



Society of Family Planning clinical recommendations: Management of individuals with bleeding or thrombotic disorders undergoing abortion

Jessica K. Lee^{a,*}, Ann B. Zimrin^b, Carolyn Sufrin^c

^a Department of Obstetrics, Gynecology and Reproductive Sciences, University of Maryland School of Medicine, Baltimore, MD, United States

^b University of Maryland Greenebaum Cancer Center, University of Maryland School of Medicine, Baltimore, MD, United States

^c Department of Gynecology and Obstetrics, Johns Hopkins University, Baltimore, MD, United States

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ABSTRACT

Individuals who have bleeding disorders, thrombophilias, a history of venous thromboembolism (VTE), or who are taking anticoagulation medication for other reasons may present for abortion. Clinicians should be aware of risk factors and histories concerning for excessive bleeding and thrombotic disorders around the time of abortion. This document will focus on how to approach abortion planning in these individuals. For first-trimester abortion, procedural abortion (sometimes called surgical abortion) is generally preferred over medical management for individuals with bleeding disorders or who are on anticoagulation. First-trimester procedural abortion in an individual on anticoagulation can generally be done without interruption of anticoagulation. The decision to interrupt anticoagulation for a second-trimester procedure should be individualized. Individuals at high risk for VTE can be offered anticoagulation post-procedure. Individuals with bleeding disorders or who are anticoagulated can safely be offered progestin intrauterine devices. Future research is needed to better assess quantitative blood loss and complications rates with abortion in these populations.

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1. Background

Though most individuals seeking abortions are healthy, it is not uncommon for a provider to encounter individuals with a wide variety of medical conditions, including those who have bleeding disorders, thrombophilias, a history of venous thromboembolism (VTE), or who are taking anticoagulation medication for other reasons. For these individuals, the clinical questions include whether a medication abortion or procedural abortion (formerly called surgical abortion) can be safely offered and how to manage anticoagulation therapy.

Pregnancy itself is a condition which increases the risk of VTE 5-fold when compared to non-pregnant women [1], corresponding to an absolute risk of VTE of 1.22 per 1000 deliveries [2,3]. Physiologically, this pregnancy-induced hypercoagulability is manifested in increases in a number of coagulation factors, including fibrin, factors II, VII, VIII, X and von Willebrand factor [4]. Furthermore, anatomic changes in pregnancy, such as compression of the inferior vena cava and pelvic veins by the expanding uterus, lend to venous stasis as well as decreased venous outflow, which then

add to the risk of VTE [5]. These hematologic changes of pregnancy begin to occur as early as the first trimester [6] and therefore may present special considerations for some people undergoing abortion. Currently, no guidelines exist regarding thrombosis prophylaxis in these patient groups at the time of an abortion. The purpose of this clinical recommendation is to focus on the approach and management of individuals undergoing abortion who have conditions that affect their coagulation system, to maximize the safety of the procedure and minimize the risk of post-procedure complications.

1.1. Bleeding disorders

Individuals with bleeding disorders may be at greater risk for increased blood loss, hemorrhage, and possible complications during medication abortion and procedural abortion. The most common inherited bleeding disorder is von Willebrand disease (VWD), a disorder caused by a decrease in the level of von Willebrand factor, or more rarely the production of a dysfunctional protein. The prevalence of symptomatic VWD is estimated to be 0.01% [7]. The increased levels of estrogen during pregnancy lead to progressively higher levels of von Willebrand factor over the course of the second and third trimesters, which mitigates to some extent the bleeding risk for women with symptomatic VWD [8]. Another commonly noted hematologic abnormality is thrombocy-

* Corresponding author. Society of Family Planning, PO Box 18342, Denver, CO 80218, USA.

E-mail addresses: jklee@som.umaryland.edu (J.K. Lee), Clinical@SocietyFP.org.

topenia. Moderate decreases in platelet counts are commonly seen in the later stages of uncomplicated pregnancies in women with no hematologic disease and are attributed to gestational thrombocytopenia. Platelet levels less than 60,000 per cubic millimeter were seen in 1.25 per 1,000 pregnant women in the first trimester and 1.75 per 1,000 pregnant women in the second trimester in a comprehensive study of platelet counts in pregnancy [9]. Thrombocytopenia is not uncommon with pregnancy and affected individuals are largely asymptomatic; the risk of severe bleeding due to thrombocytopenia only increases significantly with platelet counts below 50,000. Thus, consensus guidelines recommend platelet transfusion to increase maternal platelet count to more than 50,000 per cubic millimeter before major abdominal surgery including cesarean section [10].

Coagulation factor deficiencies are much less common, with estimated frequencies in the general population ranging from 1 in 500,000 for factor V deficiency to 1 in 2–3 million for factor XIII deficiency [11].

1.2. Individuals on anticoagulation

Although rare, some individuals seeking abortion may already be on anticoagulation for reasons such as an acute VTE or a prosthetic heart valve. Continuation, interruption, or modification of the treatment is an issue that needs to be addressed in order to minimize the risk of excessive bleeding at the time of abortion without significantly increasing the risk of thromboembolism in the peri-abortion period.

1.3. Thrombotic disorders

Women with inherited thrombophilias have an increased risk for venous thrombosis compared to the general population [12]. The most clinically significant abnormalities are deficiencies of proteins which limit the activity of the thrombotic process, particularly antithrombin, protein C and protein S. Other disorders in this category, some of which are quite common, include mutations of factor V (factor V Leiden, FVL) and the prothrombin gene. Antiphospholipid syndrome is an acquired syndrome associated with an increased risk of thrombosis. Women with a history of previous VTE are 3.5 times more likely to have recurrent thromboembolic events during subsequent pregnancies compared to women with no VTE history [13].

2. Clinical questions

2.1. Bleeding risk with abortion

- 1 How common is it to encounter an individual requesting an abortion who has a bleeding disorder, thrombotic disorder, or who is anticoagulated?

There is little known about how common it is to encounter an individual who needs an abortion and has a bleeding or thrombotic disorder. The number of individuals taking oral anticoagulants or on combined antiplatelet therapy is increasing, due to a number of factors, including increased risk of cardiovascular and peripheral vascular disease; increased prevalence of obesity, diabetes, and hypertension leading to strokes; and prolonged survival after surgery for congenital heart disease [14]. One study surveying abortion providers caring for women on anticoagulation found that of 52 women presenting on any anticoagulation, 69% had a history of DVT or PE, 11% had a history of thrombophilia (but no VTE), and 19% had an artificial valve [15].

- 2 What is the risk of excessive bleeding with first-trimester abortion?

Uterine aspiration is the most common procedure used to surgically manage terminations of pregnancy in the first trimester (dilation and curettage (D&C) is still performed, though use of sharp curettage is discouraged in the first trimester [16]). It is also the procedure used to surgically manage early pregnancy loss and retained products of conception. Bleeding volume with a first-trimester uterine aspiration is generally low, with estimated blood loss (EBL) ranges from approximately 25–50 milliliters (mL) in early first-trimester procedures and from around 50–100 mL in later first-trimester uterine aspirations [17]. The risk of hospitalization for vaginal bleeding after a first-trimester procedural abortion from one retrospective cohort study of over 170,000 cases was 0.007% [18]. A review of over 54,000 first-trimester procedural abortions found the hemorrhage risk—defined as the need for interventions to treat bleeding, such as aspiration, uterotonics, or blood transfusion—to be 0.13% [19].

Bleeding, while overall still low, is generally higher in volume and more unpredictable with medication abortion as compared to procedural abortion at the same gestational age. The transfusion risk associated with medication abortion is low (0.05%), but higher than that of first-trimester procedural abortion (0.01%) [20]. One study of medication abortion up to 63 days gestation found that the regimen of 200 mg oral mifepristone followed 48 hours later by 800 mcg vaginal misoprostol had a median blood loss of 89 mL (as measured with saved sanitary pads) with a median bleeding duration of 16 days [21]. Another study found that medication abortion compared to manual vacuum aspiration (MVA) for abortion up to 63 days gestation had higher mean bleeding duration (14 days for medication abortion and 9 days for MVA) but that days of spotting (about 10) were similar between both groups [22].

- 3 What is the risk of excessive bleeding with first-trimester abortion in an individual with a bleeding disorder or who is anticoagulated?

A study surveying abortion providers who performed procedural abortions on women at 14 weeks or less gestation on anticoagulation found that out of 52 women who presented on anticoagulation medication, anticoagulation was continued in 36 women (69%) (therapeutic anticoagulation was continued in 25 (48%) and subtherapeutic anticoagulation was continued in 11 (21%)); the remaining 16 women (30%) had their anticoagulation discontinued. Of the 36 women that continued on anticoagulation, 28 (78%) had an EBL less than 50 mL, 4 (8%) had an EBL of 51–100 mL, 2 (4%) had an EBL of 101–250 mL, and 2 (4%, 83- and 88-days gestation) had an EBL of 500 mL [15]. Data was not collected regarding how providers made the decision to continue or not continue anticoagulation in these women. Since these data were not collected as part of a prospective trial or rigorous chart review, the conclusions that can be drawn are quite limited. It seems that many individuals on anticoagulation undergoing procedural abortions in the first trimester will have a blood loss less than 100 mL, however some may have a higher blood loss. There exist no published data on individuals with bleeding disorders undergoing first-trimester procedural abortion.

A further attempt at quantifying more accurately the bleeding risk associated with a procedural abortion in the first trimester in women on anticoagulation was halted because of the difficulty of accruing patients to the trial [23]. Thus, although a procedural abortion in the first trimester while on anticoagulation will likely not result in a blood loss of more than 100 mL, data on overall safety in these populations is lacking. Decisions to proceed with procedural abortion while an individual is on anticoagulation need to be made on a case-by-case basis, after weighing any individual comorbidities and additional factors that might contribute to an increased bleeding risk. We would advise a similar strategy for individuals with bleeding disorders.

Medication abortion in the first trimester is the use of medication, most commonly mifepristone and misoprostol together, to end pregnancy. No published literature is available regarding medication abortion in individuals with bleeding disorders or who are anticoagulated. Nonetheless, the manufacturer recommendations for Mifeprex prescribing list hemorrhagic disorders or concurrent anticoagulant use as contraindications to use of mifepristone for medication abortion (Danco, New York, NY, USA). Given the unpredictable and heavier nature of bleeding with medication abortion, we do not recommend this option for individuals who are on anticoagulation or who have bleeding disorders.

4 What is the risk of excessive bleeding with second-trimester abortion? Does bleeding risk vary with gestational age?

Dilation and evacuation (D&E) is the procedure used to surgically manage termination of pregnancy in the second trimester and beyond. Society of Family Planning clinical recommendations suggest that bleeding in excess of 500 mL or requiring intervention should be defined as post-abortion hemorrhage or excessive bleeding [24]. Prior literature noted that hemorrhage is rare and occurs in 0.1–1% of all second-trimester procedural abortions [19,25–29]. However, a subsequent study that measured actual blood loss in 371 D&Es between 16 and 24 weeks found that providers tend to significantly underestimate blood loss at time of D&E. Median measured blood loss in this study was 175 mL at 16 weeks, and increased by gestational age with about 50 mL additional blood loss with each week of gestation; median blood loss at 24 weeks was measured as 638 mL. Given this updated data with measured blood loss, it is possible that hemorrhage with D&E is more common than originally thought [30].

There have been no prospective studies specifically evaluating blood loss with routine labor induction abortion. A retrospective study comparing labor induction abortion with D&E found no significant difference in hemorrhage with transfusion between the two methods [31]. One small study reporting blood loss with labor induction abortion in the setting of placenta previa (n=7) vs. D&E (n=4) found that there was no significant difference in the two groups, though one woman in the labor induction abortion group did require transfusion due to heavy bleeding [32].

5 What is the risk of excessive bleeding with D&E or labor induction in an individual with a bleeding disorder or who is anticoagulated?

One case series reported no increased adverse events or bleeding in 7 women who were continued or recently started on prophylactic and therapeutic low molecular weight heparin (LMWH) and underwent D&E between 16 and 22 weeks [33]. Prior guidelines suggest that in the case of severe anemia or significant vaginal bleeding, a D&E procedure is the recommended procedure to promptly stop bleeding rather than labor induction abortion [34]. There exist no data reporting the risk of bleeding in individuals with bleeding disorders undergoing second-trimester procedural abortion or labor induction abortion.

For first-trimester abortion, surgical management is generally preferred over medical management for individuals with bleeding disorders or who are on anticoagulation [35]. For second-trimester abortion, surgical management may be recommended to limit bleeding though this has not been studied in these populations. Providers should individualize the mode of abortion with the approach of shared decision making, interdisciplinary collaboration, and accounting for the availability of procedural abortion and resources if complications arise (GRADE 2C)

2.2. Individuals with bleeding disorders/on anticoagulation

6 In which individuals should a bleeding disorder be suspected?

Prior to any invasive procedure, providers should obtain an accurate bleeding history. A bleeding disorder should be suspected in individuals who give positive responses to the following questions: heavy and prolonged menstrual bleeding, easy bruising, epistaxis, excessive bleeding after a medical or dental procedure, or a family history of bleeding problems [36]. If after assessment a bleeding disorder seems likely, referral to a hematologist or a workup should be initiated prior to procedural abortion, particularly if a second-trimester abortion is planned.

In an individual who presents for second-trimester procedural abortion with a suspected bleeding disorder, prompt referral to a hematologist should be initiated. (GRADE 1C)

7 What is the ideal setting for procedural abortion in individuals with bleeding disorders/on anticoagulation in order to minimize the risk of excessive bleeding?

Abortion has a well-established safety record and studies confirm that outpatient facilities are just as safe if not safer than hospital-based facilities for healthy individuals undergoing procedural abortion [37–39]. However, if an individual presents with a possibly increased bleeding risk, the ideal setting for procedural abortion should be individualized.

If providers are unfamiliar with how to manage individuals with a bleeding disorder or on anticoagulation, or there are any factors suggesting an increase in risk of excessive bleeding, we recommend a prompt referral to a hospital-based provider. In most cases, second-trimester abortions in these individuals should be done in a hospital-based setting given the increased and less well-defined risk of the procedure and the increased access to resources available in the hospital setting should excessive bleeding occur.

In summary, the decision on the ideal setting for individuals undergoing procedural abortion with bleeding disorders or who are on anticoagulation should be individualized. Given the low bleeding risk of first-trimester procedures, it is possible to manage individuals without additional risk factors for bleeding in a hospital outpatient clinic or free-standing clinic setting. In general, second-trimester abortions in these individuals should be preferably done in a hospital-based setting given increased access to resources should complications or hemorrhage occur. (GRADE 2C)

8 What perioperative considerations should be weighed in an individual with a bleeding disorder/on anticoagulation?

When approaching surgical planning for an individual with a history of bleeding disorder or who is on anticoagulation it is important to consider factors that potentially increase the risk of bleeding: higher gestational age (second trimester vs. first trimester), multifetal pregnancy, prior cesarean section or uterine surgery, abnormal placentation, baseline anemia, and if anticoagulated, whether the anticoagulation dosing is therapeutic or prophylactic. Hemoglobin thresholds for procedural abortion vary depending on the setting and specific patient circumstances; however per the expert opinion of the authors, procedural abortion in an outpatient setting should generally not be attempted in individuals with a hemoglobin of less than 8g/dL and is not recommended in a hospital-based setting without availability of pre-operative or intraoperative transfusion in a patient with a hemoglobin of less than 7g/dL.

Providers can employ techniques to help reduce blood loss in individuals at higher risk for bleeding. Desmopressin (also known as DDAVP) stimulates the release of von Willebrand factor from endothelial cells and has been shown to decrease blood loss from surgical procedures in those with bleeding diatheses such as type I von Willebrand disease, mild hemophilia, and some platelet function disorders [40]. A prior randomized controlled trial of 337 women (not on anticoagulation or with bleeding disorders) found a statically significant improvement in measured blood loss with

paracervical injection of vasopressin (4 units in 20 mL of 1% mepivacaine) in women between 15 and 19 weeks gestation undergoing second-trimester D&E [41]. A randomized controlled trial involving 337 women undergoing D&E from 18 to 24 weeks found that though prophylactic use of oxytocin (30 units in 500 mL of intravenous fluid) did not decrease the number of interventions to control bleeding, its use decreased blood loss (median measured blood loss was 152 vs. 317 mLs) and frequency of hemorrhage [42]. Advice from a hematologic specialist should be obtained in any individual with a bleeding disorder prior to the procedure.

Other prophylactic measures to reduce blood loss have not been shown to be effective in the setting of a second-trimester procedural abortion. A randomized controlled trial involving 284 women undergoing D&E from 20 to 24 weeks found that prophylactic methergine was associated with more frequent balloon tamponade, admissions for bleeding, and use of uterotonic medications when compared to placebo [43].

Regarding patient positioning in the operating suite, dorsal lithotomy position should pose no additional risk to an individual who is on anticoagulation. Venous return is usually increased with lithotomy position as compared to supine position, though this effect may be minimal and transient [44,45]. As usual, care should be taken to appropriately position an individual in lithotomy and ensure padding is adequate to prevent nerve injuries. Intermittent pneumatic compression should be considered in all individuals undergoing gynecologic surgery [46]; however, given the short duration of most abortion procedures, the benefit of this intervention is unclear.

9 If an individual is already anticoagulated, how should their anticoagulation medication be managed for the procedure?

Management of anticoagulation in any perioperative period involves balancing the risk of thrombosis during any lapse in anticoagulation and the risk of bleeding from the procedure if anticoagulation is continued. Management of anticoagulation therapy in abortion patients can follow similar guidelines for non-pregnant individuals undergoing general gynecologic surgery [47,48], noting that pregnancy elevates an individual's VTE risk and that abortion procedures are generally low risk for excessive bleeding but that second-trimester procedures can be associated with greater blood loss. Evidence based scoring systems such as the Caprini score may help providers further stratify a patient's VTE risk and subsequent anticoagulation management in certain patients [49]. Based on limited retrospective data [15] and the expert opinion of the authors, for a first-trimester procedural abortion in an individual on anticoagulation who has no additional risk factors for bleeding and is to undergo a procedure that is anticipated to be uncomplicated, anticoagulation can generally continue uninterrupted. (GRADE 2C) For individuals with additional risk factors, care should be individualized.

2.3. Anticoagulation discontinuation/interruption and re-initiation in the peri-abortion period

Providers should consider temporarily interrupting anticoagulation for a first- or second-trimester procedure if there are significant risk factors for excessive bleeding. This can cause a delay of the procedure (and a period of subtherapeutic anticoagulant levels) which will vary depending on the anticoagulant used. The decision to interrupt anticoagulation in an individual currently on anticoagulation desiring a second-trimester procedural abortion must be done after an individualized risk assessment including absolute risk of VTE if anticoagulation is to be interrupted and bleeding risks with anticoagulation if it is continued. (GRADE 2C)

There are no studies to guide when anticoagulation can be restarted after a procedural abortion, so we rely on prior expert opinions and guidelines regarding anticoagulation management with gynecological and obstetric surgery [50–55] (Table 1).

2.3.1. Anticoagulation bridging

If an individual is particularly high risk for a thrombotic event, for example an individual with a pulmonary embolus within the last 3 months, a severe thrombophilia, or with an artificial heart valve, bridging anticoagulation (initiating heparin while discontinuing warfarin, to maintain full anticoagulation as the effects of warfarin recede) in the form of intravenous or LMWH can be employed but only after multidisciplinary management and discussion [47,48]. We advise starting bridging therapy with unfractionated or LMWH when the INR drops below 2. Unfractionated heparin should be stopped 6 hours before the procedure and LMWH should be held on the morning of the procedure. Both can be restarted 6–12 hours after the procedure and continued until the INR is above 2.0 [56].

2.3.2. Anticoagulation continuation without interruption

In general, aspirin therapy does not increase the level of severity of bleeding complications or perioperative mortality related to bleeding complications [57]. Thus, clinical recommendations endorse continuation of aspirin in the setting of low-risk or dental procedures [58]. We recommend that aspirin be continued during a first-trimester procedural abortion.

Peri-operative management of individuals on combination antiplatelet therapy should be discussed in consultation with the pertinent specialist depending on the medical condition for which the anticoagulation was started for (cardiologist, neurologist, or hematologist) to determine if discontinuation is appropriate [59].

If providers have any questions about the peri-operative management of anticoagulation, consultation with a hematologist is appropriate. Consultation may be particularly appropriate for individuals at high risk for thrombophilia, in individuals already on anticoagulation, particularly therapeutic anticoagulation levels, or individuals who may have a coagulopathy or are on anticoagulation who are undergoing a more complex procedural abortion.

Table 1
Anticoagulation discontinuation and re-initiation in the peri-abortion time period [50–55]

Anticoagulant	Common trade names	Hours before a procedure to interrupt/discontinue	Hours after a procedure to re-initiate
Unfractionated Heparin	Heparin	6	6
Low Molecular Weight Heparins (enoxaparin, dalteparin, nadroparin, tinzaparin)	Lovenox, Fragmin, Fraxiparine, Innohep	12 (prophylactic dosing) 24 (therapeutic dosing)	6 (prophylactic dosing) 12 (therapeutic dosing)
Warfarin ^a	Coumadin, Jantoven	5 days	12–24
Direct oral anticoagulants (dabigatran, rivaroxaban, apixaban)	Pradaxa, Xarelto, Eliquis	48 ^b	Within 24

^a Although the half-life of the drug is short, the effect of the vitamin K inhibition caused by warfarin lasts 5–7 days, which might delay the surgical procedure. In urgent situations, vitamin K and/or plasma can be used for a quicker reversal of the warfarin effects.

^b If renal function is normal.

10 Should individuals with bleeding disorders or who are anticoagulated be offered immediate post-abortion LARC methods like IUDs and implants?

Because the copper IUD (Cu-IUD) is associated with potentially heavier and longer menses, it is not a common method of contraception recommended for individuals on anticoagulation or with bleeding disorders, especially VWD [60]. Per the United States Medical Eligibility Criteria ((US MEC), the use of Cu-IUD in women with VTE on anticoagulation for at least 3 months or acute VTE is a category 2 (benefits outweigh the risks) [61].

In contrast, because the levonorgestrel IUD (LNG-IUD) is associated with a reduction in average menstrual blood loss [62], it is a promising contraceptive and treatment option for individuals with bleeding disorders who may also suffer from menorrhagia. Studies have shown reduced blood loss, high amenorrhea rates, and improvement in quality of life in women with bleeding disorders or on anticoagulation after initiating the LNG- IUD [63–69]. Per the US MEC, the use of LNG-IUD in women with acute VTE or history of VTE on anticoagulation is category 2 [61]. Individuals with bleeding disorders or who are anticoagulated can safely be offered LNG- IUD and it is likely to improve their bleeding. (GRADE 1A)

In general, IUD insertion can be done without receiving prophylaxis medications to prevent bleeding during the procedure (i.e. desmopressin for type I VWD), however if the bleeding disorder is severe, hemostatic coverage and consultation with hematology should be considered at the time of the IUD insertion and procedural abortion [65]. There is also a risk of significant bleeding with ovulation and follicular cyst rupture in these individuals, as the LNG-IUD's main contraceptive effect is through thickening of the cervical mucus and inducing an atrophic endometrium and does not impact ovulation. These individuals may require additional hormonal methods to inhibit ovulation.

The use of the etonogestrel implant in these individuals is not well studied, but the risk of irregular light vaginal bleeding should be weighed with the benefit of potential amenorrhea. The US MEC rates the use of implants in women with history of VTE on anticoagulation and women with a history of heavy or prolonged menstrual bleeding as category 2 [61]. There is additionally a risk of bleeding with implant insertion and removal; however, given that many individuals undergo minor dental procedures without discontinuation of anticoagulation treatment [70], contraceptive implants can likely be inserted without interruption of anticoagulation treatment as long as the patient is in the therapeutic range.

2.4. Individuals with thrombotic disorders

11 In which peri-abortion period is VTE risk the highest?

Approximately one half of the thromboembolic events that occur in the peri-partum period occur during pregnancy, the other half occurring in the post-partum period [71,72].

There is little data on VTE risk after abortion. A Danish study evaluated 663 IVF pregnancies terminated by abortion after 10 weeks and found no VTE events in this group up to 12 weeks post-termination [73]. Another retrospective study of abortion patients with previous VTE found that among those patients who did not receive VTE prophylaxis after the procedure, 1.7% (or 1 out of 57 patients) developed VTE in the 6 weeks following abortion. Notably, 3.8% (or 1 out of 26) of abortion patients with previous VTE who were given VTE prophylaxis (heparin or LMWH of unspecified duration) after the procedure also developed VTE in the 6 weeks following termination. Given the small sample size of this study, the conclusions that can be drawn are limited [74].

There is no data on the whether D&E or labor induction abortion is safer for individuals with thrombotic disorders. However,

given the immobility often associated with labor induction abortion, individuals at higher risk for VTE may be offered D&E as a preferred option.

12 Which individuals at risk of VTE should be initiated on anticoagulation medication in the peri-abortion period?

Some individuals are at high risk for thrombosis during their pregnancies, and clinical recommendations from expert groups have recommended antenatal anticoagulation for several specific groups, although the certainty of evidence is low [53,75,76]. The American Society of Hematology guidelines (2018) recommend antenatal anticoagulation at prophylactic doses for women at high risk for VTE: [76]

- 1 Women with a personal history of unprovoked or hormonally provoked VTE
- 2 Women with antithrombin deficiency and a family history of VTE
- 3 Women with homozygosity for factor V Leiden or combined factor V Leiden/prothrombin gene mutation regardless of family history

Extrapolating from recommendations in the antenatal period, clinicians caring for similar individuals desiring abortion should consider anticoagulation initiation.

The use of VTE prophylaxis in pregnant women with a history of VTE reduces the risk of recurrent VTE by approximately 75% [77], which is similar to the risk reduction seen with VTE prophylaxis following high-risk orthopedic procedures [78]. We would assume that the risk reduction when prophylaxis is in the period surrounding abortion would be similar.

Since there are no teratogenic effects to limit the choice of anticoagulants in an abortion patient, any of the standard anticoagulants would be appropriate. LMWH is recommended at standard prophylactic doses or intermediate doses in the postpartum setting. Warfarin is recommended at doses to produce an INR of 2–3. In the rare case that a pregnancy continues in a patient taking warfarin, the patient should be counseled regarding the risks of warfarin embryopathy. By extension, prophylactic doses of the direct oral anticoagulants would also be a possible option. If there is concern or question about the appropriate agent to start, a hematologist should be consulted.

2.5. Initiation of anticoagulation prior to abortion

Individuals who meet the criteria for antenatal anticoagulation (see high risk VTE criteria above) should be instituted on anticoagulation if the abortion procedure is not going to take place in the immediate future. There is not enough evidence to recommend that a procedure be delayed specifically to start anticoagulation. We would recommend LMWH given in standard prophylactic doses (the equivalent of 40 mg daily of enoxaparin) prior to the procedure, stopping it 24 hours in advance of the abortion. Challenges exist regarding initiation of treatment (i.e. insurance coverage and authorization) which might affect an individual's ability/willingness to follow this advice.

2.6. Duration of anticoagulation after abortion

There is no evidence on how long the period of increased risk of VTE persists after abortion. One prior study examining hormonal patterns post first-trimester procedural abortion, found that estradiol levels dropped precipitously within 24 hours of the abortion and reached a nadir by the 6th day after abortion [79]. However, a drop in estradiol levels does not translate immediately into a fall in the levels of coagulation factors that are at least in part responsible for the prothrombotic state of pregnancy.

Prior guidelines discuss prophylaxis in the postpartum period after full-term delivery rather than prophylaxis following abortion which occurs in the first and second trimester. These postpartum guidelines recommend 6 weeks of postpartum prophylaxis in women with prior VTE and with some inherited thrombophilias [46,54,55]. Thus, there is no evidence regarding the optimal duration of anticoagulation. Using the fall in risk after a full-term pregnancy as a guideline [54,80–82], a duration of 4–6 weeks after an abortion would be reasonable.

All individuals should undergo an individualized risk assessment for VTE when they present for abortion. If they have multiple risk factors and are determined to be high risk for VTE (see above criteria) and are not currently on VTE prophylaxis, they can be offered anticoagulation prior to the abortion if there is a delay until the procedure, or can forego pre-procedure anticoagulation. High risk individuals can be offered 4–6 weeks of anticoagulation post procedure. (GRADE 2C)

2.7. Additional considerations

13 Can NSAIDs be used for post-abortion pain management in individuals with bleeding disorders/individuals on anticoagulation?

Nonsteroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen and ketorolac, are generally recommended as safe and effective options for post-operative pain. NSAIDs are alternatives to opioid medication without any significant associations with increased post-operative bleeding, development of hematomas, or increased complications [83–85].

NSAIDs inhibit platelet cyclooxygenase and block the formation of thromboxane A₂ which is involved in platelet aggregation. The effects of non-aspirin NSAIDs are reversible and function of the platelets are restored once the drugs are cleared from circulation. Platelet function returns to normal within 12 hours after ibuprofen administration [86].

In individuals on anticoagulation or with coagulopathies, use of NSAIDs should be carefully assessed and tailored on an individual basis. Most NSAIDs can enhance the activity of oral anticoagulants, such as warfarin, apixaban, rivaroxaban, or clopidogrel [87], and potentially result in increased bleeding risk [88].

Use of NSAIDs for post-abortion pain management is generally recommended; however, NSAID use should be tailored to the risks and benefits for the specific individual with a bleeding disorder or on anticoagulation, with specific attention paid to the possible interaction of NSAIDs with anticoagulants. (GRADE 1C)

14 What are considerations for individuals with bleeding disorders or on anticoagulation undergoing management for incomplete abortion?

Individuals with bleeding disorders or on anticoagulation diagnosed with early pregnancy loss, including incomplete abortion, should be offered surgical management given the lower and more predictable blood loss with this management option as compared to expectant or medical management [89].

Surgical management of incomplete abortion in individuals with bleeding disorders or on anticoagulation is generally recommended over medical management (GRADE 1C)

15 What are the challenges of insurance coverage for anticoagulation treatment?

Optimal use of anticoagulants requires timely initiation. Insurance authorization timing and coverage/out-of-pocket costs and lack of provider knowledge regarding navigating these complexities represents a significant obstacle in implementing timely anticoagulation in individuals. Once the need for anticoagulation is

recognized, providers should communicate closely with individuals and their insurance carriers to address any obstacles in starting anticoagulation expeditiously.

3. Clinical recommendations

Please see [Appendix 1](#) for a key to interpreting GRADE.

The following recommendations are based primarily on good quality scientific evidence:

- Individuals with bleeding disorders or who are anticoagulated can safely be offered LNG-IUD and it is likely to improve their bleeding. (GRADE 1A)

The following recommendations are based primarily on consensus and expert opinion:

- For first-trimester abortion, surgical management is generally preferred over medical management for individuals with bleeding disorders or who are on anticoagulation. For second-trimester abortion, surgical management may be recommended to limit bleeding though this has not been studied in these populations. Providers should individualize the mode of abortion with the approach of shared decision making, interdisciplinary collaboration, and accounting for the availability of procedural abortion and resources if complications (GRADE 2C)
- In an individual who presents for second-trimester procedural abortion with a suspected bleeding disorder, prompt referral to a hematologist should be initiated. (GRADE 1C)
- Decision on the ideal setting for individuals undergoing procedural abortion with bleeding disorders or who are on anticoagulation should be individualized. Given the low bleeding risk of first-trimester procedures, it is possible to manage individuals without additional risk factors for bleeding in a hospital outpatient clinic or free-standing clinic setting. In general, second-trimester abortions in these individuals should be preferably done in a hospital-based setting given increased access to resources should complications or hemorrhage occur. (GRADE 2C)
- Although data concerning bleeding risk is limited, for a first-trimester procedural abortion in an individual on anticoagulation who has no additional risk factors for bleeding and is to undergo a procedure that is anticipated to be uncomplicated, anticoagulation can generally continue uninterrupted. (GRADE 2C)
- All individuals should undergo an individualized risk assessment for VTE when they present for abortion. If they have multiple risk factors and are determined to be high risk for VTE (individuals with an unprovoked or hormonally provoked VTE, individuals with a family history of VTE and antithrombin deficiency, individuals with homozygosity for factor V Leiden or combined factor V Leiden/prothrombin gene mutation regardless of family history) and are not currently on VTE prophylaxis, they can be offered anticoagulation prior to the abortion if there is a delay until the procedure, or can forego pre-procedure anticoagulation. High risk individuals can be offered 4–6 weeks of anticoagulation post procedure. (GRADE 2C)
- The decision to interrupt anticoagulation in an individual currently on anticoagulation desiring a second-trimester procedural abortion must be done after an individualized risk assessment including absolute risk of VTE if anticoagulation is to be interrupted and bleeding risks with anticoagulation if it is continued. (GRADE 2C)
- Use of NSAIDs for post-abortion pain management is generally recommended; however, NSAID use should be tailored to the risks and benefits for the specific individual with a bleeding disorder or on anticoagulation, with specific attention paid to the possible interaction of NSAIDs with anticoagulants. (GRADE 1C)

- Surgical management of incomplete abortion in individuals with bleeding disorders or on anticoagulation is generally recommended over medical management (GRADE 1C)

4. Recommendations for future research

- Randomized trials assessing quantitative blood loss and complications rates in individuals on anticoagulation, with bleeding disorders, or with thrombotic disorders undergoing abortion
- Cohort studies examining VTE occurrence at different gestational ages and in the peri-abortion time period

5. Sources

Literature referenced in this recommendation were obtained from a PubMed search of literature from 1976 to 2020 that used the following MeSH terms and text words: anticoagulation, perioperative, bleeding disorders, thrombotic disorders, hemorrhage, blood loss, abortion, thromboprophylaxis. The “related articles” search in PubMed was used to identify other similar literature omitted on the initial search. Only articles published in English were included.

6. Intended audience

This clinical recommendation is intended for Society of Family planning members and for any physicians or advanced-practice clinicians who provide medical and/or procedural abortion services.

The purpose of this document is to review the literature and provide expert opinion on the management of individuals with bleeding or thrombotic disorders undergoing abortion. This set of recommendations should guide clinicians in their medical decision making, although it is not intended to dictate clinical care.

7. Author contribution

This clinical recommendation was prepared by Jessica K. Lee, MD MPH, Ann B. Zimrin, MD, and Carolyn Sufrin, MD, PhD and was reviewed and approved by the Board of the Society of Family Planning.

8. Support

The Society for Maternal Fetal Medicine (SMFM) Publications Committee reviewed and supports this document.

Conflict of interest

Jessica K. Lee, MD MPH, Ann B. Zimrin, MD, and Carolyn Sufrin, MD, PhD report no relevant significant relationships with industry. The Society of Family Planning receives no direct support from pharmaceutical companies or other industries for the production of clinical recommendations.

Appendix 1. Key for recommendations summary

Table A1

Table A1
Recommendations key^a

Symbol	Meaning
1	Strong recommendation
2	Weaker recommendation
A	High quality evidence
B	Moderate quality evidence
C	Low quality evidence, clinical experience, or expert consensus

^a Society of Family Planning clinical recommendations use a modified GRADE system. The GRADE system is described in several publications, with a comprehensive set of articles in the Journal of Clinical Epidemiology (J Clin Epidemiology, (2011) 64:383-394, 64:395-400, 64:401-406, 64:407-415, 64:1277-1282, 64:1283-1293, 64:1294-1302, 64:1303-1312, 64:1311-1316, (2013) 66:140-150, 66:151-157, 66:158-172, 66:173-183, 66:719-725, 66:726-735).

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