

# First Trimester Pregnancy Complications

Carrie Pierce, MD  
Julie Johnston, MD, FAAFP



## ACTIVITY DISCLAIMER

The material presented here is being made available by the American Academy of Family Physicians for educational purposes only. Please note that medical information is constantly changing; the information contained in this activity was accurate at the time of publication. This material is not intended to represent the only, nor necessarily best, methods or procedures appropriate for the medical situations discussed. Rather, it is intended to present an approach, view, statement, or opinion of the faculty, which may be helpful to others who face similar situations.

The AAFP disclaims any and all liability for injury or other damages resulting to any individual using this material and for all claims that might arise out of the use of the techniques demonstrated therein by such individuals, whether these claims shall be asserted by a physician or any other person. Physicians may care to check specific details such as drug doses and contraindications, etc., in standard sources prior to clinical application. This material might contain recommendations/guidelines developed by other organizations. Please note that although these guidelines might be included, this does not necessarily imply the endorsement by the AAFP.



# DISCLOSURE

It is the policy of the AAFP that all individuals in a position to control content disclose any relationships with commercial interests upon nomination/invitation of participation. Disclosure documents are reviewed for potential conflict of interest (COI), and if identified, conflicts are resolved prior to confirmation of participation. Only those participants who had no conflict of interest or who agreed to an identified resolution process prior to their participation were involved in this CME activity.

All individuals in a position to control content for this session have indicated they have no relevant financial relationships to disclose.

The content of my material/presentation in this CME activity will include discussion of unapproved or investigational uses of products or devices as indicated: We will be discussing the most effective evidence-based regimen for medication management of early pregnancy loss (EPL), which includes mifepristone and misoprostol. Both medications are approved by the FDA for other uses, and are used off-label for the treatment of EPL. These products should not be considered "investigational", as they are commonly used to treat EPL.

**FMX**

## Carrie Pierce, MD

Faculty, Cascades East Family Medicine Residency, Klamath Falls, Oregon

Dr. Pierce is a graduate of Rush Medical College in Chicago, Illinois. She completed her residency at the University of Illinois-Chicago Advocate Illinois Masonic Medical Center Family Medicine Residency and a reproductive health care and advocacy fellowship at the Reproductive Health Access Project in New York, New York. Dr. Pierce enjoys practicing the full scope of family medicine, from newborns to geriatric patients. Her passion is reproductive health care, helping women and families plan when and whether to have children, and subsequently helping them have the healthiest pregnancies and babies possible.

**FMX**

# Julie Johnston, MD, FAAFP

Medical Director, Health Quarters, Lawrence, Massachusetts; Faculty, Lawrence Family Medicine Residency, Massachusetts

Dr. Johnston is a graduate of Brown University's Alpert Medical School in Providence, Rhode Island. She completed her residency at Lawrence Family Medicine Residency, Massachusetts, and participated in the Physicians for Reproductive Health Leadership Training Academy. At Lawrence Family Medicine Residency, she coordinates the women's health rotation and the women's health area of concentration. Her areas of interest include the empowerment of women, reproductive health access, immediate postpartum long-acting reversible contraception provision, and political action. Dr. Johnston served as the 2018 women's delegation co-convenor and delegate for the National Conference of Constituency Leaders (NCCL). In addition, she has leadership roles at the state level, including serving as the family medicine representative on the Massachusetts Department of Public Health Perinatal Advisory Committee and the Special Legislative Commission on Postpartum Depression.

**FMX**

## Learning Objectives

1. Detect abnormalities during the first trimester of pregnancy that vary from the normal progression of pregnancy.
2. Differentiate between possible causes of first trimester bleeding, including ectopic pregnancy and miscarriage.
3. Compare the risks and benefits of expectant management vs. medical or surgical intervention.
4. Provide appropriate follow-up care and make referrals to mental health professionals when necessary.

**FMX**

# Audience Engagement System



**FMX**

## Why you should care about early pregnancy problems

- Pregnancy is a common need for an office visit
- 25% of women experience bleeding in the first trimester\*
- Even if you don't do prenatal care/OB, you probably see patients who can get pregnant (and they will come to you with early pregnancy problems)

\*Hendricks, *Am Fam Phys* 2019

## Not all bleeding in pregnancy is early pregnancy loss (EPL)

- Subchorionic hemorrhage
- Cervical polyp
- Vaginitis or cervicitis
- Cervical/vaginal trauma

## Case 1

- 32yo G2P1001
- EGA 7 weeks by sure LMP
- Talks with on-call provider at 0530 because she's started having vaginal bleeding
  - No cramping
  - Started light with wiping after urinating, got heavier, still lighter than a period
  - Hemodynamically stable by history

## POLL QUESTION 1

What advice should this patient receive?

A: "It sounds like you might be having a miscarriage, you should go to the ER right away."

B: "There are a lot of reasons for bleeding in pregnancy. I'd like to see you in the office today so we can do further evaluation."

C: "Bleeding in pregnancy is really common, so this is nothing to worry about. I'll see you in 2 weeks for your OB appointment."

## Bleeding in pregnancy doesn't have to mean an ER visit

- Bleeding doesn't necessarily mean EPL
- EPL can't be stopped in the ER (or anywhere else)
- ER visits for bleeding in early pregnancy are a big cost to health care system
  - ~1.5% of ALL ER visits in US\*

*\*Wittels AJOG 2008*

## Reasons to seek ER care with bleeding in early pregnancy

- Hemodynamic instability
- Ectopic symptoms
  - Severe pelvic pain
  - Acute abdomen
  - Unilateral pelvic pain, +/- radiating to shoulder
  - Adnexal mass\*

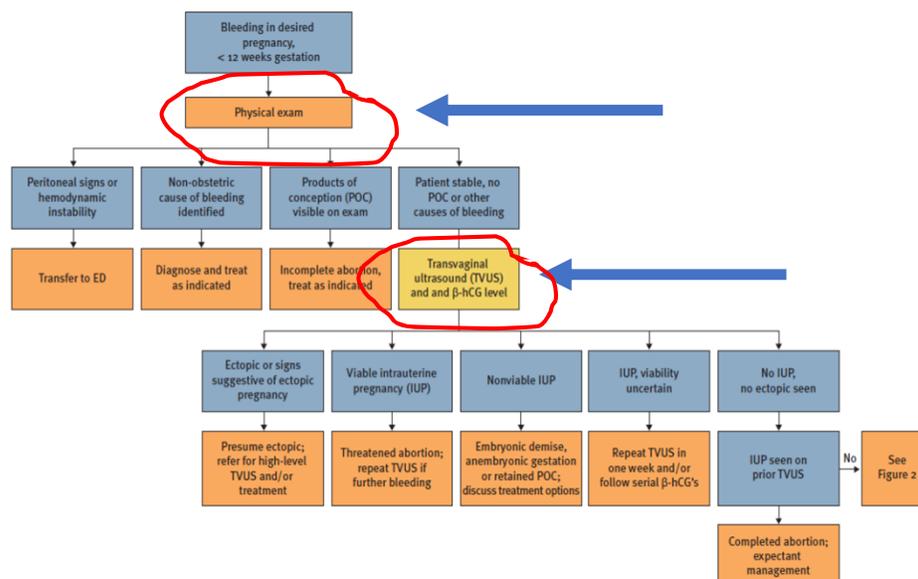
*\*adnexal mass can be worked up outpatient if patient is stable and can get urgent ultrasound outside of ER*

## Back to our patient

- 32yo G2P1001
- EGA 7 weeks by sure LMP
- Light-moderate bleeding, no cramping
  
- Other information you want to know
  - Blood type?
  - Has she had an ultrasound so far this pregnancy?
  - Has she had blood tests so far this pregnancy?

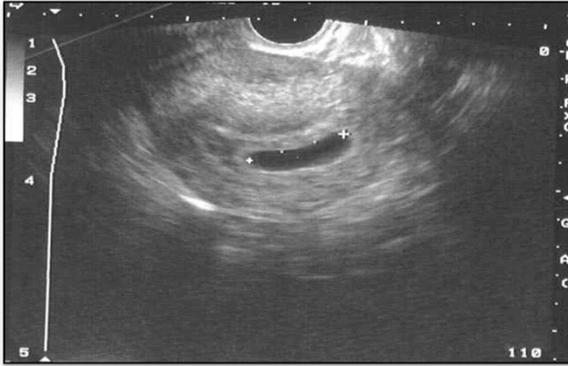
## You see her in the office later the same day

- Vitals stable.
- Abdomen soft, nontender, nondistended.
- No adnexal masses, uterus size approx 6-7 weeks EG
- Speculum: no products of conception (POCs) seen. Os closed. No active bleeding seen.



[reproductiveaccess.org/resource/first-trimester-bleeding-algorithm/](http://reproductiveaccess.org/resource/first-trimester-bleeding-algorithm/) Nov 2017

## Our patient's ultrasound



Mean sac  
diameter=  
20mm

*Image from Office Management of Early Pregnancy Loss- Presentation of Reproductive Health Access Project, by permission with CC BY-NC-SA 4.0*

## Viable 7 week pregnancy



*Image from X.Companion,  
<https://commons.wikimedia.org/w/index.php?curid=840791>, used with  
permission by CC BY 2.5*

## Ultrasound Findings in EPL

Findings Diagnostic of Pregnancy Failure	Findings Suspicious for, but not Diagnostic of, Pregnancy Failure
Crown-rump length of $\geq 7$ mm and no heartbeat Mean sac diameter of $\geq 25$ mm and no embryo Absence of embryo with heartbeat $\geq 2$ wk after a scan that showed a gestational sac without a yolk sac Absence of embryo with heartbeat $\geq 11$ days after a scan that showed a gestational sac with a yolk sac	Crown-rump length of $< 7$ mm and no heartbeat Mean sac diameter of 16-24 mm and no embryo Absence of embryo with heartbeat 7-13 days after a scan that showed a gestational sac without a yolk sac Absence of embryo with heartbeat 7-10 days after a scan that showed a gestational sac with a yolk sac Absence of embryo $\geq 6$ wk after last menstrual period Empty amnion (amnion seen adjacent to yolk sac, with no visible embryo) Enlarged yolk sac ( $> 7$ mm) Small gestational sac in relation to the size of the embryo ( $< 5$ mm difference between mean sac diameter and crown-rump length)

*Table from Office Management of Early Pregnancy Loss- Presentation of Reproductive Health Access Project, by permission with CC BY-NC-SA 4.0, from data in Doubilet NEJM, 2013*

## Our patient has a probable EPL

- If pt does not want to stay pregnant: treat now as likely miscarriage
- If pt does want to stay pregnant:
  - Repeat US in 2 weeks- if still no fetal pole, definite EPL
 OR
  - check serum progesterone level
    - Progesterone  $< 6$  ng/ml excludes viable pregnancy\*

*\*Hendricks, Am Fam Phys 2019*

## Back to our patient- her preferences and feelings

- Strongly desires this pregnancy
- Wants resolution ASAP
  
- Shared decision making: check progesterone level today (and Rh and hgb)
  
- Wants to talk about results in person
  - You arrange for serum draw today, appt tomorrow to follow up

## The next day

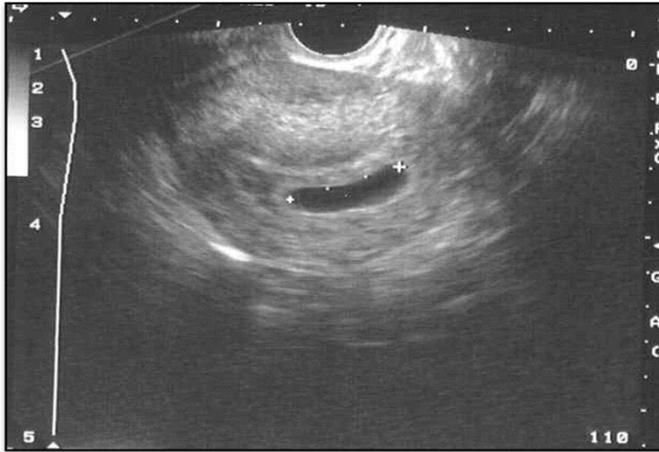
- Results: Rh negative, Progesterone level 7ng/ml
- Rh negative:
  - Insufficient evidence to recommend Rho D immunoglobulin for threatened abortion (bleeding in first trimester)
  - RhoD immunoglobulin IS indicated for EPL, ectopic, abdominal trauma, or when uterine aspiration is performed
- Our patient opts against Rho D immunoglobulin today.
- When to repeat ultrasound?

Findings Diagnostic of Pregnancy Failure	Findings Suspicious for, but not Diagnostic of, Pregnancy Failure
Crown-rump length of $\geq 7$ mm and no heartbeat	Crown-rump length of $< 7$ mm and no heartbeat
Mean sac diameter of $\geq 25$ mm and no embryo	Mean sac diameter of 16-24 mm and no embryo
Absence of embryo with heartbeat $\geq 2$ wk after a scan that showed a gestational sac without a yolk sac	Absence of embryo with heartbeat 7-13 days after a scan that showed a gestational sac without a yolk sac
Absence of embryo with heartbeat $\geq 11$ days after a scan that showed a gestational sac with a yolk sac	Absence of embryo with heartbeat 7-10 days after a scan that showed a gestational sac with a yolk sac
	Absence of embryo $\geq 6$ wk after last menstrual period
	Empty amnion (amnion seen adjacent to yolk sac, with no visible embryo)
	Enlarged yolk sac ( $> 7$ mm)
	Small gestational sac in relation to the size of the embryo ( $< 5$ mm difference between mean sac diameter and crown-rump length)

## When to repeat ultrasound?

- If no embryo 2 weeks from first US, EPL is confirmed
- ... “But I can’t live with this anxiety for 2 weeks!”
- Shared decision making: repeat US in 1 week, knowing that if GS  $> 25$ mm (was 20mm last time), EPL is diagnosed

## Our patient's ultrasound (1 week after initial)



Mean sac  
diameter 28mm

*Image from Office Management of Early Pregnancy Loss- Presentation of Reproductive Health Access Project, by permission with CC BY-NC-SA 4.0*

## Our patient has an intrauterine anembryonic pregnancy

- One variety of EPL- no embryonic tissue
- Cannot become a viable pregnancy
- Will eventually have spontaneous abortion

## Treatment options for early pregnancy loss

- Expectant management
- Medical management
- Procedural management- office-based uterine aspiration or OR D&C

## Expectant management

- “Watch and wait”
- Very effective for incomplete abortion (some but not all products of conception passed)
- Less effective for anembryonic pregnancy or embryonic demise, but still > 50%
  - *Up to 80% at 8 weeks\**
- More days of bleeding and longer time to resolution than procedural management

*\*ACOG Prac Bull on EPL, 2018*

## Expectant management

- Pain management- NSAIDs +/- narcotic
- Contraindications:
  - Hemodynamic instability
  - Relative:
    - Anemia
    - Bleeding/clotting disorder
    - Social factors
    - Infection

## Medication management

- Most effective regimen:
    - Mifepristone 200mg PO\*
    - 24 hours later: misoprostol 800mcg vaginal or buccal
  - Misoprostol alone:
    - Common regimen: 800mcg misoprostol buccal or vaginally, repeat at 24-48 hours if no (or inadequate) bleeding and cramping
- \* *more on mifepristone to come*

## Medication management

- Pain control- similar to expectant management
  - NSAIDs, maybe narcotics
- Contraindications:
  - Same as expectant management, + allergy to meds
- Follow up- approx 1 week
  - Beta hcg or ultrasound to confirm completion

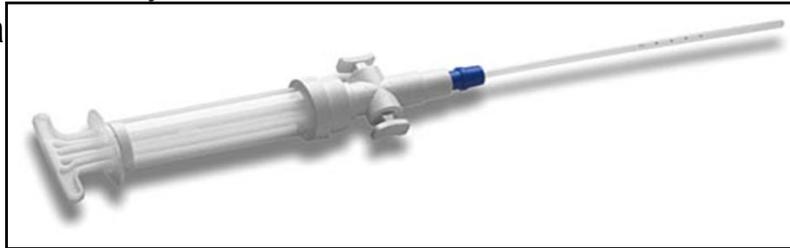
## Medication management

- No benefit over expectant management for incomplete abortion (bleeding, os open)
- Improves efficacy for embryonic demise or anembryonic gestation
- Overall efficacy after 2-3 days\*
  - mifepristone + misoprostol 84%
  - misoprostol alone 67%

*\*Shrieber NEJM 2018*

## Procedural management in office

- Efficacy > 99%
- Contraindications
  - Hemodynamic instability
  - Severe anemia



*Image from Office Management of Early Pregnancy Loss- Presentation of Reproductive Health Access Project, by permission with CC BY-NC-SA 4.0*

## Procedural management in OR

- Same as in office, but can provide additional anesthesia
- Good for pts with contraindications to outpatient management- ie severe anemia, bleeding disorder, etc

## Cost of different options

- Most expensive: Procedure in operating room
- middle: procedure in office
- inconsistent data: expectant management and medical management (though in one study medical management was least expensive)

*\*ACOG Prac Bull EPL, 2018*

## POLL QUESTION 2

What is the best treatment option for our patient?

A: Expectant management. This is a natural process and she doesn't need us to intervene

B: Medication management. She can take medicines in the comfort of her own home and complete her miscarriage privately.

C: Procedural management in the office. She can be done with this as quickly as possible, and in a familiar setting.

D: Procedural management in the OR. She can be done with this process quickly, and have more anesthesia options than the office

E: Whichever option she chooses is fine.

## Our pt picks med mgmt

- Set patient expectations:
  - Bleeding- heavier than menses
  - misoprostol side effects - diarrhea, nausea, vomiting, shivering, low-grade temp elevation
  - if no significant bleeding in 24 hours, repeat misoprostol
- When to call
  - soaking 2 pads/hr for 2 consecutive hours
  - severe pain not improving w NSAIDs, pain meds
  - fever > 100.4
  - no bleeding in 24 hours (or 48 if 2 doses of miso)

## Our patient- follow up

- Comes back in a week
- US in office is non-pregnant.
- She desires pregnancy again right away, continues prenatal vitamin, no further follow up needed
- Emotionally doing well, declines mental health resources

## Slide 38

---

- 1 Would emphasize in the notes that not all desired pregnancies that end in miscarriage choose to try for pregnancy quickly. Always offer birth control. There is no set time to wait after a miscarriage to try again.  
Julie Johnston, 7/15/2019
- 4 i had these points later on, will move that slide to follow closer to here  
carrie pierce, 7/15/2019

## General after care

- Okay to get pregnant again right away, but many women want to wait (or didn't desire the pregnancy in the first place)
  - Always assess contraceptive needs
- Mental health
  - wide variety of emotional reactions to EPL
  - assess coping skills, social support, need for formal counseling

## POLL QUESTION 3

Which of the following has been shown to help prevent EPL?

- A: Pelvic rest
- B: Bed rest
- C: Progesterone supplementation
- D: None of the above
- E: All of the above

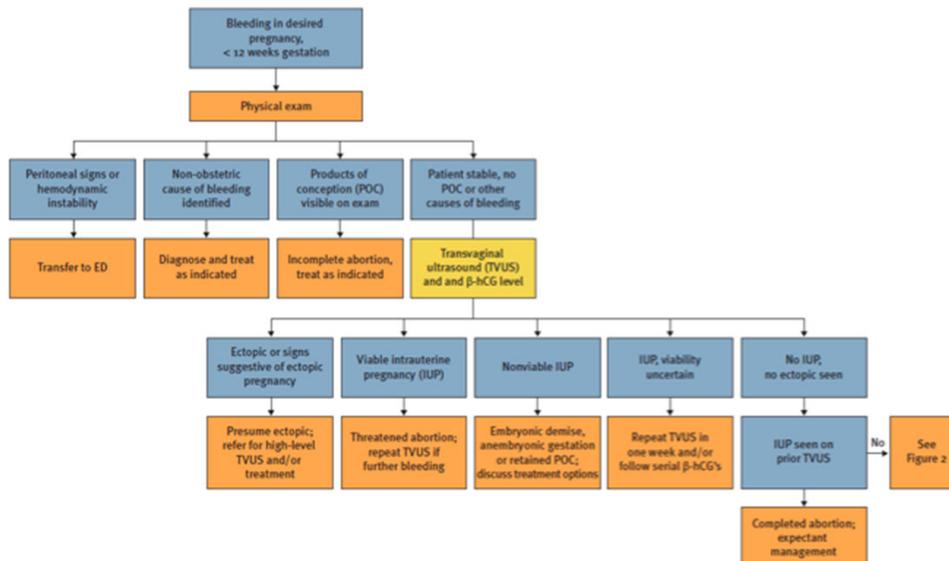
## Case #2

- G3P1011 at 5 weeks by approximate LMP
- spotting x 2 days
- mild cramps intermittently

hcg = 1000 mIU/ml

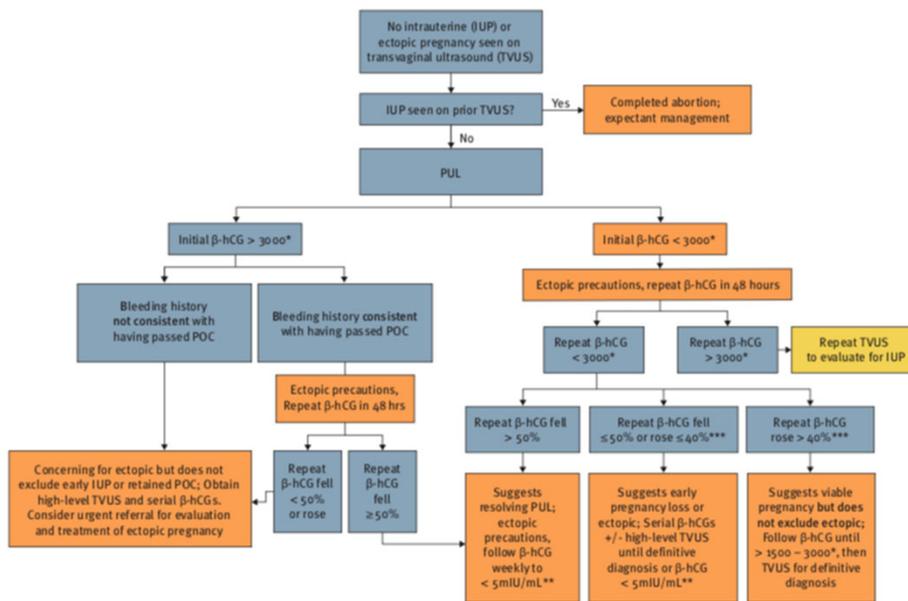
Image from Nevit,

[commons.wikimedia.org/wiki/File:Ultrasound\\_Scan\\_ND\\_1230114207\\_1146150.png](https://commons.wikimedia.org/wiki/File:Ultrasound_Scan_ND_1230114207_1146150.png), used with permission by CC BY-SA 1.0



[reproductiveaccess.org/resource/first-trimester-bleeding-algorithm/](https://reproductiveaccess.org/resource/first-trimester-bleeding-algorithm/) Nov 2017

Figure 2. Evaluation of first trimester bleeding in Pregnancy of Unknown Location (PUL)



[reproductiveaccess.org/resource/first-trimester-bleeding-algorithm/](http://reproductiveaccess.org/resource/first-trimester-bleeding-algorithm/) Nov 2017

## Case 2

repeating hcg in 48 hours \*

viable pregnancy = increase > 53%

EPL= decrease > 21-25%

ectopic= anything between these ranges

Our patient- hcg now 2000 (viable pregnancy)

Ultrasound confirmation recommended

\*Seeber, *Obstet Gynecol*, 2006

## When to suspect molar pregnancy/gestational trophoblastic disease

- beta hcg level much higher than anticipated
- uterus larger than expected for dates
- hyperemesis gravidarum
- pregnancy-associated hypertension before 20 weeks
- molar pattern on ultrasound

## NUTS AND BOLTS

- Billing
- Coding
- Using mifepristone for EPL
- Resources for patients

## ICD 10 codes for first-trimester complications

- Early pregnancy loss
  - O03.9 Spontaneous pregnancy loss
  - O03.4 Incomplete spontaneous abortion without complication
  - O02.1 Embryonic demise
  - O02.0 Anembryonic pregnancy
- Others
  - O20.0 Threatened abortion
  - O01.9 Trophoblastic disease
  - O00.10 Tubal pregnancy without intrauterine pregnancy
  - O00.80 Other ectopic pregnancy without intrauterine pregnancy

## Billing

- E&M codes as appropriate
- CPTs for Point-of-Care Ultrasound:
  - 76817 Transvaginal ultrasound, pregnant uterus
  - 76815 Limited ultrasound, pregnant uterus
  - 76801 Ultrasound for pregnancy viability
- CPTs for surgical management of EPL:
  - 59820 Treatment of missed abortion (surgical)
  - 59812 Treatment of incomplete abortion (surgical)
  - 64435 Paracervical nerve block

## Billing

- Medication codes
  - J2000 Lidocaine
  - J2210 Methergine
  - 90384 Rhogam 300mcg (full dose, for use after 12 weeks gestational age)
  - 90385 MicRhoGam 50mcg (for use before 12 weeks gestational age)
  - S0191 Misoprostol, 200mcg
  - S0190 Mifepristone, oral, 200 mg
- Laboratory codes (ie, urine pregnancy test, Rh typing) as appropriate

## What was that you said about mifepristone again?

- Mifepristone has a REMS
- REMS = Risk Evaluation and Mitigation Strategies
  - FDA classification for medications with serious safety concerns
    - Isotretinoin
    - many anti-neoplastic agents
    - thalidomide
- Mifepristone REMS is not evidence-based
  - AAFP policy supports removing it

## What does REMS mean for mifepristone access?

- Sold to physicians, NOT to pharmacies
- Only 1 company currently sells it in the US
  - Danco, [www.earlyoptionpill.com](http://www.earlyoptionpill.com).
- To get mifepristone for your office:
  - Fill out Prescriber Agreement Form (on website) and fax back
  - Distributor will call to confirm account and arrange first order

## What does REMS mean for mifepristone access?

- Not so hard to do!
  - One prescriber with valid agreement can oversee use of medication by all prescribers in the office (or clinic/hospital network)
  - Company accepts expired pills for refund or exchange (shelf-life 18 mo)
  - 24/7 hotline staffed by physicians- 1-877-432-7596
- Improves care for patients dealing with EPL

## Patient information and counseling resources

Reproductive Health Access Project,  
reproductiveaccess.org

- patient info sheet comparing expectant, medication, and procedural management of EPL
- detailed patient info sheets on each of the above options

All Options Talkline- 1-888-493-0092- *general counseling for EPL*

Faith Aloud counseling line- 1-888-717-5010- *Faith-based counseling for EPL*

## Recommended practice changes

- Recognize signs and symptoms of normal vs abnormal first trimester pregnancy
- Use exam, laboratory, and imaging data to differentiate between miscarriage, ectopic pregnancy, and other bleeding in the first trimester
- Offer all women in the process of miscarriage full management options including expectant management, medical management, and procedural management

## Contact info

Carrie Pierce, MD  
Assistant Professor of Family Medicine, Oregon Health and  
Science University  
Core faculty, Cascades East Family Medicine Residency  
[piercar@ohsu.edu](mailto:piercar@ohsu.edu)

Julie Johnston MD, FAAFP  
Clinical Instructor Tufts University School of Medicine  
Core faculty, Lawrence Family Medicine Residency  
[jjohnston@glfhc.org](mailto:jjohnston@glfhc.org)

## References

- ACOG Practice Bulletin 53: Diagnosis and Treatment of Gestational Trophoblastic Disease. 2004, reaffirmed 2012
- ACOG Practice Bulletin 200: Early Pregnancy Loss. *Obstet and Gynecol.* 2018; 132(5)
- J Barash et al. Diagnosis and Management of Ectopic Pregnancy. *Am Fam Phys.* 2014; 90(1)
- A Bhavsar et al. Common Questions About the Evaluation of Acute Pelvic Pain. *Am Fam Phys.* 2016; 93(1)
- W Biggs et al. Diagnosis and Management of Adnexal Masses. *Am Fam Phys.* 2016; 93(8)
- V Dalton et al. Patient Preferences, Satisfaction, and Resource Use in Office Evacuation of Early Pregnancy Failure. *Obstet and Gynecol.* 2006; 108(1)
- P Doubilet et al. Diagnostic Criteria for Nonviable Pregnancy Early in the First Trimester. *N Engl J Med.* 2013;369:1443-51
- E Hendriks et al. First Trimester Bleeding: Evaluation and Management. *Am Fam Phys.* 2019; 99(3)
- L Prine et al. Office Management of Early Pregnancy Loss. *Am Fam Phys.* 2011; 84(1)
- M Rausch et al. A cost-effectiveness analysis of surgical versus medical management of early pregnancy loss. 2012; 97(2)
- B Seeber et al. Suspected ectopic pregnancy. *Obstet Gynecol* 2006 Feb;107(2 Pt 1)
- C Shreiber et al. Mifepristone Pretreatment for the Medical Management of Early Pregnancy Loss. *N Engl J Med.* 2018; 378 (23).
- R Wallace et al. "Every Person's Just Different": Women's Experiences with Counseling for Early Pregnancy Loss Management. *Women's Health Issues.* 2017; 27(4)
- K Wittels et al. United States emergency department visits for vaginal bleeding during early pregnancy, 1993-2003. *AJOG*, May 2008

# Questions



**FMX**

Figure 1. Evaluation of first trimester bleeding

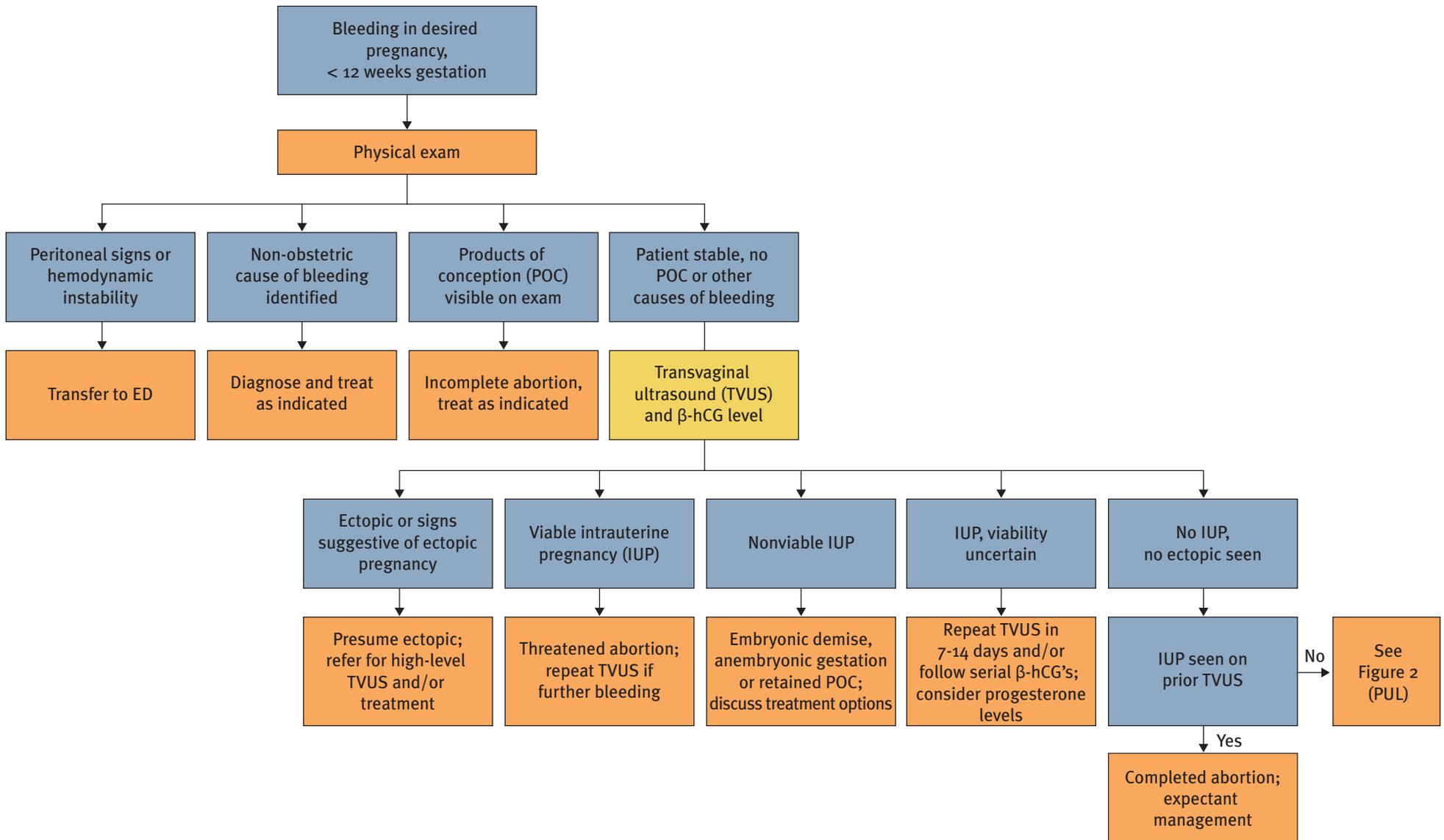
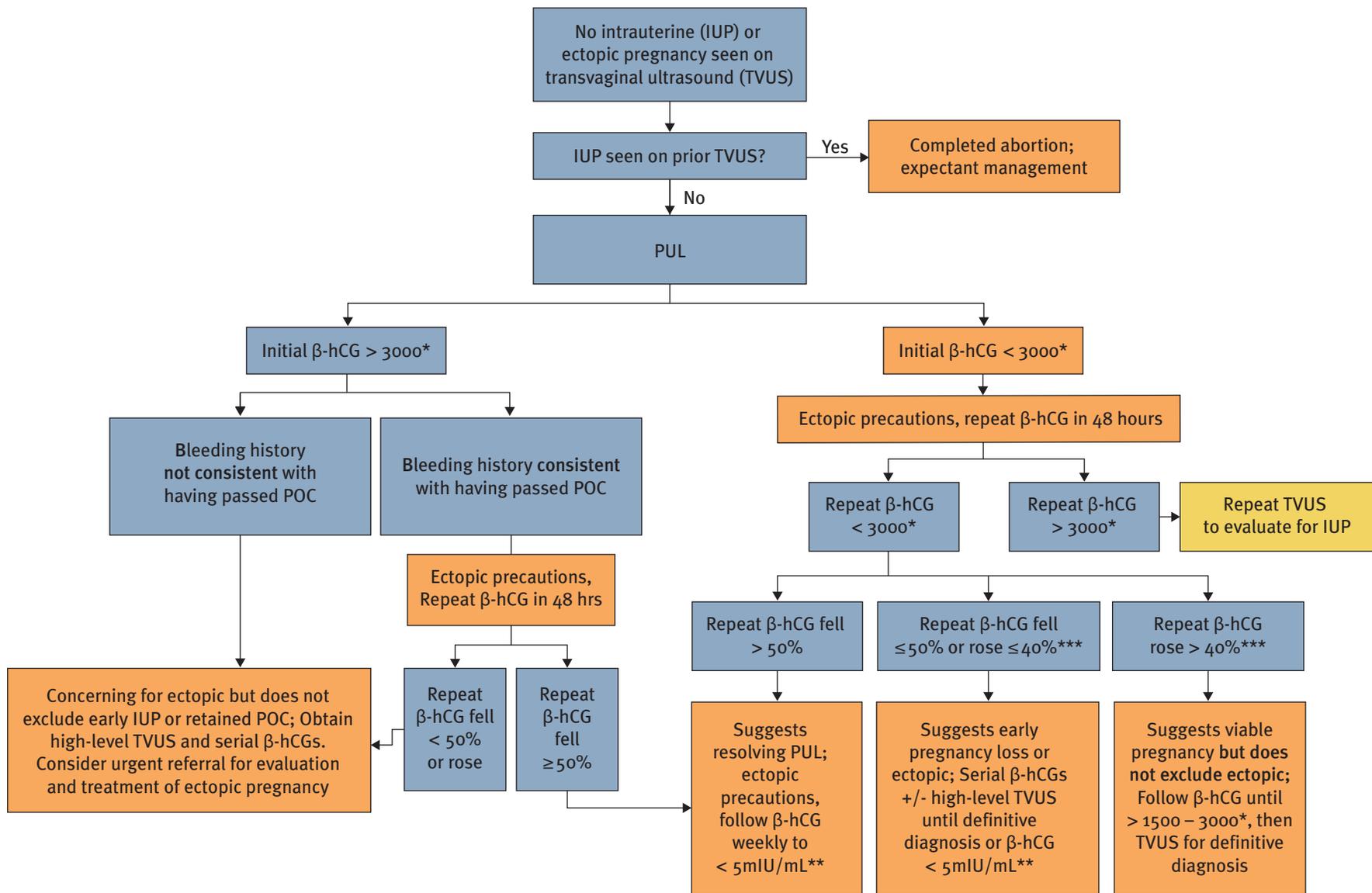


Figure 2. Evaluation of first trimester bleeding in Pregnancy of Unknown Location (PUL)



\* the  $\beta$ -hCG level at which an intrauterine pregnancy should be seen on transvaginal ultrasound is referred to as the discriminatory zone and varies between 1500-3000 mIU depending on the machine, the sonographer, and number of gestations.

\*\*  $\beta$ -hCG needs to be followed to zero only if ectopic pregnancy has not been reliably excluded. If a definitive diagnosis of completed miscarriage has been made, there is no need to follow further  $\beta$ -hCG levels.

\*\*\* In a viable intrauterine pregnancy, there is a 99% chance that the  $\beta$ -hCG will rise by at least 33-49% in 48 hours depending on the initial  $\beta$ -hCG values.