J TH I N C L I N I C

Multidisciplinary care of the pregnant patient with or at risk for venous thromboembolism: a recommended toolkit from the Foundation for Women and Girls with Blood Disorders Thrombosis Subcommittee

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Abstract
The care of pregnant persons with/at risk of venous thromboembolism is complex and often challenging. Although guidelines have been published regarding the use of specific therapies, such as anticoagulants; in this population, none have provided guidance on how to coordinate multidisciplinary care of these patients. Here we provide an expert consensus on the role of various providers in the care of this patient population, as well as necessary resources and suggestions for best practices.

KEYWORDS
anticoagulants, deep-vein thrombosis, pregnancy, pulmonary embolism, venous thromboembolism

1 INTRODUCTION

Pregnant persons have a higher risk of venous thromboembolism (VTE) [1] because of hormonal, cardiovascular, anatomical, and behavior changes. VTE incidence during pregnancy and the postpartum period is estimated to range from 6 to 20 per 10 000 pregnancies [2]. VTE can occur at any time during pregnancy, although the daily risk is highest in the postpartum period. The majority of VTE in pregnancy are deep-vein thrombosis (DVT; with a 3-fold higher risk than pulmonary embolism [PE]) [3]. Although uncommon, VTE can result in significant maternal morbidity and mortality. From 2011 to 2015, PE was the fourth leading cause of United States maternal mortality, accounting for 9.2% of all deaths [4,5].
Multiple professional societies, including the American Society of Hematology (ASH) [6], American College of Obstetricians and Gynecologists (ACOG) [7], and the Royal College of Obstetricians and Gynecologists (RCOG) [8,9] have developed guidance documents around treatment and prevention of VTE in pregnancy. However, guidance on topics such as the role of different specialties in the care of pregnant persons with VTE/at risk of VTE and recommendations regarding requisite resources are lacking. Here, we provide consensus guidance on the multidisciplinary care of pregnant persons with/at risk for VTE, including preconception counseling, antepartum management, delivery planning, intrapartum management, and postpartum management.

2 | METHODS

The panel of contributing experts included 3 perinatologists and 3 medical hematologists/thrombosis experts. The panel was convened as a part of the Foundation for Women and Girls with Blood Disorders Learning Action Network Subcommittee on Thrombosis and panelists were selected on the basis of expertise in the overlap between obstetrics and thrombosis/hematologic management.

The panelists formulated a list of 19 questions regarding the care of pregnant persons with/at risk for VTE that were not answered by currently available guidelines. The goal was to develop a "toolkit" of information and resources that clinicians should have access to in order to provide optimized care for this population. Questions were divided among the panelists according to the area of expertise, and each panelist performed a literature review and drafted an initial response to assigned questions. Each question and response were reviewed and revised by the group in panel meetings. In many cases, there was little or no literature to provide guidance, in which case the answer was discussed among the panelists until a consensus was achieved. The final document has been individually reviewed and approved by all panel members.

3 | CASE 1: MULTIDISCIPLINARY CARE OF A PREGNANT PERSON WITH/AT RISK FOR VTE

Our patient was 27-year-old female with a history of combined oral contraceptive-associated DVT 3 years ago. She completed 3 months of anticoagulation with apixaban and now uses the levonorgestrel intrauterine system for contraception. She meets with her gynecologist to discuss the removal of the levonorgestrel intrauterine system and a possible future pregnancy. Several questions arise regarding the coordination of care for this patient.

1. Who should be involved in the multidisciplinary care of pregnant persons with/at risk for VTE?

Current guidance on the clinical role of various subspecialties in the care of pregnant persons with/at risk for VTE is limited. The RCOG Green-Top Paper on Acute Management of Thromboembolic Disease in Pregnancy and the Puerperium [9] addresses the care of those with life-threatening PE, recommending on-call availability of a multidisciplinary team to guide acute management. Data regarding outcomes based on the availability of specific expertise are lacking.

We offer recommendations regarding the roles of various team members in the care of this population in Table 1. We wish to emphasize the importance of communication between team members, as well as the fact that different patients require different levels of involvement. Many may do well with a single maternal fetal medicine (MFM) or hematology/thrombosis expert consultation, whereas others may need ongoing care.

2. How should physicians who provide care for pregnant persons with/at risk for VTE ensure ongoing/adequate expertise?

Physicians should be current on guidelines from relevant societies including ACOG [7], RCOG [8,9], ASH [6], the Society of Obstetric Anesthesia and Perinatology [10], and others. Those in larger institutions should collaborate on a regular basis in such forums as interdepartmental journal clubs, grand rounds, or case conferences.

It is important for physicians to have self-awareness of their expertise and knowledge gaps. Hematologists/thrombosis experts with limited experience in the care of pregnant persons and obstetricians who infrequently care for patients receiving anticoagulation should involve colleagues with this expertise. Physician champions or leads can be helpful in this scenario. In some cases, a 1-time consultation may suffice to provide guidance. In other cases, a transfer of care to a larger center with more subspecialty care may be warranted.

We strongly encourage cross-training for interested trainees in both obstetrics/perinatology and hematology/thrombosis care. Such models are lacking in most training programs despite advocacy [11–13] but these programs have precedence in the nursing literature [14,15]. We also advocate for the development of formal training programs in obstetrical hematology, either as stand-alone fellowships or as part of training in obstetrics, obstetrical medicine, hematology, and/or thrombosis.

3. What are the minimum available resources hospitals/providers who care for this population must have?

3.1 | Imaging

Pregnant persons with/at risk for VTE should have access to imaging for VTE diagnosis. The standard of care for lower extremity DVT diagnosis, in most cases, is Duplex (compression with Doppler) ultrasonography of the leg and iliac veins. However, additional studies such as magnetic resonance venography may be necessary to image more proximal vasculature. The diagnostic test of choice for PE during pregnancy is controversial. Computed tomographic pulmonary angiography (CTPA) is the standard of care in the nonpregnant patient and is similarly accurate in the pregnant patients. Although some
guidelines favor ventilation/perfusion scans over CTPA for the diagnosis of PE in pregnancy because of a largely theoretical increased risk of breast cancer from breast-absorbed radiation [6], others favor CTPA because of its wide availability and decreased fetal radiation exposure [16]. At least 1 modality should be offered, which in most instances will be CTPA.

### 3.2 | Laboratory

In certain cases, access to antifactor Xa assays may be necessary. Although monitoring is not needed for every pregnant patient, access to a laboratory that can offer these tests (at least to send out for processing) should be available [6,17]. Patients should also have.

### 3.3 | Delivery location

Although there are no studies describing safety or perinatal outcomes for out-of-hospital births in patients who require anticoagulation during pregnancy or randomized controlled trial data comparing hospital vs out-of-hospital births in any population, the need for anticoagulation during pregnancy qualifies as preexisting maternal disease, which, according to ACOG, is a contraindication to home birth because of an increased risk of perinatal death. Patients treated with low molecular weight heparin (LMWH), the therapy of choice in pregnancy, may be at increased risk of postpartum hemorrhage (PPH), and therefore should be delivered in hospitals with capacity for immediate medical and surgical management [18].

Recommended medical and surgical interventions for PPH are listed in Table 2. Advanced surgical/procedural interventions require access to an operating room with adequately trained staff and necessary equipment. Prospective observational data demonstrate reduced maternal morbidity with the use of patient safety bundles for...
obstetrical hemorrhage, and we recommend these be available and employed [19]. The ACOG recommends that centers without access to these resources develop a “comprehensive plan for dealing with obstetrical emergencies such as PPH” [20]. We suggest these hospitals undergo self-assessment to determine if they are adequately prepared to take care of pregnant patients receiving anticoagulation.

3.4 | Anesthesia considerations

Options for analgesia are affected by anticoagulant use during pregnancy. Most anesthesia societies recommend at least 12 h between the last dose of prophylactic LMWH and neuraxial anesthesia (in those with normal renal function), extending to 24 h for therapeutic doses [10,21]. Society of Obstetric Anesthesia and Perinatology released a consensus statement regarding anesthetic management in the pregnant patient receiving anticoagulation outlining these recommendations [10]. Neuraxial anesthesia is optional for a vaginal delivery, but preferred for cesarean section, as the risks associated with general anesthesia are relatively greater. If an urgent cesarean section is necessary, general anesthesia may be required if the last dose of LMWH was administered within 12 to 24 hours. Thus, we recommend that deliveries occur in facilities with the capacity to administer general anesthesia.

4. Which patients should be referred to an academic or tertiary care center?

A referral to an academic or tertiary care center is recommended when adequate resources are not accessible in a community setting. In addition, patients who warrant multidisciplinary care with subspecialty expertise may benefit from care in a tertiary facility where working relationships between specialties are well-established, and all clinicians benefit from the use of a shared medical record. In some cases, this may be facilitated through telehealth mechanisms.

4 | CASE CONTINUED: PRECONCEPTION COUNSELING FOR PERSONS AT INCREASED RISK FOR VTE

Our patient and her gynecologist decide on a referral to a perinatologist/MFM physician for preconception counseling.

5. Who is a candidate for preconception counseling?

Pregnant persons with a history of VTE (regardless of circumstances) are candidates for preconception counseling. Patients without such a history but other reasons for increased risk (such as VTE in a first degree relative with certain known thrombophilias) may also benefit from the consultation.

It is important for primary care providers who care for patients of reproductive age to address pregnancy planning and contraception regularly. For those with a history of VTE, and/or who require lifelong anticoagulation, we recommend preconception counseling to discuss pregnancy implications. We recognize that some patients who fall into this category may not have ready access to subspecialty services. Thus, we encourage the use of telehealth (ie, virtual visits), if possible, to allow access to these services.

6. Who should be involved in decisions about whether a patient needs VTE prophylaxis?

Ideally, an obstetrician with expertise in thrombosis, MFM subspecialist, or thrombosis expert should be consulted and provide counseling regarding the need for VTE prophylaxis in the antepartum and/or postpartum period. A multidisciplinary team approach is optimal, although the availability of subspecialty care may be a limiting factor. As noted above, ACOG, ASH, and other national and international guidelines can be useful. Preconception counseling is also important for patients who require lifelong anticoagulation.

7. What are the important components of preconception counseling and when should it occur?

Preconception counseling incorporates shared-decision making with regards to a patient’s values and preferences, individual risk of thrombosis, potential adverse effects of anticoagulation, choices regarding when to initiate and type of anticoagulation, and a discussion of signs/symptoms of VTE, including when and how to seek medical attention. Typically, anticoagulation is initiated after a positive pregnancy test or with ultrasound confirmation of a viable pregnancy. For those requiring lifelong anticoagulation, preconception counseling should also include details regarding the transition to agents appropriate for use during pregnancy, typically from either warfarin or a direct oral anticoagulant to LMWH.

As patients may be unfamiliar with preconception counseling, providers should inform them about this option, with the goal of optimizing pregnancy outcomes.

5 | CASE CONTINUED: ANTEPARTUM MANAGEMENT OF VTE/VTE PROPHYLAXIS

After receiving preconception counseling, our patient becomes pregnant, confirmed by a home pregnancy test and viability ultrasound. As per prior discussion, she is seen and initiated on prophylactic LMWH by her perinatologist.

8. Who should prescribe the anticoagulation?

A key component of outpatient treatment for VTE is ensuring follow-up with an appropriate provider. Pregnant persons may see 1 or a group of obstetric providers at regularly scheduled intervals. However, it is important to identify the provider who will coordinate care and outline a plan including prescribing of anticoagulation and management of potential complications.
TABLE 3  Indications for close outpatient monitoring.

Pulmonary embolism (vs DVT)

Need for anti-Xa monitoring^a

Comorbidities (eg, renal disease, antithrombin deficiency, cardiac disease)

Need for invasive procedures (thrombectomy, thrombolysis, IVC filter placement)

Hypertensive disorders of pregnancy

DVT, deep-vein thrombosis; IVC, inferior vena cava.

^a The clinical utility of routine anti-Xa levels during pregnancy has not been established [19,23] but it may be considered in cases where renal clearance or volume of distribution may be altered.

As pregnant persons with a history of VTE warrant anticoagulation, many obstetricians may have experience in taking care of such patients. ACOG provides guidelines on the management of thromboembolism in pregnancy, which encompasses both prophylaxis for and treatment of VTE [22]. The management of a newly diagnosed VTE during pregnancy is more complex, a MFM and a hematologist/thrombosis expert may be necessary to help provide care for these patients. Once the diagnosis is established, depending on case complexity, many patients may follow-up only with their obstetrician, but others may require ongoing care with MFM and/or a hematologist/thrombosis expert. The decision regarding who is involved in ongoing care is based on institutional protocols and the comfort of the obstetric provider(s). There are no published guidelines with respect to which the specialty should provide ongoing care or how frequent visits should be. Many obstetricians will be comfortable with prescribing and managing routine unfractionated heparin or LMWH, but in cases of cutaneous allergies to heparin, bleeding complications, VTE recurrence despite anticoagulation, or heparin-induced thrombocytopenia; consultation with a hematologist/thrombosis expert is recommended. Furthermore, patients at high risk of VTE complications or difficulty with anticoagulant dosing (eg, renal insufficiency, high body mass index) warrant consultation with a hematologist/thrombosis expert, as well as an MFM specialist.

9. How frequently should patients be seen by the prescriber?

After the diagnosis of acute VTE during pregnancy, we recommend follow-up within a week of diagnosis. The purpose of the initial visit is to ensure there are no signs of progression, medications are being taken as prescribed, provide counseling about when to seek urgent medical attention, and to evaluate for potential complications (eg, heparin-induced thrombocytopenia or skin reactions). Indications for ongoing close follow-up are listed in Table 3.

10. Who should be involved in the care of a patient with life or limb-threatening thrombosis?

In the case of PE with hemodynamic instability during pregnancy, life-saving therapies such as systemic thrombolysis, surgical thrombectomy, catheter-directed thrombectomy/thrombolysis, or extracorporeal membrane oxygenation should not be withheld. In such cases, it is critical that treatment is directed by a multidisciplinary team including but not limited to MFM, VTE experts (including interventional radiology and vascular surgery as appropriate), and obstetrical anesthesia. PE Response Teams have recently been developed to anticipate and facilitate coordination of care in cases of severe PE that necessitate the involvement of multiple specialists, and have been successfully utilized in cases of severe PE during pregnancy [24]. The provision of this care may require patient transfer.

11. Who are candidates for outpatient treatment initiation for incident VTE?

Since the introduction of LMWH in the late 1980s, several trials have demonstrated the safety of outpatient management of low-risk VTE, specifically noting similar rates of mortality, recurrent VTE, and bleeding when compared to inpatient management [25]. Moreover, outpatient treatment has been associated with higher patient satisfaction and lower costs. Given these benefits, major societal organizations have endorsed the outpatient treatment of VTE in patients considered to be at a low risk of complications (ASH, American College of Chest Physicians).

However, there is a heightened concern for maternal or fetal complications during pregnancy. Although multiple systematic reviews have been published evaluating the outpatient management of low-risk VTE in the general population, none have included pregnant persons. Current ASH guidelines recommend outpatient therapy over hospitalization [6] in pregnant persons with low-risk VTE, although the definition of this is subjective and ultimately left to the clinician. High-risk features identified by the guideline panel are listed in Table 4, along with necessary resources to increase the odds of success. Guidance is based on a multicenter observational study that examined the antenatal management of VTE during pregnancy, some of whom were treated initially as outpatients [26], as well as a 16-patient retrospective cohort study only published in abstract form [27].

12. What resources are required for outpatient VTE treatment?

To provide appropriate outpatient care for VTE during pregnancy, the following are recommended: obstetric providers with experience,
resources for adequate patient education, and the ability to provide close follow-up, including after office hours. Because of a paucity of data and in consideration of patient and provider comfort, the initial observation in an inpatient setting is reasonable because of potential complications associated with initiation of anticoagulation and the ability to provide adequate patient education and coordination of care.

6 | CASE CONTINUED: DELIVERY/DELIVERY PLANNING

Unfortunately, our patient develops a recurrence of her DVT at 16 weeks, in the setting of missing several doses of LMWH while traveling. Her dose is increased from prophylactic to therapeutic, and her symptoms rapidly improve. She wants to discuss how to manage her LMWH around delivery.

13. When is the optimal content and timing to develop a delivery plan?

Delivery planning includes recommendations for timing, mode, and the location of delivery but also includes consideration of other factors impacting delivery (Table 5).

There is a lack of data to provide guidance in this area, but we believe that the early third trimester is the ideal time to formulate a plan. For patients who may require delivery at a location offering a higher level of care, this time frame also allows new obstetric providers time to review records, obtain necessary consultations, and schedule induction of labor. Recommendations made at this gestational age remain tentative pending further pregnancy progression.

14. Who should be involved in delivery planning?

We suggest that for patients receiving anticoagulation during pregnancy, delivery planning should include consultation with either a MFM, obstetrical medicine, or hematology/thrombosis provider. It is uncommon for VTE considerations to dictate delivery timing or route, and considerations about when to hold, bridge, and resume anticoagulation postpartum have been well-described in guidelines [6,10]. Ideally, a tentative plan would be made and communicated to the inpatient team by the primary outpatient prescriber before delivery, with adjustments made as needed at the time of delivery and discharge pending additional information on blood loss, ongoing VTE risk factors, etc.

Multidisciplinary treatment planning is essential for some patients. If a thrombosis expert was involved during the antepartum period, that expertise may be warranted during the peripartum period, and for patients at high risk of VTE even with short-term anticoagulant discontinuation (eg, third-trimester VTE onset, mechanical heart valves). Additionally, for those with conditions that warrant treatments other than anticoagulants (ie, antithrombin concentrate) and those at increased risk for both thrombosis and bleeding (ie, concomitant von Willebrand disease or significant thrombocytopenia), thrombosis, and hematology experts should be involved in advance of delivery to coordinate care.

15. Who is a candidate for antepartum anesthesia consultation?

Antepartum anesthesia consultation affords the patient the opportunity to ask questions relating to the anesthesia planning and the role of anesthesiologists in their care. Consultation also allows the anesthesia team to review patient records, confirm the anticoagulation plan’s impact on potential neuraxial anesthesia receipt and provide documentation of recommendations, including for potential unplanned delivery.

The only extant national or international guidelines regarding anesthesia consultation referrals of which the authors are aware is guidance from ACOG, which mentions the current use of anticoagulation as a potential indication for consultation [28]. In cases of routine peripartum anesthesia considerations (eg, prophylactic or therapeutic LMWH planned to be held 12 or 24 hours before induction or cesarean delivery, respectively), some facilities may find that antepartum anesthesia consultation may not be strictly necessary, and these patients may be assessed by the anesthesia team upon presentation to labor and delivery. However, patients with complicating conditions, as noted previously will likely benefit from antepartum anesthesia consultation.

7 | CASE CONTINUED: POSTPARTUM MANAGEMENT OF VTE/VTE PROPHYLAXIS

Our patient undergoes an uncomplicated vaginal delivery at 39 weeks 5 days, with epidural analgesia. Her blood loss is acceptable and she is
discharged home to continue anticoagulation for 6 weeks postpartum, pending no ongoing VTE risks.

16. When should patients be seen postpartum?

Postpartum VTE follow-up should be individualized based on the basis of patient needs. Current US guidance suggests that initial contact with a postpartum patient should occur within 3 weeks of birth, with a postpartum follow-up plan informed by initial contact concluding a comprehensive postpartum visit no later than 12 weeks postpartum [29]. For patients with an uncomplicated delivery and postpartum anticoagulation plan, we would suggest a follow-up with obstetrics or primary care provider in the first 1 to 2 weeks postpartum. Nurse visits and telehealth are reasonable, but in settings where this approach is not feasible because of resource limitations, access to a reliable contact with 24-h availability is essential. At this visit, we recommend assessment including elicitation of any anticoagulation adverse effects. If no concerning issues are identified, the patient may be followed expectantly until the final follow-up postpartum visit. If ongoing anticoagulation is warranted, referral to an appropriate provider or transfer of plan back to the primary care provider is appropriate at this time.

17. Which specialties should be involved in the postpartum follow-up?

For patients receiving anticoagulation postpartum, routine monitoring includes assessment of VTE symptoms and adverse effects of anticoagulation, including injection site reactions, excessive vaginal bleeding, and wound complications. These issues are typically addressed by primary care or obstetric providers, depending on local care models. Patients who experience adverse effects from anticoagulation, require modifications such as dose adjustments, or have complex hematologic considerations may benefit from referral to a hematologist or thrombosis specialist with expertise in these areas.

8 | CASE CONTINUED: POLICIES

Although our patient’s postpartum course was fortunately smooth, there is much that can be done to improve the consistency of care in hospitals and practices that see pregnant persons. The best way to do this is often in the form of institutional policies.

18. What policies should hospitals that provide services for pregnant persons with/at risk for VTE have in place?

Institutional guidelines and order sets can be beneficial to ensure consistent, complete care [30]. They can also serve to expedite the care of individuals in urgent settings, improve resource utilization [31], and avoid over- or under-recognition of diagnoses. We recommend institutions that routinely provide care for pregnant persons consider developing guidelines for the following scenarios:

a. Neuraxial anesthesia in pregnant persons on anticoagulation: although society guidelines [7,32,33] are generally consistent in recommendations for waiting periods between the last dose of LMWH and initiation of neuraxial anesthesia, institutional guidelines can reduce misses and care delays in this and other circumstances, such as those receiving antiplatelet agents, unfractionated heparin or warfarin.

b. “Thrombophilia” testing: inappropriate “thrombophilia” testing is a costly intervention that can result in patient harm. Testing should only be ordered when results would clearly change management [21]. In pregnant women, these situations may include those with a family history of select inherited thrombophilias and/or a near relative with VTE [6,17] or those who meet the clinical criteria for antiphospholipid syndrome. We recommend institutions consider developing evidence-based guidance for thrombophilia testing in pregnancy and for recurrent miscarriage/antiphospholipid antibody assays to reduce unnecessary testing [34].

c. Postpartum VTE prophylaxis: although virtually all patients who require antepartum anticoagulation will continue for at least 6 weeks postpartum, some may require prophylaxis exclusively in the postpartum period where the daily risk of VTE is considerably higher [6,7,17]. We recommend that hospitals develop institutional guidelines around which patients should receive postpartum LMWH in hospital and which patients should be discharged with LMWH.

d. Prophylaxis in pregnant patients with COVID: given the rapid rate at which new information around the risk of thrombosis and risk of adverse pregnancy outcomes with SARS-CoV2 infection, we recommend that institutions develop and regularly update guidelines around which infected pregnant patients require pharmacologic prophylaxis, at what dose and in what setting.

e. LMWH monitoring: in certain circumstances such as recurrent thrombosis, renal dysfunction, greater than expected weight changes, and extremes of body weight, anti-Xa monitoring may be useful. We recommend that institutions provide guidance on which patient populations require monitoring. Additionally, recommendations on the assay of choice, the frequency of monitoring and managing service (anticoagulation clinic, trained pharmacists, hematologists/thrombosis specialists, or obstetricians) are important.

19. Who should be involved in the development of these policies?

As many relevant and experienced parties as possible should be included in developing policies surrounding pregnancy and VTE risk. At a minimum, an obstetrician with experience with anticoagulation and an anticoagulation specialist with experience in the care of pregnant individuals with/at risk for VTE should be involved. Institutions without these areas of expertise may benefit from consulting experts at other institutions or using policies from those institutions as a template. Guidelines around anticoagulation...
management would benefit from the inclusion of an experienced pharmacist. Experienced obstetrical anesthesiologists, radiologists, interventionists (radiology/cardiology), and pulmonary/critical care should also be involved when guidelines impact their practice.

9 | CONCLUSION

Pregnant persons with/at risk for VTE are at an increased risk for pregnancy-related morbidity and mortality. A significant reduction of this risk is possible with appropriate interventions, including the use of anticoagulation at prophylactic, intermediate, or therapeutic doses. In some cases, such as simple DVT in the second trimester, management is relatively straightforward. However, when concomitant comorbidities or other obstetrical complications coexist or there are complicated thrombosis presentations, management is more challenging. The care of such complex patients is often best achieved in a multidisciplinary setting, with the input of both obstetricians/MFM physicians and hematologists/thrombosis experts as well as experienced obstetrical anesthesiologists, pulmonary/critical care, and interventional radiologists/cardiologists. Patients may benefit from increased access to specific resources, such as higher-level interventions to manage PPH, certain imaging techniques, and endovascular therapies. Whenever feasible, policies around the care of these patients should be put into place to ensure consistent, equitable care.

In this document, we have described many components of a "toolkit" of resources and expertise, which may be beneficial in the care of this patient population. Not all of these tools will be available at every institution, nor will every patient require them. In addition, although we have not attempted to provide guidance on specific medical management strategies in this document, we must acknowledge that the management of this patient population is fundamentally limited by a lack of high-quality evidence. For this reason, in addition to the above toolkit, we encourage clinicians to offer enrollment in clinical trials whenever possible to expand knowledge and improve the care of this population moving forward. However, through explicit and thorough discussion, we hope to help obstetricians/MFM physicians and hematologists/thrombosis experts consider systematically, which resources an individual patient may need and how best to provide access to those recommendations. It is our hope that this document makes guideline-driven care of these patients more practical and accessible.

AUTHOR CONTRIBUTIONS

B.S.B. participated in developing the case study and writing the manuscript. J.F., D.A., L.M., R.R., and S.B. participated in writing the manuscript.

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TWEET

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REFERENCES


