 100,000 live births between 2005 and 2014.[3]
- Family planning interventions can prevent 30% of maternal deaths worldwide, and safe abortion can prevent 13% of maternal deaths.[4]
- Between 2000 and 2011, women living in states with state-funded Medicaid coverage of medically necessary abortion (defined in the study as those needed to protect a woman's health) had an average 16% decreased risk of severe maternal morbidity during pregnancy-related hospitalizations than women who resided in states without such Medicaid coverage. Among Medicaid-paid hospitalizations in states with Medicaid coverage of medically necessary abortion, there were 8.5 per 10,000 fewer cases of severe maternal morbidity in adjusted analyses, relative to those in states without such Medicaid coverage.[5]
- Abortion is a safe procedure, with a mortality rate of 0.7 deaths per 100,000 procedures. However, the abortion mortality rate is three times higher for black women compared with white women in the United States.[6]

- Women who are denied an abortion and who later give birth experience more serious medical and psychiatric complications, as well as greater poverty, than women who receive an abortion they requested.[7–9]
- Seventy percent of women 35–44 years old who had medical conditions associated with increased health risks from unintended pregnancy did not use a contraceptive method in 2011.[10]
- Between 2004 and 2014, the percentage of rural counties in the United States with hospital-based obstetric services decreased from 55% to 46%, leaving women in many areas of the country without local access to basic obstetric care.[11] Half of the counties in the United States lack obstetrician-gynecologists, and the concentration of these women's health care specialists are lowest in the rural states of Arkansas, Oklahoma, and North Dakota.[12]
- More than 24 million reproductive-aged women in the United States live in a county without a maternal-fetal medicine (MFM) subspecialist, compared with 38 million women living in a county with an MFM subspecialist. This disparity is most stark in rural regions, with the lowest ratio of MFM subspecialists to reproductive-aged women found in North Dakota, Wyoming, Arkansas, and Idaho.[13]
- Because of gestational age, procedural, and provider restrictions on abortion, women must often travel long distances to receive abortion care. In 2014, 39% of women aged 15–44 years resided in counties without an abortion provider. Twenty-five states had five or fewer abortion clinics; five states had only one clinic. State-regulated waiting periods further undermine access to abortion and may place a patient beyond a state's gestational limit.[14]
- Socioeconomic barriers to obtaining an abortion include the Hyde Amendment, which prohibits the use of federal funds to pay for an abortion; lack of insurance coverage for abortion; and high out-of-pocket costs for abortion procedures and travel.[14]
- Seven states, including Louisiana, Georgia, Alabama, Mississippi, Missouri, Kentucky, and Ohio, passed legislation in 2019 that bans abortion after 6–8 weeks of gestation.[15] For women with medical conditions that pose significant health risks during pregnancy, these restrictive laws effectively eliminate one of the treatment options that should be available, further increasing disparities in maternal health outcomes at the state level.

Disparities in reproductive health outcomes result largely from inequities at the patient, provider, health system, and national levels. There is a history of mistrust surrounding reproductive health services because of coercive practices in contraception and unethical medical research conducted on black women.[16,17] Women of color are more likely to report experiences with restrictive or biased counseling when seeking family planning services than are white women.[18,19] In one survey, 67% of black women who sought family planning or birth control services reported race-based discrimination at these visits, suggesting that disparities in provider behavior persist.[20]

At a systemic level, discriminatory insurance, housing, employment, and economic policies reinforce these inequities, making it more challenging for women of color to expeditiously access quality, affordable health care.[21–23] Each of these levels of inequity contributes to the wide racial disparities in rates of chronic medical conditions, unintended pregnancy, and maternal mortality.[1,24,25]

The reproductive justice movement evolved out of a need to support and empower those women, families, and communities experiencing the poorest health outcomes.[26] One component of reproductive justice is the human right to maintain personal bodily autonomy. Bodily autonomy is defined as an individual's freedom from both controlling interferences by others and from personal limitations that prevent making meaningful choices about one's body.[26,27]

At a provider level, delivering ethical, patient-centered, culturally responsive care requires that providers elicit a patient's values and incorporate them into a shared decision-making process that respects a patient's autonomy. This type of decision-making process requires presenting medical information in language a woman can understand, asking questions to understand her values and priorities, and answering any questions she may have.[28,29] Referrals should be offered as promptly as possible to ensure she will be able to receive her desired care and counseling may be required multiple times as the pregnancy progresses[29] and conditions, risks, and treatment options change.

At the community and organizational levels, advocacy for policies developed by and supporting the most marginalized groups is also needed to reduce disparities in reproductive health and maternal outcomes.[26] These efforts include extending Medicaid coverage to 12 months postpartum; expanding family leave policies; removing reimbursement for postpartum long-acting reversible contraception (LARC) from the global obstetric bundle payment; repealing the Hyde Amendment; and removing onerous and medically unnecessary barriers to accessing abortion, contraception, and family planning services, particularly for low-income individuals.

Workshop structure and key findings

Following presentations on reproductive health ethics, disparities, and current policies; risk assessment strategies; components of counseling; and challenges of accessing contraception and abortion, workshop participants joined one of three breakout groups to discuss the following key issues in greater depth and to make preliminary recommendations: (1) assessing risk of maternal morbidity and mortality; (2) counseling women at high risk for pregnancy complications; and (3) training and access related to family planning and reproductive services.

The following key findings emerged from the workshop discussions:

- Risk assessment should include an examination of factors that can exacerbate or mitigate the risk of pregnancy in addition to the risks posed by the presence of an underlying health condition. These factors may include the severity of the maternal or fetal condition, the woman's capacity to manage the condition, her desire to be pregnant, her tolerance of risk, and the availability of obstetric care providers capable of safely managing her condition(s) in her geographic area.
- Risk assessment and counseling should be initiated before pregnancy, conducted frequently as pregnancy progresses, and continue throughout the postpartum and interpregnancy periods.
- A shared decision-making approach should be used when counseling women about the risks of pregnancy and the management options, which may include continuation of the pregnancy, termination, neonatal palliative care, and medical or surgical interventions. Counseling should clearly outline the timing and logistical restrictions, short- and long-term implications, and health risks of each management option.
- Obstetrician-gynecologist specialists are integral to providing care for high-risk women, particularly in areas without MFM or family planning subspecialists. Nonphysician medical personnel, including midwives and nurse practitioners, and community resources, including community health workers, doulas, and perinatal support, should be leveraged to provide continuity of care for high-risk women.
- Partner organizations and perinatal quality collaboratives already doing work in this sphere should be recruited to develop more cohesive messaging about the risks of pregnancy and the treatment options that can reduce maternal morbidity and mortality.
- Racial and economic inequities that impede women's access to high-quality care and lead to poor outcomes must be corrected by committing to providing culturally competent and responsive care and through advocacy efforts.
- There is a need for increased collaboration among MFM and family planning subspecialists and obstetrician-gynecologist specialists in the development of guidelines and best practices to eliminate institutional restrictions to abortion for high-risk women. These guidelines should specifically include recommendations for collaboration between MFM and family planning subspecialists and obstetrician-gynecologist specialists at all stages of care, the elimination of hospital abortion boards or committees, and a recommendation that no list of indications can sufficiently encompass all of the possible situations in which pregnancy termination may need to be considered. The care team, in conjunction with the patient, must have the sole capacity to determine the course of care.
- Because most abortions can be safely provided in office-based settings and are primarily provided by obstetrician-gynecologist specialists, paramount to improving access and quality of reproductive health services for all women is to expand and formalize resident training in abortion.
- All residency programs should, at a minimum, meet the Accreditation Council for Graduate Medical Education (ACGME) opt-out training requirements for abortion and family planning and, ideally, provide training in accordance with the standards set by the Kenneth J. Ryan Residency Training Program in Family Planning and Abortion ("Ryan Program"). Per the ACGME requirement, residents who have a religious or moral objection may opt out and must not be required to participate in training in or performing induced abortions.
- During fellowship or through continuing education, MFM subspecialists should have access to training in dilation and evacuation (D&E), postpartum LARC insertion, mifepristone use, complex contraception, and counseling.
- Training in implicit bias and professionalism should be integrated into medical education, residency training, and continuing education for all obstetrician-gynecologists.

Workshop participants acknowledged that significant research gaps limit the development of evidence-based guidance in these areas, and each of the following sections includes suggested topics that require future research. It is hoped that this workshop report will provide a framework for the development of comprehensive, evidence-based guidelines on risk assessment and counseling for high-risk women and removal of barriers that impede physician training and access to reproductive services for this population.

Assessing the risk of maternal morbidity and mortality

A high-risk pregnancy can be defined as a pregnancy in which the woman, fetus, or infant is at significant risk of death or injury. This risk can result from maternal or fetal health conditions or nonmedical, contextual factors in a woman's life that require additional resources, procedures, or specialized care to optimize outcomes. Maternal health conditions can include preexisting or pregnancy-associated chronic or infectious diseases, substance use or mental health conditions, and past obstetric history.[30] Examples of such conditions are presented in the Box. It should be noted that compiling a comprehensive list that encompasses all disorders that are associated with an increased risk of maternal morbidity or mortality is challenging, and the list provided in the Box is not meant to be inclusive of all possible conditions.

The presence of nonmedical factors can further modify the risk of adverse outcomes. These factors often arise from the individual's or the health care system's inability to adequately manage a health condition.[25] For instance, rates

BOX
Examples of medical factors that increase the risk of maternal morbidity or mortality

Medical factors
Medical disorders
Cardiovascular disease
Hypertension
Obesity
Renal disease
Asthma
Sickle cell disease
Diabetes
Lupus and collagen vascular disease
Epilepsy
Thyroid disease
Thrombophilia
Mental health disorders
Infectious disease
HIV
Hepatitis
Tuberculosis
Pneumonia (viral and bacterial)
Sexually transmitted infections
Other factors
Substance use
Previous reproductive history

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of severe maternal morbidity are highest for women with Medicaid or no insurance and those in the lowest income quartile.[31]

A woman's ability to manage a preexisting condition before, during, or after pregnancy is affected by whether she has insurance and is able to regularly visit a health care provider. Even if she does have insurance and is able to visit a health care provider, a specialist provider or facility with the expertise to diagnose or manage a high-risk patient may not be present in her geographic area, potentially resulting in delayed or inadequate care.[32] Therefore, a comprehensive risk assessment should include a thorough evaluation of all relevant medical and contextual factors that may have an impact on a pregnancy, including access to care.

How to assess risk

Many tools exist to assess the risk of adverse pregnancy outcomes (Table). Because methodological challenges often hinder the validation of these tools, it is difficult to make recommendations about their overall utility in risk assessment.

Several scoring systems have been developed to predict maternal morbidity or mortality in obstetric inpatients that are primarily based on physiological indicators.[33] One meta-analysis compared 12 mortality prediction models and found that the Collaborative Integrated Pregnancy High-Dependency Estimate of Risk and Maternal Severity Index had the best performance. However, both tools were found to have a high level of heterogeneity in the location and sample size of studies evaluating these models and a small number of validation studies.[33]

New tools continue to be developed as additional risk factors are identified or through investigation of different data sources. One such tool, the modified obstetric comorbidity index (OB-CMI), assesses risk at the time of admission to labor and delivery and incorporates indicators from the previously validated OB-CMI as well as comorbidities not reliably captured in the original claims data set.[34,35]

Other tools are used to assess the risk of deterioration or complications of specific conditions, such as cardiac or renal disease or mental health conditions.[36–40] Two studies have evaluated the use of the World Health Organization cardiac classification system compared with the CARdiac disease in PREGnancy (CARPREG) and Zwangerschap bij Aangeboren HARtAfwijkingen (ZAHARA I) risk scores and found the World Health Organization system to be equal to or superior to these other risk-scoring systems in estimating cardiac risk in pregnancy and may be considered as a useful tool for providers to use to assess risk in this population.[36,39]

Evaluation of condition-specific tools is limited by small sample sizes and few or no external validation studies, however.[36,39] Additionally, some condition-specific tools were developed in nonobstetric populations, and their validity in pregnancy remains uncertain.

Finally, existing tools do not incorporate nonmedical or contextual factors that may modify an individual woman's risk of morbidity or mortality. Workshop participants emphasized the need for new, comprehensive risk assessment tools to be used early in pregnancy or in an outpatient setting to inform prepregnancy and antenatal counseling and management.

A novel risk assessment algorithm was therefore proposed by workshop participants to comprehensively evaluate both medical and contextual factors to assist in the decision of whether to continue or terminate a complicated pregnancy (Figure). This algorithm incorporates patient-level factors, including the fetal prognosis, the capacity of the woman to manage her condition, and her desire to be pregnant, with factors external to the patient, including the ability of the system to safely manage her condition and the expertise of local providers. This assessment of risk from the provider's perspective can then be multiplied by the assessment of risk from the perspective of the woman

TABLE
Risk assessment tools

Variables	Name	Indicators	Outcome
Developed in obstetric population	WHO near-miss criteria	25 respiration, coagulation, liver, cardiovascular, CNS, uterine, renal severity variables (checklist)	Mortality
	Maternal severity index	25 respiration, coagulation, liver, cardiovascular, CNS, uterine, renal severity variables (additive score)	Mortality
	CIPHER	8 physiological variables, age, preceding surgical status	Mortality
	Obstetric early warning score	7 physiological variables	Mortality
	OB-CMI	Preexisting conditions, pregnancy-associated conditions, age, substance use	Organ injury or death
	Modified OB-CMI	Modifies OB-CMI to include maternal comorbidities not reliably captured in claims data (eg, placenta accreta, obesity)	Severe maternal morbidity
	Severe maternal morbidity prediction model	Race, hypertension, parity, smoking, Bishop score, delivery mode, use of cervical ripening agents or oxytocin, length of second stage of labor, and macrosomia	Severe maternal morbidity
	Maternal Early Warning Criteria; National Partnership for Maternal Safety	6 physiologic variables; maternal agitation, confusion, unresponsiveness; patient with preeclampsia reporting a nonremitting headache or shortness of breath	
Developed in nonobstetric population	Simplified Acute Physiology Score II, III	12 physiological variables, age, type of admission, 3 underlying conditions	Hospital mortality
	APACHE II, III	12 physiological variables, age, chronic health conditions	Maternal death
	Mortality prediction model 2, 3	11 physiological variables, age, type of admission	Mortality
Condition- specific model	CARdiac disease in PREGnancy (CARPREG)	Prior cardiac event, NYHA functional class, heart condition, multiple gestation, smoking, heparin/warfarin use	Cardiac complications
	Zwangerschap bij Aangeboren HARtAfwijkingen (ZAHARA)	Prior arrhythmia, NYHA functional class, heart condition, multiple gestation, smoking	Cardiac and obstetric complications
	WHO cardiac criteria	Cardiovascular conditions	Risk of maternal morbidity or mortality
	NYHA classification	Functional capacity	Cardiac complications in pregnancy
	Sepsis-related Organ Failure Assessment	Respiration, coagulation, liver, cardiovascular, CNS, renal variables	Mortality
	Multiple Organ Dysfunction Score	6 physiological variables	Organ failure

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before making a shared decision regarding the continuation or termination of the pregnancy.

Risks should be reassessed frequently and discussed with the woman before and throughout pregnancy. To prevent unintended or undesired pregnancy and to ensure that high-risk women are referred to a family planning or MFM subspecialist or obstetrician-gynecologist specialist who can provide contraceptive care as appropriate, risk assessment and counseling ideally should be initiated before pregnancy.

Providers should ask about pregnancy intention with questions such as "Would you like to become pregnant in the next year?" or, for women in the immediate postpartum period, "When would you like to become pregnant again?"; assess prepregnancy health status; and review appropriate contraception.[41] Workshop participants recommended the

TABLE
Risk assessment tools *(continued)*

Variables	Name	Indicators	Outcome
	Sepsis in obstetrics score	Modifies for pregnancy parameters from Rapid Emergency Medicine Score, Surviving Sepsis Campaign criteria	Admission to ICU for sepsis
	RIFLE classification	Levels of acute kidney injury based on serum creatinine and urine output criteria	Mortality
	fullPIERS	6 predictor variables	Adverse maternal outcomes within 48 hours for women with preeclampsia

Data are from the following: Aarvold AB, Ryan HM, Magee LA, von Dadelszen P, Fjell C, Walley KR. Multiple organ dysfunction score is superior to the obstetric-specific sepsis in obstetrics score in predicting mortality in septic obstetric patients. Crit Care Med 2017;45:e49-57.

Albright CM, Has P, Rouse DJ, Hughes BL. Internal validation of the Sepsis in Obstetrics Score to identify risk of morbidity from sepsis in pregnancy. Obstet Gynecol 2017;130:747-55.

Aoyama K, D'Souza R, Inada E, Lapinsky SE, Fowler RA. Measurement properties of comorbidity indices in maternal health research: a systematic review. BMC Pregnancy Childbirth 2017;17:372.

Aoyama et al.[33]

Balci et al.[36]

Bateman et al.[34]

Carle C, Alexander P, Columb M, Johal J. Design and internal validation of an obstetric early warning score: secondary analysis of the Intensive Care National Audit and Research Centre Case Mix Programme database. Anaesthesia 2013;68:354-67.

Dobbenga-Rhodes YA, Prive AM. Assessment and evaluation of the woman with cardiac disease during pregnancy. J Perinat Neonatal Nurs 2006;20:295-302.

Easter SR et al.[35]

el-Solh AA, Grant BJ. A comparison of severity of illness scoring systems for critically ill obstetric patients. Chest 1996;110:1299-304.

Kamal et al.[38]

Kim et al.[39]

Knaus WA, Draper EA, Wagner DP, Zimmerman JE. APACHE II: a severity of disease classification system. Crit Care Med 1985;13:818-29.

Le Gall JR, Lemeshow S, Saulnier F. A new Simplified Acute Physiology Score (SAPS II) based on a European/North American multicenter study. JAMA 1993;270:2957-63.

Marshall JC, Cook DJ, Christou NV, Bernard GR, Sprung CL, Sibbald WJ. Multiple organ dysfunction score: a reliable descriptor of a complex clinical outcome. Crit Care Med 1995;23:1638-52.

Mhyre JM, D'Oria R, Hameed AB, et al. The maternal early warning criteria: a proposal from the National Partnership for Maternal Safety. Obstet Gynecol 2014;124:782-6.

Payne BA, Ryan H, Bone J, et al. Development and internal validation of the multivariable CIPHER (Collaborative Integrated Pregnancy High-dependency Estimate of Risk) clinical risk prediction model. Crit Care 2018;22:278.

Rosenbloom JI, Tuuli MG, Stout MJ, et al. A prediction model for severe maternal morbidity in laboring patients at term. Am J Perinatol 2019;36:8-14.

Thorne S, MacGregor A, Nelson-Piercy C. Risks of contraception and pregnancy in heart disease. Heart 2006;92:1520-5.

Ukah et al.[40]

Vincent JL, Moreno R, Takala J, et al. The SOFA (Sepsis-related Organ Failure Assessment) score to describe organ dysfunction/failure. On behalf of the Working Group on Sepsis-Related Problems of the European Society of Intensive Care Medicine. Intensive Care Med 1996;22:707-10.

APACHE, Acute Physiology and Chronic Health Evaluation score; *CIPHER*, Collaborative Integrated Pregnancy High-Dependency Estimate of Risk; *CNS*, central nervous system; *fullPIERS*, Intensive care unit Preeclampsia Integrated Estimate of Risk; intensive care unit; *NYHA*, New York Heart Association; *OB-CMI*, Maternal comorbidity index; *RIFLE*, risk, injury, failure, loss, and end-stage renal failure classification; *WHO*, World Health Organization.

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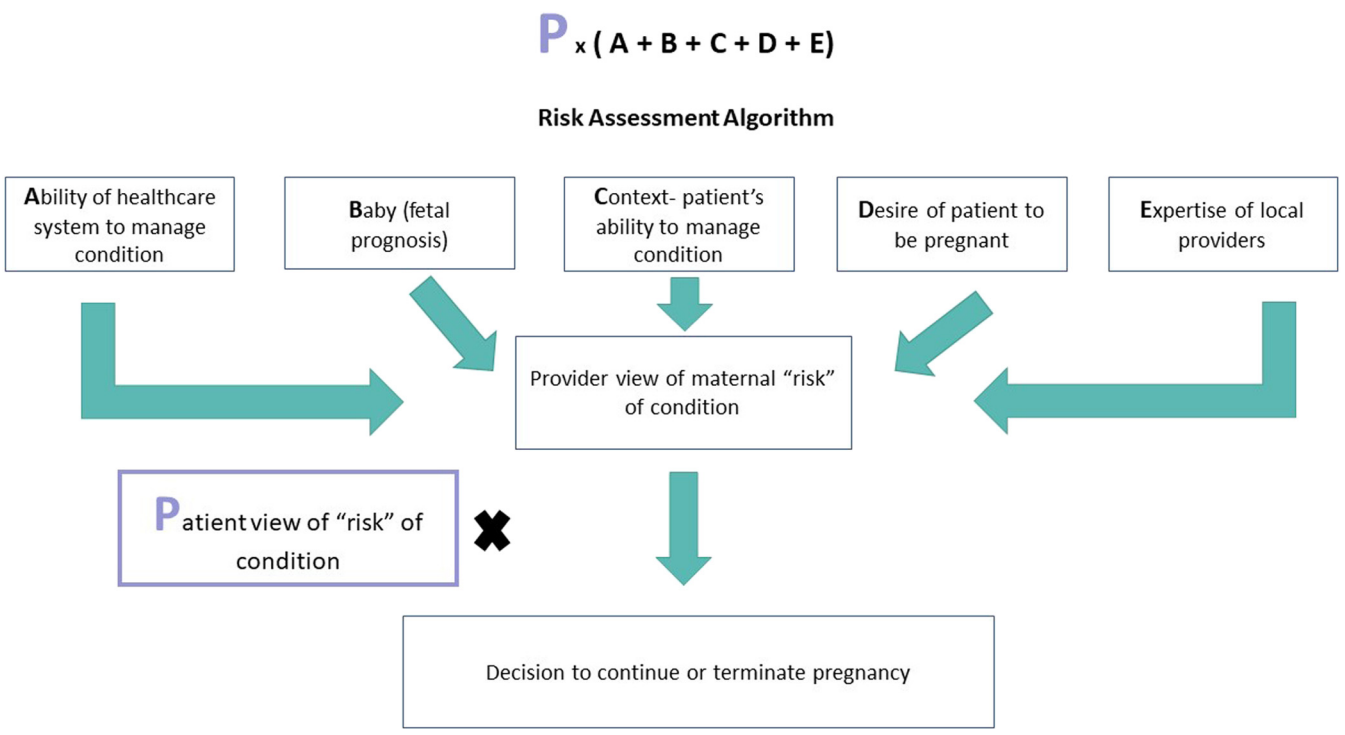
broad implementation of a prepregnancy screening strategy by all providers to ensure all reproductive-aged women receive appropriate prepregnancy or contraception counseling or care. Subspecialty collaboration should also be sought during this time to manage a woman's preexisting medical conditions and connect her with referrals to social services as appropriate.[42]

Once a woman becomes pregnant, risk assessment early in pregnancy is necessary for early identification and management of any preexisting or pregnancy-associated conditions and to elicit the woman's tolerance of risk, desire to be pregnant, and additional resources needed to optimize the woman's capacity to manage her pregnancy if desired. As the pregnancy progresses, risk assessment should continue to include any changes in a woman's life circumstances as well as barriers to medical interventions imposed by provider expertise or policy restrictions. Frequent reassessment is necessary because the potential for maternal risk due to pregnancy complications or medical interventions increases with gestational age, and management options may change or become more limited as the pregnancy progresses.[43]

FIGURE
Maternal risk assessment algorithm



Medical and contextual risk factors for pregnancy should be assessed comprehensively and then multiplied by the patient's perspective on risk to facilitate a shared decision regarding the continuation or termination of the pregnancy.

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Recommendations for future research

There is a critical need for validated risk assessment tools that can be widely implemented in the obstetric population to predict the likelihood of morbidity and mortality because most tools currently available are designed for use in populations already identified as high risk.[33] There is also a need for developing assessment tools that incorporate nonmedical and nonpatient risk factors before and during pregnancy, particularly for non–obstetrician-gynecologists who treat reproductive-aged women but lack advanced training in this area.[44]

Workshop participants proposed developing clinical guidance on risk assessment strategies and screening tools that addresses reproductive planning for women with preexisting medical conditions in collaboration with other adult subspecialty organizations to broaden the reach of any recommendations.

Once a woman is identified as being at high risk, she should receive appropriate, timely care. Future research on how best to provide this care to high-risk women living in medically underserved areas is needed as well.[45] Additional research could involve quantifying which factors contribute to a woman's increased health risk during pregnancy and describing the advantages and disadvantages of developing a list of these conditions or contributing factors. Research and dissemination of best practices about the assessment of risk before pregnancy to the broad medical community may help to enhance continuity of care and communication for women engaging with multiple health care providers.

Counseling women at high risk of pregnancy complications

Counseling content

During prepregnancy counseling, women should be made aware of both maternal and fetal health risks of pregnancy and how to prevent or reduce these risks. These risks can be due to preexisting health conditions, effects of medication use, family or genetic history, or her physical environment.[41] If a woman does not desire pregnancy in the next year, counseling about appropriate options for contraception is recommended. The discussion should include information on safety, effectiveness, accessibility, affordability, and acceptability of the range of options.[46] If a high-risk woman is ambivalent or expresses a desire for pregnancy in the next year, counseling should elicit her preferences and priorities in the context of her medical condition, include strategies to reduce risks before pregnancy, and connect her to relevant subspecialists or social services.[41,47] Guidance and training in prepregnancy counseling should be made available to

providers in obstetric-gynecologic specialties because they represent key partners in the care of women with co-occurring conditions.[44]

Counseling during pregnancy should be an ongoing process performed in concert with continuous risk assessment. Counseling a woman who has a condition that places her at high risk of maternal health complications should include information about her condition, risks of the potential outcomes of each treatment option, and a timeline of her options, given hospital or state restrictions.[48–50] The risks of pregnancy continuation vs termination should be framed as a dual continuum that ranges from low maternal risk and good fetal outcome to high maternal risk and poor fetal outcome and presented within the context that maternal health risk increases with gestational age. Women with medical conditions should also receive counseling about health risks of future pregnancies and appropriate postpregnancy contraception.[30]

Shared decision-making

Shared decision-making is currently the preferred model for patient counseling because it allows for interaction between the patient and provider to equally and actively share information and arrive at a decision that is based on the best medical evidence and the patient's preferences.[51–53] This counseling model involves 3 steps: (1) introducing the patient to the idea that they can make choices about their care, (2) describing care options, potentially with the use of decision support tools to reduce literacy or numeracy barriers to patient comprehension, and (3) helping patients explore preferences and make decisions about their care.[52]

Using shared decision-making is important because it increases knowledge, confidence, and autonomy. This process is intended to empower patients to make the best decision given their values and priorities and reduces the opportunity for reproductive coercion by providers, which has historically been an issue, particularly for racial and sexual minority and low-income individuals.[54,55]

Implementing shared decision-making involves using the patient's preferred language and eliciting her values early in the counseling process, validating her choices, affirming that conversations will continue throughout pregnancy, and adjusting counseling strategies based on her needs and preferences.[56] Strategies for fully involving patients in this process may include using interpreters, considering a patient's cultural context, and incorporating support people into the discussion. Decision aids, including paper or computer-based tools and modalities such as motivational interviewing or peer or group counseling, may also be useful in increasing patient engagement in the decision-making process.[57,58]

When presenting patients with a comparison of risks, providers should be aware of numeracy issues and cognitive biases that may have an impact on patient and provider understanding and work to reduce barriers in how they present this information. Actively planning for follow-up conversations rather than expecting to make an immediate decision allows patients time to independently process and discuss options with their support system.[52]

Collaboration

Collaboration at the institutional and national organization levels is necessary to optimize care for high-risk women. While MFM subspecialists are often the primary providers in the care and management of a high-risk pregnancy, women with a high-risk pregnancy may be also be cared for by an obstetrician-gynecologist specialist in consultation with MFM subspecialists. Additionally, there is a need for increased collaboration with family planning experts in the care of high-risk women.

At the institutional level, family planning experts, such as family planning subspecialists or obstetrician-gynecologist specialists with expertise in family planning, should be involved in meetings with high-risk women about maternal and fetal treatment decisions and discussions about best practices for patient flow, referrals, and counseling. Family planning subspecialists and obstetrcian-gynecologist specialists can play a critical role in both the management and primary prevention of unplanned, unwanted, or medically complex pregnancies or pregnancy termination when it poses a risk to maternal life and health.

Family planning subspecialists have an advanced understanding of contraceptive pharmacokinetics and endocrinology and are trained to provide contraceptive-related care to women with complex medical problems, in addition to specialized clinical skills (e.g., D&E for later gestations; complex or high-risk surgical cases).

At the national level, there is a need for increased collaboration between the family planning and MFM subspecialty organizations to develop provider education and advocacy resources and clinical guidelines on intersecting topics, such as when a woman might best be served in an inpatient/hospital setting as opposed to an outpatient/clinic setting.

Engaging with providers in specialties other than obstetrics and gynecology is also important to share best practices in contraceptive counseling and ensure continuity of care during pregnancy. Fully utilizing telemedicine and electronic health records may be a way to achieve this interdisciplinary collaboration, particularly for women in areas that lack MFM or family planning subspecialists. Additionally, increasing recruitment and retention of MFM and trained family planning subspecialists throughout the country with accessible and coordinated national referral networks will facilitate rapid care coordination for women in need of subspecialist care and increase access in rural and underserved communities.

Recommendations for future research

Future research is needed to understand how best to support and encourage shared decision-making for diverse populations of women and their providers. Because decision tools do not exist for many of the decisions faced by

women at high risk for pregnancy complications, this is an area for future research and development.

Because of the variation in policies and practices and density of providers in different states, research is needed to determine best practices in counseling and referring women who live in areas with restrictive reproductive health policies and who lack access to clinicians with family planning expertise in the context of medical comorbidities or MFM subspecialists.[12,13] Of particular importance is developing strategies that leverage obstetrician-gynecologist specialists because they represent essential members of the care team for high-risk women.[12]

Additionally, certified nurse midwives and nurse practitioners provide a range of reproductive health services, including abortion and contraception, in many states,[59] and additional research that demonstrates their integral role in providing care specifically for high-risk women is recommended.[60] There is also a need to examine how best to establish professional connections with nonphysicians, such as doulas and community health workers. Previous research has shown that non–obstetrician-gynecologists feel unprepared to provide patients with contraceptive counseling, but there is a lack of research on how best to educate or train these providers in this skill and how to facilitate the implementation of contraceptive or prepregnancy counseling into their practice.[44,61]

Access to reproductive health services

Many complex and interrelated barriers at the institutional, state, and national levels impede training in and provision of reproductive health services for women at high risk of maternal morbidity and mortality. Moreover, other barriers exist at the individual and care team level, such as implicit and explicit bias and discrimination, and religious, moral, or personal objections to abortion and family planning care. These barriers further limit the quality and accessibility of care and exacerbate health inequities.

Abortion care

Legal and regulatory restrictions

Abortion is among the most regulated medical procedures in the United States.[14] In recent years, there has been an unprecedented and concerning increase in legal and regulatory restrictions that are not based on medical evidence and standards of care.[14] Such policies interfere with the physician-patient relationship and the reproductive decisions of women, create unnecessary and dangerous barriers to accessing care, and obstruct evidence-based medical training and practice.

The extensive regulatory requirements that state laws impose stand in contrast to the clinical evidence on the provision of safe and high-quality abortion care.[62] A committee of the National Academies of Sciences, Engineering, and Medicine reviewed the available evidence and confirmed in a 2018 report that abortion is safe and effective but that the quality of abortion care depends on where a woman lives.[14]

Workshop attendees cited the findings in this report that the extensive regulatory requirements imposed by state laws, including telemedicine bans, medication abortion restrictions, and Targeted Regulation of Abortion Providers (TRAP) laws as well as waiting periods, stipulations for multiple visits, and mandated scripts for counseling, stand in contrast to the clinical evidence on abortion and hinder the provision of safe, timely, and high-quality care.[14,62]

State law and federal regulatory restrictions on the distribution of mifepristone also merit attention, given the increasing prevalence of medication abortion (39% of all abortions in 2017)[1] and extensive research demonstrating its safety and effectiveness.[14] Mifepristone is the only medication specifically approved by the US Food and Drug Administration for use in medication abortion and is subject to a Risk Evaluation and Mitigation Strategy (REMS) that limits dispensing to certified providers and specified settings, which do not include retail pharmacies.[63] Several states also specifically preclude the use of telemedicine for medication abortion.[14] These laws contradict existing evidence that the dispensing or taking of mifepristone tablets does not require the physical presence of a clinician.[64]

Financial barriers and funding restrictions

Women frequently cite financial burdens as reasons for delays in obtaining an abortion.[14] Several state and federal funding restrictions may delay access to care, thereby increasing risk[14] and, in some cases, serve as de facto abortion bans.[65] For instance, 34 states prohibit public payers from paying for abortions, and other states have laws that either prohibit health insurance exchange plans (26 states) or private insurance plans (11 states) sold in the state from covering or paying for abortions, with few exceptions.[66,67]

At the federal level, the Hyde Amendment prohibits the use of federal funds for abortions except in cases of life endangerment, rape, or incest and guides public funding for abortions under the joint federal-state Medicaid programs for low-income women.[66] Access to Medicaid coverage for abortion is extremely limited in most of the United States. Thirty-four states and the District of Columbia follow the federal standard, while South Dakota provides abortions only in cases of life endangerment, in apparent violation of the federal standard.[67]

For high-risk women, narrow exceptions provided under the Hyde Amendment may mean that they have to wait until their condition is deemed sufficiently life threatening before they can access needed care. Additionally, high-risk women who would be best served in a hospital facility may try to undergo their abortions at an outpatient clinic because they cannot afford to pay for care in a hospital and do not meet the narrow exceptions for coverage under most state Medicaid programs and many insurance plans.

Access to clinic and outpatient care

Most abortions can be safely provided in office-based settings[14] and are primarily provided by obstetrician-

gynecologists and family medicine specialists. While clinics remain the most common facility type (95%), access to clinic-based abortion care has decreased significantly in many parts of the country.[1] Regional and state disparities have widened,[1] most notably in the South and Midwest. In 2017, 89% of US counties did not have a clinic that provided abortion services, and 38% of women of reproductive age lived in these counties.[1]

The availability of services further decreases as gestational age increases.[14] Among clinics that provided care, 30% provided medication abortion only up to 10 weeks of gestation.[1] In 2014, the most recent year for which data are available, only 25% of clinics offered abortion services up to 20 weeks of gestation and only 10% at 24 weeks of gestation.

As the number of clinics declines, many women must travel farther and may delay care to later in gestation. As a result, they may ultimately be ineligible for clinic-based care or experience complications that require hospital-based care. Evidence-based criteria are needed, however, to determine whether a woman should receive care in an inpatient/hospital setting versus an outpatient/clinic setting. This guidance will help ensure that when high-risk women are denied abortion care in an outpatient setting, that decision is evidence-based and consistent with standards of care.

Access to hospital-based care

Although only 4% of US abortions take place in hospitals and most hospitals provide fewer than 30 abortions per year,[1,14] these facilities serve as the primary sites for physician training, medically complex abortions, and referral and backup for free-standing clinics.[68] While access to hospital-based care for women at high risk is often critical, it is severely restricted by state law.

Workshop attendees emphasized that among the most dangerous restrictions for high-risk women are the laws in 12 states that prohibit the provision of abortion services in public institutions,[14] such as state-run hospitals or health systems. Such laws preclude some hospitals, including tertiary care academic hospitals, from providing timely care to high-risk women. Because of their increased risk of experiencing pregnancy complications, some high-risk women may be best served by the care of an MFM or family planning subspecialist and may require the services and care provided by a hospital setting.

Often high-risk women have exceeded the gestational limits at ambulatory facilities or have no other options for care because they cannot afford to travel or pay for care elsewhere, and they do not meet the narrow exceptions for coverage under most Medicaid programs (risk to maternal life, rape, and incest).

These restrictions also create an environment in which physicians are unable to provide care to their patients unless, or until, the risk to the woman's life is immediate and certain or she has reached a particular institutional threshold or her condition is reviewed and deemed appropriate for an abortion by a hospital board or committee not involved in the patient's care. For teaching hospitals, these restrictions preclude or severely limit training and can make it challenging for educational programs located in those facilities to meet obstetrics and gynecology residency training requirements set by the ACGME.[65]

Hospital policies have important implications for training and access to care for high-risk women. Abortion policies at hospitals with ACGME-accredited obstetrics and gynecology programs are often more restrictive than state laws,[68] further compounding the impact of legal restrictions and other barriers to access. More than 56% of hospitals have a policy restricting abortion provision beyond state law, and 30% restrict indicated abortions.[68]

Enforcement of policies, particularly informal, unwritten policies, are often arbitrary and unclear. Within many institutions, an abortion requires approval from or notification of MFM subspecialists (60%), obstetrics and gynecology chairs (52%), or hospital ethics (47%) or abortion-specific (20%) committees.[68] These system-wide barriers may delay or hinder access to potentially life-saving care for women at high risk, interfere with the physician-patient relationship, and undermine the quality and scope of training at teaching hospitals.

Thus, guidelines are needed to inform collaboration between MFM and family planning subspecialists and obstetrician-gynecologist specialists and to inform institutional approaches to the determination of eligibility for abortions for high-risk women who, because of state law or institutional policy, are not eligible for abortion without a clinical determination of risk to health or life.

Improving collaboration and establishing best practices for such determinations may also ensure that women who are eligible for Medicaid coverage under the narrow exceptions provided by the Hyde Amendment or by state Medicaid programs receive timely and appropriate treatment options and optimal care. Critical components of these guidelines include collaboration between MFM and family planning subspecialists and obstetrician-gynecologists at all stages of care, the elimination of hospital abortion boards and committees, and guiding principles establishing that no list of indications can sufficiently encompass the types of situations in which abortion may need to be considered, and that the care team, in conjunction with the patient, have the sole capacity to determine the course of care.

Access to subspecialty care

Some high-risk women may be best served by subspecialists, such as MFM or family planning subspecialists, and face further challenges in accessing this care. In 2010, there were 1355 MFM subspecialists in active practice in the United States, nearly all of whom (98.2%) were based in metropolitan counties with level III perinatal centers.[13]

Approximately 40% of reproductive-aged women (24.5 million) live in counties without an MFM subspecialist.[13] Although contraception and abortion services for healthy

women may be safely provided by obstetrician-gynecologists and family medicine specialists, family-planning subspecialists are necessary for advanced gestations, complicated pregnancies, and acute or chronically ill patients. As of 2019, there were 332 Fellowship in Family Planning (FFP)—trained family planning subspecialists in active practice in the United States. A majority were based at academic medical centers, and 9 states did not have a family planning subspecialist.[69]

In addition to the geographic disparities in access to subspecialty care generally, high-risk women may encounter additional challenges in accessing a subspecialist who provides D&E care. Most abortions for maternal indications occur in the second trimester[70] when the medically preferred method is D&E.[14] The alternative procedure, induction, poses a slightly higher risk and is more painful, slower, and more costly.[14] The D&E procedure is illegal in Mississippi and West Virginia,[14,71] and only 13% of counties in the United States have a D&E provider.[70] In areas where family planning subspecialist care is absent or limited, MFM subspecialists or trained obstetrician-gynecologist specialists may play a critical role in ensuring access to D&E care for high-risk women.

Because of the need for specialized training, however, there is a shortage of MFM subspecialists trained in D&E provision. A 2010 national survey of practicing MFM subspecialists found that although two thirds of respondents included either D&E or inductions in their practice, only 31% provided D&Es, and 40% provided only induction termination. Among those who provided D&E, the majority worked in an academic setting, indicating that access is even more limited in rural areas.[70]

Stigma and safety

Stigma, harassment, and violence may discourage abortion access and provision. The stigma of obtaining an abortion as well as providing them may lead to secrecy, marginalization of abortion from routine medical care, delays in care, and increased morbidity from the procedure.[65] By integrating conversations about all treatment options, including abortion, into all levels of care and by speaking publicly about the importance of access to abortion for high-risk women, MFM subspecialists play a critical role in reducing stigma and shifting the public discourse around abortion.

Immediate postpartum LARC

Clinical and operational barriers prevent access to the full range of contraceptive methods in the postpartum setting.[72] Although the benefits of LARC are widely known in the family planning community, lack of awareness or misperceptions among obstetrician-gynecologists and MFM subspecialists can impede immediate postpartum LARC placement.[73] Counseling high-risk women about postpartum contraceptive options may not be prioritized during the management of a high-risk pregnancy.[73] Maternal-fetal medicine subspecialists and referring providers may not address LARC and other postpartum contraceptive methods because of a lack of knowledge or training, lack of time, or the perception that it is not their role.[73]

Payment difficulties and limitations in insurance coverage present additional obstacles to implementation of immediate postpartum LARC.[73] Although Medicaid reimbursement for LARC is increasing, inpatient billing processes remain unclear for many hospitals and are not well aligned with systems for absorbing the up-front cost of the devices.[73] Specifically, bundled payments result in a lack of adequate reimbursement for the devices and the placement.

While immediate postpartum LARC has been shown to result in high patient satisfaction, acceptability, and method continuation,[73] workshop participants emphasized the importance of ensuring patient autonomy and informed choice when making decisions related to contraception. Strategies to expand access to LARC as well as other medically appropriate methods of contraception should be developed within a reproductive justice framework that centers the values and preferences of high-risk women.

Recommendations for future advocacy

Advocacy efforts to address the need for increased access to contraception and abortion services should be directed toward broadening access to telemedicine services for abortion and contraception for high-risk women, removing the REMS imposed by the Food and Drug Administration for mifepristone[74], continuing efforts to destigmatize and integrate abortion training into medical education, and eliminating the federal Hyde Amendment.

Other priorities include eliminating abortion-specific hospital boards and committees, revising institutional and hospital policies that restrict the provision of care beyond state law, and opposing legislative and regulatory restrictions that impede access to care and training and interfere with the doctor-patient relationship and evidence-based care. Advocacy efforts are particularly needed to address restrictions that prohibit the provision of abortion services and training in public institutions.

It is also critical that professional organizations and societies continue to support legal challenges to such laws by participating in amicus briefs and that MFM and family planning subspecialists continue to serve as expert witnesses to establish the evidence on the appropriate standards of care and clinical implications of enacted restrictions.

Finally, workshop participants recognized the critical role academic and professional societies play in advancing these efforts and emphasized the importance of recent commentaries and position statements[75–79] that affirm organizational support for comprehensive reproductive health care, including abortion, and voice opposition to policies that interfere with medical education, medical practice, and the doctor-patient relationship.

Recommendations for future research

Research on overcoming barriers to accessing reproductive health services at every level is needed. Epidemiological

investigations could examine the impact of access to second-trimester abortion on women's health and quality of life to inform public discourse and center policy discussions around abortion as a critical aspect of women's health care. Messaging surrounding the importance of legal abortion generally emphasizes that illegal abortion leads to unsafe procedures and increased maternal mortality. It should also be emphasized that some women may die from complications of pregnancy if they cannot have an abortion.[4,80]

A research question that merits investigation is the extent to which abortion care was discussed or made available in cases of maternal death in women who were at elevated risk of maternal morbidity and mortality during pregnancy. Additionally, little is known about the gestational ages, medication regimens, maternal indications, and circumstances surrounding the provision of D&Es by MFM subspecialists, as opposed to induction termination, and their impact on access to abortion care for high-risk women. A 2010 national survey indicates that although more MFMs provide induction termination than D&E for second-trimester abortions, more than 3000 D&Es are performed by practicing MFM subspecialists each year.[70]

At the policy level, there is a need for data and qualitative research examining the impact of governmental policies that create barriers and delays to care, such as the Hyde Amendment, on increased maternal morbidity and mortality rates and access to care, especially for high-risk women. Additional research could examine the impact of abortion-related hospital policies on patient access, women's health, and maternal morbidity and mortality. Further studies could examine the impact of increased collaboration between MFM and family planning subspecialties on the interpretation and enforcement of hospital policies related to abortion.

To ensure professional guidelines are supported by the best available evidence, additional research should investigate safety standards and best practices for the provision of medication abortion for women with underlying medical conditions and fetal demise. There is also a need to implement and evaluate novel practice innovations that may enable access to care more broadly, such as telemedicine and e-consults, for abortion and complex contraception.

Finally, an impact evaluation examining the utility and efficacy of existing reproductive health programs, initiatives, resources, and regional/national referral networks for high-risk women is recommended. Such research will inform the development of novel strategies and approaches to addressing critical challenges in ensuring equitable access to care for high-risk women, particularly those who face barriers in accessing care or who live in areas with limited or no subspecialty care.

Training for reproductive health services

Access to safe abortion care for all women[78,81] and the management and treatment of women at high risk of maternal morbidity and mortality hinges on the availability of sufficient numbers of hospitals and trained physicians who are able to offer abortion care as well as access to MFM and family planning subspecialty care. Routine opt-out training in family planning and abortion-related care, including the performance of D&E procedures, should be formally integrated into all obstetrics and gynecology residency programs. Maternal-fetal medicine and family planning subspecialists should receive training that further develops these skills and emphasizes care in later gestation and management of medically complex cases.

Current opportunities for training

Obstetrics and gynecology residency

Abortion remains one of the most common reproductive health experiences and surgical procedures of women in the United States,[82] making uterine evacuation a core skill for obstetrician-gynecologists and one that must be part of all training programs.[83] The ability to safely evacuate the uterus in the first and second trimesters is essential in obstetric and gynecological care, both for abortion and other clinical scenarios, including early pregnancy loss and incomplete abortion. Moreover physicians, even those who do not provide abortion care, need to be able to safely evacuate a uterus or treat abortion complications in an emergency.

Abortion training has been a core educational requirement of the ACGME for obstetrics and gynecology residency programs since 1996. All residency programs must offer routine opt-out training (or access to training) in the provision of abortions, management of complications, and all methods of contraception. Residents who have a religious or moral objection may opt out and must not be required to participate in performing induced abortions. Yet, despite the ACGME requirement and its recognition as an essential aspect of comprehensive reproductive health care and medical training by leading professional societies and academic leadership,[78] training in abortion care remains limited, even in obstetrics and gynecology residencies.[81]

Only 64% of obstetrics and gynecology residency program directors report routine, scheduled training in abortion, and most report that exposure to training is limited to specific clinical circumstances.[84] As a result, many practicing obstetrician-gynecologists, including MFM subspecialists, have limited or no training in abortion provision, particularly D&E procedures and provision in emergent clinical scenarios. This lack of training further contributes to the shortage of physicians who are able to provide routine abortion care and has significant implications for women with complex medical conditions or who are at risk of maternal mortality.

Significant progress in expanding and formalizing family planning and abortion training has been made by the Kenneth J. Ryan Residency Training Program in Family Planning and Abortion (Ryan Program). The Ryan Program is a national initiative that was created in 1999 to integrate and enhance family planning training for obstetrics and gynecology residents. The program supports obstetrics and gynecology departments in developing formal opt-out

rotations in family planning and provides a curriculum, other resources, and technical expertise to enhance clinical services and support evidence-based teaching for residents and faculty. Of the 241 obstetrics and gynecology residency programs in the US, 100 currently are Ryan programs. These programs have trained approximately 7000 residents thus far. The program continues to expand with new Ryan programs added each year.[69] A survey of residents and residency directors demonstrated significant improvement in knowledge and skills related to family planning and abortion for residents involved in the Ryan Program, even for those who opted out of some aspects of training.[85]

Among obstetrician-gynecologists, training in abortion during residency is associated with future abortion provision, even after controlling for a physician's intention to provide abortion.[86] To these ends, a critical aspect of improving access and quality of reproductive health services for all women is to expand and formalize resident training in abortion. All residency programs should, at minimum, meet the ACGME training requirements for abortion and family planning and, ideally, provide training according to the standards set by the Ryan Program.

Family planning subspecialty training

While obstetrics and gynecology residency training may prepare physicians with expertise in family planning or abortion care for medically complex women and high-risk pregnancies, advanced expertise is developed through postresidency subspecialist training in family planning.

The FFP, recently accredited by the American Board of Medical Specialties (ABMS) and ACGME as the Fellowship in Complex Family Planning, is a 2 year postresidency fellowship program that provides subspecialist training in research, teaching, and clinical practice in complex abortion and contraception. Beyond the skills of residency graduates, FFP-trained subspecialists engage in complex decision-making as well as the medical and surgical care of high-risk women, pregnancies with life-limiting fetal anomalies, and life-threatening maternal complications or comorbidities. The majority of FFP-trained subspecialists ultimately practice academic medicine and play a pivotal role in providing abortion and family planning training to obstetrics and gynecology residents.

Increasing access to family planning subspecialty care for women requires efforts to expand and formalize resident training in family planning and abortion, make such training an integral part of all obstetrics-gynecology resident education, expose residents to the importance of this expertise, and prepare those who will incorporate family planning into their future practice or pursue a family planning fellowship postresidency.

MFM subspecialty training

An MFM subspecialist is an obstetrician-gynecologist who has completed 3 years of additional formal education and clinical training within an MFM fellowship program in the diagnosis and treatment of women with complications of pregnancy, including maternal diseases and fetal problems.[87] To increase equitable access to reproductive health services, training for both MFM fellows and MFM clinicians is needed in pregnancy termination services (primarily D&E and mifepristone use), options counseling, LARC, implicit bias, and professionalism.

Future recommendations for training

Expand D&E training for MFM subspecialists

Among practicing MFMs, any D&E training during fellowship is associated with D&E provision in practice.[70] The D&E procedure requires advanced training and experience, a more complex set of surgical skills relative to those required for aspiration abortion, and an adequate caseload to maintain requisite skills.[14] Beyond the 27 FFP sites,[69] access to D&E training is limited or nonexistent in many areas of the country.[14] It is not available at almost one third of all obstetrics and gynecology residency programs[88] and is limited among MFM fellowships.

A 2014 national survey of MFM fellows and fellowship directors found that 46% of programs offer organized D&E training, with routine training as the least common training strategy, seen in only 18% of all programs.[88] To these ends, expanding D&E training opportunities for MFM fellows and clinicians, to either develop or enhance skills, may optimize care and increase treatment options for women with severe pregnancy complications and those who live in areas with no or limited access to family planning subspecialty care.

Strengthen language regarding termination in The Guide to Learning in Maternal-Fetal Medicine

An important step in increasing access to D&E training for MFM subspecialists is expanding the language in *The Guide to Learning in Maternal-Fetal Medicine* to include an "understanding of the indications, contraindications, risks, and principles" of D&E procedures for maternal health indications in addition to the current standard with regard to second-trimester care for fetal indications.[89]

Access to clinical training should also be expanded. The American Board of Obstetrics and Gynecology recognizes that performing D&E for second-trimester fetal death or lethal anomalies is within the scope of practice of maternal-fetal medicine but does not explicitly address maternal indications for this procedure. Additionally, unlike other procedures needed by women with pregnancy complications (eg, amniocentesis, cerclage),[70] actual clinical experience in performing D&E is not required for graduation from the MFM fellowship.[89] To these ends, it is strongly recommended that, in addition to revising *The Guide to Learning in Maternal-Fetal Medicine,* opt-in clinical training in D&E provision be incorporated into MFM subspecialty training at all fellowship sites.

Increase access to LARC training for MFM subspecialists

Maternal-fetal medicine subspecialists are uniquely positioned to counsel and provide contraception to high-risk

and medically complex women because of their frequent and in-depth contact during pregnancy and the postpartum period.[73] However, to provide a full range of contraceptive options, many MFMs need expanded training in procedure-based contraceptive methods like LARC to ensure increased access and integration into practice.

The most important means of increasing LARC referrals and the number of physicians trained and willing to provide LARC placement is to ensure that such training is routinely integrated into residency education. Provision of this training will increase access to LARC for all women by contributing to an increase in referrals and placement by obstetrician-gynecologists and for high-risk women by ensuring a foundation in LARC for residents who ultimately pursue subspecialty training. LARC training should also be emphasized during MFM fellowship training as an important aspect of continuing medical education.

Comprehensive and evidence-based training is available to institutions through the American College of Obstetricians and Gynecologists' LARC Program's Postpartum Contraceptive Access Initiative, which provides clinical and operational support training for immediate postpartum LARC implementation.[90] The Postpartum Contraceptive Access Initiative incorporates evidence-based research and current best practices into a three-pronged implementation model to support successful immediate postpartum LARC provision at participating hospitals.[90]

Implement collaborative opt-in training rotations for MFM and family planning fellows

Collaborative opt-in training rotations for MFM fellows and family planning fellows in maternal-fetal medicine and family planning, respectively, would introduce interested MFM fellows to needed skills, particularly if they practice later in their careers at an institution or in an area with limited access to family planning subspecialty care.

A novel approach would be a formal training rotation partnership between the two fellowships, either at the same institution or via institutional collaboration. Training for MFM fellows should include education and the opportunity for skill acquisition in D&E, complex contraception, and mifepristone and misoprostol and for family planning fellows, sonography, genetic counseling, and amniocentesis. In addition to facilitating acquisition of specific clinical skills, collaborative training rotations will improve referral practices, communication, and collaboration between the subspecialties.

In addition to formal opt-in training rotations in D&E, it is recommended that MFM fellowship programs continue to offer informal training opportunities to fellows because these are likely important for previously trained fellows who do not desire a formal rotation.[88]

Expand training in professionalism

Within an institution, professionalism training for family planning and abortion-related care is recommended for all members of the care team. A professionalism workshop, developed at the University of California, San Francisco, goes beyond values clarification to create a safe space for conversations about professional responsibility in the context of family planning and abortion-related patient care. Participants learn perspective-taking strategies, break down assumptions about their patient's behavior in a nonjudgmental and structured setting, and develop coping mechanisms to improve interactions and care.[91,92] The Kenneth J. Ryan Residency Training Program in Family Planning and Abortion offers these workshops to Ryan Programs and, by request, to other groups and institutions. Workshops can be tailored specifically for residents, fellows, faculty, nurses, and other groups.

Expand training in implicit bias

Racial and ethnic inequities impede women's access to high-quality health care and lead to poor outcomes.[93–96] These prevalent and persistent inequalities are further compounded by both implicit and explicit bias among health care providers and in the provision of care.[93–96] A combination of strategies is necessary to ensure that all women have access to culturally competent, patient-centered, and equitable obstetric, family planning, and abortion care.

One critical approach is to formally incorporate implicit bias and health equity training into medical education generally, including into obstetrics and gynecology residency and subspecialty training. This urgent need for evidence-based implicit bias training is not limited to trainees. It should be ongoing and integrated into continuing medical education for providers at all levels of practice, implemented at all hospitals with obstetric care, and made available to all health care providers and administrative and support staff involved in obstetric, family planning, and abortion-related care. The obstetrics and gynecology community must commit to recognizing and dismantling bias, discrimination, and inequity in the provision of reproductive health care.

Recommendations for future research

Research examining the impact of state restrictions and hospital policies on training is needed. An area that merits investigation is the impact of exposure to Ryan Program training during residency on the workforce in freestanding clinics, which provide the majority of abortions in the United States.

Additionally, a comprehensive evaluation of collaborative maternal-fetal medicine and family planning training rotations is recommended. This will establish the level of training and volume required for acquisition of specific clinical skills, such as D&E provision for medically complex women and advanced gestations, and assess the impact of these rotations on fellows' knowledge and understanding of the need for abortion care; patient experiences; the importance and role of each subspecialty; and the impact of federal, state, and institutional restrictions on access to care and service provision for high-risk women.

Conclusion

While family planning interventions have been shown to prevent adverse maternal outcomes, many legal, financial, and logistic barriers limit high-risk women from obtaining high-quality care in a timely manner in the United States. There is a need for continued research to inform clinical guidelines and institutional best practices for reproductive health services, advocacy to ensure policies align with the most recent evidence, and training of providers to expand the availability of services. It is hoped that this workshop serves as a catalyst for interdisciplinary collaboration among professional organizations and within local networks to increase access to reproductive health services and decrease maternal mortality among high-risk women.

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Reprints will not be available.

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SMFM has adopted the use of the word "woman" (and the pronouns "she" and "her") to apply to individuals who are assigned female sex at birth, including individuals who identify as men as well as nonbinary individuals who identify as both genders or neither gender. As gender-neutral language continues to evolve in the scientific and medical communities, SMFM will reassess this usage and make appropriate adjustments as necessary.

All questions or comments regarding the document should be referred to the Reproductive Health Project for Maternal-Fetal Medicine at RHProject@smfm.org.

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