Synopsis of the 2023 U.S. Department of VA and U.S. DoD Clinical Practice Guideline for the Management of Pregnancy

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ABSTRACT

Introduction:

This Clinical Practical Guideline provides recommendations based on a systematic review of the evidence to address critical decision points in the management of pregnancy. The guideline is intended to improve patient outcomes and local management of patients who are pregnant. This CPG is based on a systematic review of both clinical and epidemiological evidence and was developed by a panel of multidisciplinary experts. The Work Group provides clear and comprehensive evidence-based recommendations incorporating current information and practices targeting practitioners throughout the DoD and VA Health Care systems. The guideline is intended to improve patient outcomes and local management of patients who are pregnant. This CPG does not address every aspect of routine pregnancy care and is not intended to be a comprehensive guide to all care needed in pregnancy. It also addresses some clinically important and generally accepted standards of pregnancy care interventions that do not have sufficient high-quality evidence to support standalone recommendations. Additionally, it highlights emerging topics that have the potential to impact pregnancy care in the future and identifies gaps in the literature that warrant further research.

Materials and Methods:

The development of all VA/DoD guidelines is directed by the Evidence-Based Practice Guideline Work Group and adheres to the standards for trustworthy guidelines that were set by the National Academy of Medicine. A patient focus group was convened to assess important aspects of treatment for patients and to gain information about patient values and preferences. The Lewin Group, a contracted third party with expertise in CPG development, facilitated meetings and the development of key questions using the population, intervention, comparison, outcome, timing, and setting format. Consensus was achieved among the Work Group through an iterative process involving discussions on conference calls and in person during the recommendation development meeting. An independent third party, ECRI, conducted the systematic evidence review, which the guideline Work Group then used to develop recommendations using the Grading of Recommendations Assessment, Development and Evaluation system (7-9). The search methods and results are detailed in the full guideline.

Results:

This CPG provides 28 clinical practice recommendations that cover selected topics that the Work Group deemed had high priority need for evidence-based standards. The recommendations are divided into 3 main categories: routine care, complicated obstetrics, and mental health. An algorithm delineating recommended interventions and appropriate timing of these interventions over the course of the pregnancy and postpartum period was also created.

Conclusion:

The CPG is not intended to define standards of care nor address all care needed in pregnancy; it does provide comprehensive guidance for routine pregnancy care. It aligns with the VA and DOD's goal of providing care that is consistent in quality and utilization of resources in efforts to reduce errors and inappropriate variations in practices. In total, the Work Group identified 71 items needing further study, including areas requiring stronger evidence to support current recommendations and newer topics that will guide future guideline development.

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The views expressed in this material are those of the authors and do not reflect the official policy or position of the U.S. Government, the DoD, or the Department of the Army.

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INTRODUCTION

Pregnancy is the reproductive process during which dramatic changes occur for both the developing embryo or fetus and a pregnant person. Although a normal physiological event, pregnancy is a period of increased risk for a range of conditions. Pregnancy is also a time of more frequent interactions with the health care system, affording an opportunity to optimally manage chronic health conditions and provide preventive care. Perinatal health has also been affected by societal trends, such as a downward trend in birth rates and an upward trend in the mean age at first birth and the median age of giving birth.[1,2] For example, in 2021, the mean age at first birth was 27.3, up from 27.1 in 2020.[3] The median age at which people give birth increased from 27 in 1990 to 30 in 2019.[4]

Despite advances in medical knowledge, the United States has the unfortunate distinction of having rising numbers of pregnancy-related morbidity and mortality.[5] While multifactorial in its etiology, chronic medical conditions; key behavioral conditions, such as major depression, and substance use disorder; intimate partner violence (IPV); and social determinants of health are significant contributors to pregnancy-related morbidity and mortality. Based on published clinical evidence and related information available through June 1, 2022, the 2023 VA/DoD Clinical Practice Guideline (CPG) for the Management of Pregnancy provides general guidance on the best evidence-based practices to address some of these worrisome trends in pregnancy care. This manuscript provides a synopsis of the guideline highlighting some of the new recommendations that were generated from the most current evidence review. Recommendations that were brought forward from the previous version without new evidence review are not included in this synopsis and can be found in the full guideline at https://www.healthquality.va.gov/.

METHODS AND GUIDELINE DEVELOPMENT PROCESS

The development of all VA/DoD guidelines is directed by the Evidence-Based Practice Guideline Work Group and adheres to the standards for trustworthy guidelines that were set by the National Academy of Medicine. Senior leaders within the VA and DoD selected a multidisciplinary Work Group of practicing clinicians and clinical researchers to update this guideline. The members of the Work Group did not identify any financial conflicts of interest either before the first group meeting or during subsequent meetings. A patient focus group was convened to assess important aspects of treatment for patients and to gain information about patient values and preferences. The Lewin Group, a contracted third party with expertise in CPG development, facilitated meetings and the development of key questions using the PICOTS (population, intervention, comparison, outcome, timing, and setting) format. A consensus process was used to develop 12 key questions (see Supplemental material Table S1), which guided the evidence review and subsequent recommendation development (see Supplementary material Table S2). Consensus was achieved among the Work Group through an iterative process involving discussions on conference calls and in person during the recommendation development meeting. An independent third party, ECRI, conducted the systematic evidence review, which the guideline Work Group then used to develop recommendations using the GRADE (Grading of Recommendations Assessment, Development and Evaluation) system (7-9). The GRADE approach incorporates 4 components to evaluate evidence and develop recommendations: confidence in the quality of the evidence; balance of desirable and undesirable consequences; patient values and preferences; and other considerations, such as feasibility, equity, and subgroup-specific needs. This approach requires that the recommendations are based on evidence and does not rely on unsystematic clinical observations. The search methods and results are detailed in the full guideline.

COMPONENTS OF THE GUIDELINE

The target population of this CPG is service members, Veterans, and their dependents who are eligible for care within the VA and DoD health care system. While this CPG is tailored to the VA/DoD population, it is applicable for use by both providers within the VA and DoD health care delivery system and community-based providers involved in the care of any pregnant patient. The scope of content of this CPG is routine prenatal and postpartum care. It does not provide guidance for intrapartum care or management of complicated pregnancies beyond what would be encountered in initial routine evaluation.

This CPG provides 28 clinical practice recommendations that cover selected topics that the Work Group deemed had high priority need for evidence-based standards. The recommendations are divided into 3 main categories: routine care, complicated obstetrics, and mental health. An algorithm delineating recommended interventions and appropriate timing of these interventions over the course of the pregnancy and postpartum period was also created (see Supplementary material Table S3).

While the recommendations were developed from a systematic review of the evidence, the Work Group recognized that many clinically important and generally accepted standard interventions do not have sufficient high-quality evidence to support standalone recommendations. To address some of these interventions, the Work Group included a section that can be used to guide providers during the routine aspects of pregnancy care, which includes education on various topics and referral indications to advanced prenatal care providers, rehabilitation providers, and registered dieticians.

ROUTINE OBSTETRICS

Although there are many components of routine obstetrical care, the Work Group examined several key areas of interest, including noninvasive prenatal testing (NIPT), lactation, pelvic floor muscle therapy (PFMT), and telemedicine and health care disparities. A synopsis of these recommendations

and the supporting evidence follows. In addition, recommendations for scheduled delivery and work schedule were brought forward from the previous version and can be found in the full guideline publication.

Noninvasive Prenatal Testing

Several key clinical questions relevant to aneuploidy screening as a noninvasive prenatal screening test for singleton and twin pregnancies were addressed within the 2023 VA/DoD CPG. Given conclusive evidence of its superiority as a screening test for aneuploidy,[6,7] the Work Group recommends NIPT with cell-free fetal deoxyribonucleic acid as the primary screening test in individuals who desire prenatal aneuploidy screening for all singleton or twin pregnancies regardless of risk factors. This recommendation was further supported by the effect it would have on simplifying and streamlining prenatal aneuploidy screening and the counseling it requires.

Lactation

The VA DOD CPG addresses 2 key clinical questions relevant to lactation. The Work Group examined risk factors associated with lactation or breastfeeding, which includes exclusive breastfeeding, mixed formula, cessation of breastfeeding, and time to first formula. The evidence identified risk factors that were associated with noninitiation or early cessation of lactation, such as obesity and overweight, depression and anxiety, metabolic dysfunction, gestational diabetes mellitus, and inappropriate gestational weight gain. With every 2-unit increase in body mass index, participants were 8% more likely to experience early lactation cessation.[8] Those categorized as underweight, overweight, or obese were less likely to initiate breastfeeding or lactation.[9,10] Patients who experienced depression, anxiety, or both demonstrated earlier cessation of breastfeeding and were more likely to introduce formula.[11,12] Given this evidence, the Work Group recommends assessing all patients for risk factors that impact initiation and continuation of lactation, including obesity, depression, inappropriate gestational weight gain, and gestational diabetes mellitus.

In addition, the Work Group examined evidence to suggest that individual or group lactation education delivered via in-person, telehealth, or multimedia modalities increased the probability that pregnant and postpartum patients would initiate and continue lactation.[13–22] Varying types of lactation education (telephone, in-person, and multimedia) provided individually might increase the likelihood of exclusive lactation at 6 months postpartum compared with treatment as usual.[21,22] Evidence also suggests that group lactation education might increase the probability of initiating and continuing lactation when compared with treatment as usual.[13,18,19] The Work Group suggested individual or group lactation education delivered via in-person, telehealth, or multimedia modalities be provided for all pregnant and postpartum patients to improve the probability of initiating and continuing lactation.

Pelvic Floor Muscle Therapy

Evidence suggested that PFMT exercise initiated during early pregnancy reduced the prevalence of urinary incontinence for all patients in late pregnancy and up to 6 months postpartum without any significant reported harms or adverse outcomes outside of mild pelvic floor pain associated with PFMT exercises.[23–25] This intervention is considered low risk and a key component of conservative care for the management of urinary incontinence in the general population.[26] The benefits of PFMT exercise include improved quality of life with urinary continence and reduced health care costs and requirements that outweigh the harms and burdens of pelvic floor muscle examination and exercise training that can be conducted independently or with supervision. Therefore, the Work Group suggests that all patients have an early prenatal evaluation of pelvic floor muscle function and receive pelvic floor muscle exercise instruction during pregnancy for the prevention of urinary incontinence in late pregnancy and up to 6 months postpartum. In addition to preventive measures, evidence also suggests that pelvic health rehabilitation improved symptoms and quality of life in postpartum patients with urinary incontinence[23,27,28] leading the Work Group to recommend referral to pelvic health rehabilitation for patients with reported urinary incontinence in the postpartum period.

Telemedicine

The Work Group examined telemedicine as a care delivery option considering its impact on care during the COVID-19 pandemic. While the body of evidence had several limitations in methodological quality, it did show that telemedicine moderately improved care visits, increased patient satisfaction rates, and led to fewer overall required care visits.[29–31] There was no difference for the most critical outcomes nor were there any harm reported in the studies. The Work Group also recognized that telemedicine modalities might be especially helpful in particular subpopulations (patients with hypertension, diabetes mellitus, obesity) to include many Veterans who choose to reside in rural communities after their military service. Thus, the Work Group suggests offering telemedicine as a complement to usual perinatal care.

Health Care Disparity

The Work Group systematically reviewed evidence related to disparities in perinatal access and outcomes. Drawing conclusions from the evidence was difficult because of multiple limitations, including lack of clarity in randomization and blinding, overall small sample size, and high attrition rate. Although there was insufficient evidence to recommend for or against specific interventions that would diminish disparities in perinatal care access and maternal and childbirth outcomes, the Work Group felt that it is important to include this recommendation to bring light to the current state of the evidence and the need for ongoing research to address this critical component of the health care system.

COMPLICATED OBSTETRICS

Although this guideline does not address the comprehensive management of complicated pregnancies, it does provide recommendations for the following commonly encountered conditions during pregnancy care which are detailed further. Early screening, intervention, and possible referral to a high-risk specialist for patients with a history of spontaneous preterm delivery and risk factors for developing preeclampsia are a critical responsibility of the primary prenatal care provider. The Work Group examined several key areas of obstetric complexity including preterm delivery, including both evaluation of symptoms and prevention of preterm birth, and hypertensive disorders in pregnancy. The guidelines also provide recommendations on evaluation and management of nutritional deficiencies in patients with a history of bariatric surgery, which were brought forward from the previous version without a review of new evidence.

Preterm Delivery

Assessing risk of preterm delivery in a patient with labor symptoms and the prevention of preterm delivery were clinical areas of focus for this guideline. For assessments of patients with symptoms of possible preterm labor, the Work Group reviewed a prior recommendation of the 2018 guideline on the use of fetal fibronectin testing to stratify the risk that a patient with possible symptoms of preterm labor would deliver preterm.[32,33] Upon review of the evidence and the 2018 guideline recommendation, the Work Group carried forward the recommendation to use fetal fibronectin in settings where patient transfer to a higher level of care would be needed if the patient were in preterm labor.[32,33]

Regarding preterm delivery prevention, the Work Group examined the limited evidence for the use of low-dose aspirin solely to reduce the risk of preterm birth and found there was insufficient evidence to recommend for or against the use of aspirin for this indication alone. Landman et al. described a randomized controlled trial (RCT), including 387 women randomized to low-dose aspirin vs. placebo for preterm birth prevention; no difference in births earlier 37 weeks were noted between intervention and control groups.[34] In contrast, there is supporting evidence for low-dose aspirin for preeclampsia risk reduction, and this may reduce iatrogenic preterm delivery because of preeclampsia, as reviewed in the section on recommendations relevant to hypertensive disorders of pregnancy in this paper.

The Work Group also examined evidence for cerclage and vaginal progesterone as modalities to reduce the risk of preterm delivery. Preterm birth history can be complex, and the resulting counseling and management options are often nuanced. The removal of intramuscular progesterone from the U.S. market occurred after FDA review of evidence including a multicenter international randomized double-blind trial resulted in no clear benefit from intramuscular progesterone use.[35] This resulted in 2 potential interventions—vaginal progesterone and cerclage—tailored to patient history, examination findings, and preferences. Because of the complexity of counseling and management strategies, patients with a history of spontaneous preterm birth warrant consultation with an Obstetrician and/or Maternal Fetal Medicine Specialist. Based on review of the evidence from 2 recently published systematic reviews[36,37] and the evidence quality, the Work Group recommends the use of vaginal progesterone or cerclage for singleton pregnancy with a short cervix, history of spontaneous preterm birth, or both depending on patient characteristics and preferences (Recommendation 12).

Hypertensive Disorders

Hypertensive disorders are major contributors to pregnancy-related morbidity and mortality for both pregnant persons and their infants. Given this fact, the Work Group sought to determine optimal screening, prevention, and monitoring interventions that had significant impact on the potentially devastating effects of these disorders. Occurring in approximately 8% of all pregnancies, preeclampsia is a major contributor to preterm births and in its severe forms can lead to seizures, liver dysfunction, kidney failure, and rarely maternal and fetal death. Primarily supported by evidence from a systematic review of 23 randomized-controlled trials comprising 26,952 patients,[38] the Work Group made a strong recommendation for the initiation of aspirin therapy before 16 weeks' gestation in patients with risk factors as a preventive intervention for preeclampsia. There were also significant reductions in preterm birth, perinatal mortality, and intrauterine growth restriction without increase in adverse events, such as miscarriage, maternal bleeding, postpartum hemorrhage, placental abruption, or fetal intracranial hemorrhage.[38–40]

With regard to dosing, the same systematic review incorporated doses from 50 to 150 mg. However, subgroup analysis suggested that doses greater than 100 mg were associated with greater risk reduction without an increase in adverse events. Other studies included in the evidence review suggested inadequate response based on serum markers for dose response or as a premise for including higher doses in the study protocol.[40,41] Although recognizing the limitations of subgroup analysis, the heterogeneity of the studies and the lack of direct dosage comparisons, the Work Group felt the evidence supported a weak recommendation for using higher doses (100-150 mg) with extrapolation to 162 mg based on dosing availability.

Another preventive strategy identified in the evidence review was following the DASH (Dietary Approaches to Stop Hypertension) diet. Based on a systematic review of 6 RCTs,[42] the Work Group made a recommendation for counseling patients with cardiometabolic disorders (gestational diabetes, hypertension, and obesity) on the potential benefits of following the DASH diet as a means for preeclampsia prevention.

The Work Group reviewed evidence evaluating the efficacy of self-monitoring of blood pressure in the management of hypertensive disorders during pregnancy and the

postpartum period. The evidence from 2 RCTs and 2 systematic reviews consistently showed no difference in outcomes for self-monitoring of blood pressure versus treatment as usual.[43–46] In evaluating the other GRADE domains, there was recognition that self-monitoring may be an adjunct to facilitate telehealth applications to prenatal care. Given no clear benefits or harms to self-monitoring, the Work Group put forth a recommendation neither for nor against the use of self-monitoring of blood pressure.

MENTAL HEALTH

Mental health conditions are among the most prevalent perinatal complications[47] and among the most common reasons for preventable pregnancy-associated deaths.[48] For these reasons, the Work Group reviewed evidence for efficacy of nonpharmacologic interventions to promote and support maternal mental health (pharmacologic interventions had been reviewed in prior VA/DoD CPGs). Given the high prevalence of perinatal anxiety disorders in the general population,[48] and the high prevalence of trauma in perinatal military populations,[49] the Work Group also examined evidence of the effects of anxiety and trauma on perinatal outcomes.

Perinatal Mental Health Screening

The Work Group carried forward a strong recommendation from the prior CPG to screen for depression using a standardized tool such as the Edinburgh Postnatal Depression Scale or the 9-item Patient Health Questionnaire periodically during pregnancy and postpartum. Meta-analyses conducted after this recommendation was developed, though not systematically reviewed, continue to support the efficacy of screening for perinatal depression.[50]

The prior CPG included a recommendation to screen for addictive substance use. The Work Group carried this recommendation forward with a modification: the explicit mention of cannabis. Previously cannabis was encompassed by "illicit drugs," but since 2018 cannabis use has been legalized in some locales. The revision is a strong recommendation to screen during pregnancy and postpartum for use of tobacco and nicotine products, alcohol, cannabis, illicit drugs, and inappropriate use of prescription medication.

The Work Group added a new weak recommendation to screen perinatal patients with post-traumatic stress disorder (PTSD) for active PTSD and offer PTSD treatment. This was based on reviewed data showing that active PTSD is associated with increased perinatal complications.

Nonpharmacologic Perinatal Mental Health Interventions

For treatment of perinatal depression, only one intervention warranted a strong recommendation: interpersonal psychotherapy (IPT). Among psychotherapy modalities, IPT may be especially well tailored to perinatal concerns, in that it focuses on role transitions, interpersonal disputes, loss, and social support.[51] Several interventions warranted weak recommendations for alleviating perinatal depressive symptoms: cognitive behavioral therapy (CBT), peer support, exercise, mindfulness, and yoga. For reducing perinatal anxiety symptoms, evidence supported weak recommendations for CBT, IPT, and yoga. For preventing perinatal depression, evidence supported strong recommendations for offering IPT or CBT to pregnant patients with risk factors for developing perinatal depression.

NOTABLE ASPECTS COMPARED TO OTHER GUIDELINES

Several of these recommendations require further comment on how they relate to guidelines from other organizations. In this guideline, the Work Group recommends using NIPT with cfDNA for aneuploidy screening in all pregnant patients with singleton or twin gestations who desire testing regardless of risk factors. Although the American College of Obstetricians and Gynecologists (ACOG) recommends all patients be offered aneuploidy screening, they do not specify the test to use despite an acknowledgment that cfDNA is the most sensitive and specific screening test of fetal aneuploidies.[52] This guideline suggests aspirin at a dose of 100 to 150 mg (with 162 mg being reasonable) in patients at risk of preeclampsia, whereas U.S. Preventive Services Task Force (USPSTF) guideline[53] and ACOG committee opinion[54] continue to recommend 81 mg for the prevention of preeclampsia.[38] The 100 to 150 mg dosing range was based on subgroup analysis within the primary SR utilized, which showed that doses greater than or equal to 100 mg daily were more likely than those under 100 mg to be associated with a reduction in the risk of preeclampsia, with the highest dose studied being 150 mg.[38] ACOG released 2 guidelines in 2023 focusing on mental health conditions during pregnancy and postpartum: (1) screening and diagnosis and (2) treatment and management.[47,55] Although ACOG does not make a specific PTSD screening and treatment recommendation, this guideline specifically highlights this disorder given the VA/DoD patient population's increased risk of exposure to traumatic events and PTSD prevalence rates. The VA/DoD CPG provides recommendations on other interventions for perinatal depression and anxiety that are not listed in other guidelines, such as those pertaining to peer support, exercise, mindfulness, and yoga. Lastly, it is worth noting that this guideline makes recommendations focused on providing care within 2 systems with universal health care coverage.

DISCUSSION AND FUTURE RESEARCH

Although this CPG is not intended to define standards of care nor address all care needed in pregnancy, it does provide comprehensive guidance for routine pregnancy care. It aligns with the VA and DOD's goal of providing care that is consistent in quality and utilization of resources in efforts to reduce errors and inappropriate variations in practices. This is important to counter tendencies for regional differences in resources and

practice patterns that differentially influence care. It is important to optimize high quality care across the VA and DOD systems, both of which are large, complex, and whose patients may move frequently between sites of care.

As the Work Group analyzed the corpus of evidence, the gaps in the literature and prospects for future research were made apparent. In total, the Work Group identified 71 items needing further study, including areas requiring stronger evidence to support current recommendations and newer topics that will guide future guideline development. To highlight a few, the Work Group presented a key question addressing those patients who would benefit from early glucose testing in the evaluation for pre-existing and gestational diabetes. Although it is common practice to perform early testing on patients with certain risk factors, the evidence review revealed only one study resulting in a decision against developing a recommendation because of lack of substantial evidence. Another item that led to significant discussion was the dosing recommendation for aspirin therapy in the prevention of preeclampsia given that there are no comparative studies to delineate an optimal dose.

In addition to identifying areas in need for further research, the Work Group also identified emerging topics that are becoming a mainstay and transforming the delivery of pregnancy and postpartum care. The recent COVID-19 pandemic raised awareness of how global health events can significantly impact reproductive health and the need to bolster education, resources, and services to limit their impact on birth rates and reproductive outcomes. This also magnified the ongoing initiatives to address health care disparities where despite health care advancements and awareness, pregnant people in racial and ethnic minorities still encounter higher rates of maternal and perinatal morbidity and mortality. This disparity persists even in the military health system where beneficiaries essentially have universal health care coverage evidence by increased rates of cesarean section, admission to intensive care units, and severe maternal morbidity in Black people compared to white people.[56] Other emerging topics include the widespread introduction of telemedicine and telehealth into the delivery of prenatal care and the need for evidence-based guidance for the provision of pregnancy care to transgender and nonbinary individuals who experience pregnancy.

CONCLUSION

Developed through a rigorous review of current evidence and strict application of the GRADE methodology, this clinical practice guideline provides current evidence-based recommendations for the management of pregnancy. As is the intent of any clinical practice guideline to provide the latest guidance for the delivery of high-quality care, it is evident from the development process that ongoing scholarly inquiry is critical to closing the gaps in the evidence to better inform future recommendations. An additional important contribution of this guideline is an ongoing recognition of those emerging topics that drive crucial and sometimes unpredictable changes to the health care landscape.

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SUPPLEMENTARY MATERIAL

Supplementary material is available at *Military Medicine* online.

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CONFLICT OF INTEREST STATEMENT

None declared.

DATA AVAILABILITY

The data that support the findings of this study are available on request from the VA Evidence-Based Practice, Office of Quality and Patient Safety. All VA/DoD Clinical Practice Guideline information is freely accessible by accessing: VA/DoD Clinical Practice Guidelines Home.

INSTITUTIONAL REVIEW BOARD (HUMAN SUBJECTS)

Exempt/Not applicable.

INSTITUTIONAL ANIMAL CARE AND USE COMMITTEE (IACUC)

Not applicable.

INSTITUTIONAL CLEARANCE

Does not apply.

INDIVIDUAL AUTHOR CONTRIBUTION STATEMENT

All authors contributed and approved the final manuscript.

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