Management Guidelines for Symptomatic 1st trimester Pregnant Patients in the UCSF Emergency Department

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General Goals

1) To promote a standardized workup that is safe, efficient, and provides a high standard of care to patients.
2) To improve ED flow and length of stay.
3) To help bridge the physical gap between the OB-GYN service at Mission Bay and the UCSF/SFGH ED's by promoting consistency in management between services.

Basic workup

All pregnant patients in their first trimester presenting with lower abdominal pain, vaginal bleeding, or both, should undergo the following initial diagnostic workup. If suspicion for non-obstetric pathology exists (e.g. appendicitis, gallbladder disease) additional workup should be undertaken on a case-by-case basis.

1) Quantitative serum beta-hCG
2) Complete blood count
3) T&S for Rh Type (if not already known)
4) Point-of-care transabdominal (TA) and transvaginal (TV) sonogram

Additional Considerations

1) Given the high risk of ectopic/heterotopic gestation and other complications (e.g. ovarian hyperstimulation syndrome, ovarian torsion), any pregnant patient undergoing **assisted reproductive techniques (ART)** should be considered outside the scope of these guidelines. These patients normally require consultation with the Reproductive Endocrine (REI) service and may require an emergent formal sonogram depending on the specific clinical scenario.
2) **Both trans-abdominal and trans-vaginal sonograms are typically required** in order to confidently determine the patient's diagnosis and for determining gestational age and heart rate, if present. Providers may wish to forego a TV sonogram if a living IUP is clearly present on TA images.
3) **Point-of-care US (performed by either ED or OBGYN providers) should be used to rule in an IUP, not rule out ectopic pregnancy.** If ED or GYN providers are unable to confirm a living IUP, a radiology-performed study should be ordered.

4) In many of the scenarios below, in-person OB-GYN consultation is generally not required. **However, providers should be aware that consultation is still available 24/7**, and the decision to consult must be made on a case-by-case basis.
5) **ED providers should use the standardized After-Visit Summary (AVS) patient instructions** (Apex dot-phrases) included at the bottom of this document.

Definitions

Pregnancy of Unknown Location (PUL): Positive pregnancy test with 1) no definite evidence of an IUP and 2) normal adnexa on ultrasound.

Discriminatory Zone: Level of serum beta-hCG above which one would theoretically expect to see evidence of an IUP on TV ultrasound with 100% certainty.

Ectopic Pregnancy: A pregnancy outside of the uterus. 90% are tubal, 10% are cervical, interstitial, ovarian, abdominal, or within a cesarean scar.

Heterotopic Pregnancy: The presence of an IUP and ectopic simultaneously in the same patient. Very rare (<1/6000) in the general population but much more common (1/100) in IVF patients.

*MUA***:** Manual Uterine Aspiration.

SAB: Spontaneous Abortion.

Standard clinical scenarios

After the above *initial* workup is complete, patients will generally fall into one of the categories below:

1) **Confirmed IUP**. *The presence of an intra-uterine gestational sac with a yolk sac, embryo, or both, clearly establishes the diagnosis of IUP.* Care should be taken to ensure that these structures are seen in a normal position inside the uterus to avoid possible confusion with an ectopic. Given the very low risk of heterotopic pregnancy in non-ART patients, clinicians can generally assume that ectopic pregnancy has been ruled out if an IUP is visualized, but should be aware of heterotopic pregnancy as a possibility and arrange for follow-up imaging if this is suspected clinically. For routine cases, however, these patients can be discharged from the ED with routine follow-up. Neither formal ultrasound nor OB consultation is generally required.

2) **Pregnancy of Unknown Location, Likely Early IUP of Unknown Viability**. *The presence of a round or elliptical intrauterine fluid collection with round edges, even without a decidual reaction, yolk sac, or embryo, is likely to*

represent an early IUP, regardless of the quantitative hCG level or gestational age based on LMP. [1-3]. Although historically there has been considerable concern over the possibility that such a finding may be present in cases of ectopic pregnancy, evidence from our own and other institutions suggests that the presence of a true pseudo-gestational sac is far less common (2-3% of symptomatic 1st trimester patients) that previously thought.[4] Unless other findings suggesting an ectopic pregnancy (significant intra-abdominal fluid, adnexal mass, etc) exist, providers should be aware that patients in this category are highly likely to have an IUP. Nonetheless, **a formal ultrasound should be ordered during the patient's ED visit** in order to confirm the findings of the point-of-care sonogram and ensure there are no concerning adnexal findings. Because IUPs at this early gestational age are often only clearly seen on TV images, ED providers should perform a TV sonogram before ordering a formal study, especially after hours. If an IUP is noted, the patient can follow-up as in Scenario #1 above. If no definite evidence of an IUP is noted, these patients need to follow up as an outpatient in 48 hours for a repeat sonogram and serum hCG. In-person OB consultation is generally not required, but ED staff must communicate by phone with the on-call GYN resident in order to ensure that such patients are on the GYN Floater list.

In this scenario, methotrexate should <u>never</u> be given if the pregnancy is desired, regardless of the serum beta-hCG level. [1,3,5] If the pregnancy is not desired, the patient should follow-up with GYN for a TAB. There is no indication for an emergent MUA in this scenario, and thus this procedure should not be performed in the ED. Again, all patients in this scenario must be on the GYN Floater list to ensure proper follow-up.

3) **Confirmed IUP, Non-viable ("Missed Abortion")**. In some cases, intra-uterine embryonic demise will be identified with point-of-care ultrasound. Current diagnostic criteria for this condition include an intact GS with a mean sac diameter of > 25mm without a yolk sac or embryo (anembryonic gestation), an embryo measuring > 7mm without signs of cardiac activity (embryonic demise).[6] *Any such findings should be confirmed by radiology-performed imaging before definitive management is undertaken*. During normal business hours, a formal ultrasound should be ordered in the ED for confirmation. However, because early pregnancy loss is not typically a dangerous or emergent condition, it is safe to defer formal imaging and arrange appropriate outpatient follow-up. Middle of the night radiology-performed ultrasound is not required but can be considered on a case-by-case basis if considerable anxiety over the fate of a highly desired pregnancy exists.

If embryonic/fetal demise is confirmed by formal ultrasound, ED providers should explain the diagnosis to the patient and may wish to briefly discuss available treatment options as noted below. The ED provider should call the GYN resident to arrange follow-up, ideally the next day. In-person

consultation is generally not needed. MUA should not be performed in the ED. Misoprostol can be given by ED providers as discussed below.

4) **Pregnancy of Unknown Location, Likely Miscarriage**. *The presence of heavy vaginal bleeding, crampy lower abdominal pain and/or passage of tissue strongly suggest a spontaneous abortion*. US will generally reveal an empty or nearly empty-appearing uterus in the case of a complete abortion, or areas of mixed echogenicity and debris within endometrial canal in the case of an incomplete abortion. If the patient is found to have a significant amount of intra-abdominal or pelvic free fluid on POC ultrasound, concern should be raised for a ruptured ectopic pregnancy. If the patient is having massive vaginal bleeding and is clinically unstable, providers should be concerned for an unstable, incomplete SAB. In either case, emergent GYN consultation should be undertaken. However, if the patient is stable, it should be emphasized that heavy vaginal bleeding with passage of clots and/or tissue is highly likely to represent a SAB rather than a ruptured ectopic.

   ED providers should perform a thorough exam, including a speculum and bimanual exam to assess the cervix. Any tissue/products of conception at the os should be removed and sent to pathology so that a spontaneous abortion can be confirmed and ectopic definitively excluded. This may also stop the patient's bleeding, if present. ED providers should then communicate with the GYN consultant by phone so that these patients can be added to the GYN Floater list to ensure that the serum beta-hCG is declining, if necessary; i.e. in cases where no definitive evidence of an IUP on a prior sonogram was noted.

   In cases where the diagnosis of miscarriage is clinically obvious, a radiology-performed sonogram is not required, but may be advisable in order to confirm the diagnosis and to quantify any products of conception still in the uterus, which may be helpful when discussing management options (see below). This decision will left to the discretion of providers and should be made on a case-by-case basis.

   In most cases, patients who are actively miscarrying but clinically stable can be treated by ED providers without in-person GYN consultation, however all such patients should have follow-up with GYN to ensure adequate resolution. ED Providers should consider giving misoprostol if confident in the diagnosis (see "Additional notes on Early Pregnancy Loss" below). Methotrexate should not be given to women having a miscarriage. Bleeding precautions should be discussed; if bleeding of > 1 pad/hr persists for more than 4 hours or the patient has signs of significant blood loss (dizziness, nausea, fainting, etc.), the patient should follow-up promptly in the ED or with GYN for further evaluation.

5) **Pregnancy of Unknown Location, Concerning for Possible Unruptured Ectopic.** *The presence of an empty uterus on trans-vaginal ultrasound in*

patients who do not appear clinically to be having a miscarriage is concerning for ectopic pregnancy. This is especially true in patients with a serum hCG of >3000. However, before a definitive diagnosis of ectopic pregnancy is made, clinicians should realize two important points: 1) In rare instances, viable IUP's will not exhibit a visible gestational sac even above this discriminatory zone; [1,5] and 2) A non-viable IUP is still twice as common in this scenario as ectopic.[6] Thus, the absence of an IUP coupled with a beta-hCG above this level does <u>not</u> imply that an ectopic is present. Nonetheless, in the scenario where the uterus appears empty and the serum hCG is above 3000, clinicians should be highly concerned for ectopic pregnancy.

In cases where the uterus appears empty on point-of-care ultrasound, and the patient does not appear clinically to be having a miscarriage, a formal sonogram should be obtained while the patient is still in the ED, *regardless of the serum beta-hCG value*. If there is a high suspicion for ectopic after the radiology-performed ultrasound, definitive treatment should proceed per the GYN service. This may include performing an MUA in the ED to assess for evidence of a failed IUP (chorionic villi, etc) with subsequent administration of MTX if no evidence of this is found. If the ultrasound is inconclusive and the patient is stable, a follow-up visit for a repeat sonogram and beta-hCG should be arranged in 48 hours. All such cases should be discussed with the GYN resident on call to ensure they are on the Floater list.

For women with a PUL, if the serum beta-hCG is very low, an early, normal IUP is still a likely possibility, and the patient should have 48-hour follow-up before additional management is undertaken. However, as mentioned above, current data suggests that in women with a PUL and a beta-hCG >3000, most will have a failed IUP (66%), followed by ectopic pregnancy (33%), followed by viable IUP (0.5%).[6] Given these data, if the pregnancy is not desired, sequential treatment with MUA followed by MTX (if no chorionic villi/trophoblastic tissue is seen on path, or if the beta-hCG does not decline), should proceed. If the pregnancy is desired, additional testing at 48 hrs should be performed before treating for ectopic pregnancy. [6,7]

6) **Likely Ruptured Ectopic.** *Any pregnant patient with hemoperitoneum and no clear evidence of an IUP on ultrasound should be assumed to have a ruptured ectopic pregnancy.* If the patient is unstable, aggressive resuscitation and emergent GYN consultation should be undertaken. In certain cases, if the patient is stable, formal ultrasound should be considered, since occasionally cases of hemorrhagic corpus luteum cysts may mimic this presentation. If the patient is unstable, however, arrangements for immediate operative intervention should be made. Immediate GYN consultation should be requested in all such cases.

Additional notes on Management of Early Pregnancy Loss:

- EPL is common. Between 10-35% of all pregnancies will end spontaneously in the 1st trimester, usually due to chromosomal abnormalities.
- Beyond addressing chronic maternal health conditions, no intervention (bedrest, vitamin or hormone supplementation, etc.) has been shown to prevent miscarriage.
- EPL is not typically a dangerous condition, but is frequently associated with significant emotional distress. Providers should counsel women on the fact that having a miscarriage is not unusual (30% of women will have at least one), is not typically associated with future infertility, and was not the result of something the patient did or did not do during her pregnancy.
- EPL is subdivided into:
    - "Missed" Abortion - a non-viable but clearly intrauterine pregnancy that has not yet passed spontaneously; see diagnostic criteria in #3 above)
    - Incomplete Abortion - some but not all of the products of conception have passed spontaneously, Os is open.
    - Complete Abortion - all or nearly all of the products of conception have passed spontaneously, Os is closed.
- 3 management strategies exist:
    - Expectant
    - Medical (Misoprostol 800mcg vaginally or 600mcg buccal +/- additional buccal dose of 400mcg at 48 hrs)
    - Procedural (MUA).
- Data from a large RCT that included women with both missed and incomplete SABs suggest that the rate of infection or other significant complication is reassuringly low (<3%) and not different between each of the above management strategies.[8] Because mental health outcomes are better when women feel they have a choice, patient preference should guide therapy in most cases.[9]
- For women with a Missed Abortion, although expectant management is successful in 70% of cases, some data suggest a higher incidence of subsequent unplanned ED and clinic visits for bleeding. Thus, misoprostol (OK if gestational age <10 weeks) or MUA is often preferred, but is not required. Neither of these interventions need to be undertaken in the ED; such patients should have prompt follow-up as described in Scenario #3 above.
- For women with an Incomplete SAB, expectant management is effective in 90% or more of cases and thus is a reasonable first line strategy,[10] though providing misoprostol will hasten the resolution of symptoms and should be strongly considered in this scenario if the diagnosis is clear; i.e. in women with a rapidly declining beta-hCG and/or who had a confirmed IUP on prior ultrasound who now have only debris/retained POC on current ultrasound, along with a consistent clinical picture (passage of blood/tissue).

- Women with a Complete SAB do not require any specific treatment. However, follow-up should still be arranged to provide counseling regarding etiology as well as future conception/family planning.
- Regardless of the treatment, precautions regarding retained products of conception, bleeding, and infection should always be discussed.

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3. Doubilet PM, Benson CB. First, do no harm... to early pregnancies. J Ultrasound Med 2010;29(5):685–9.

4. Benson CB, Doubilet PM, Peters HE, Frates MC. Intrauterine fluid with ectopic pregnancy: a reappraisal. J Ultrasound Med 2013;32(3):389–93.

5. Doubilet PM, Benson CB. Further evidence against the reliability of the human chorionic gonadotropin discriminatory level. J Ultrasound Med 2011;30(12):1637–42.

6. Doubilet PM, Benson CB, Bourne T, et al. Diagnostic criteria for nonviable pregnancy early in the first trimester. N Engl J Med 2013;369(15):1443–51.

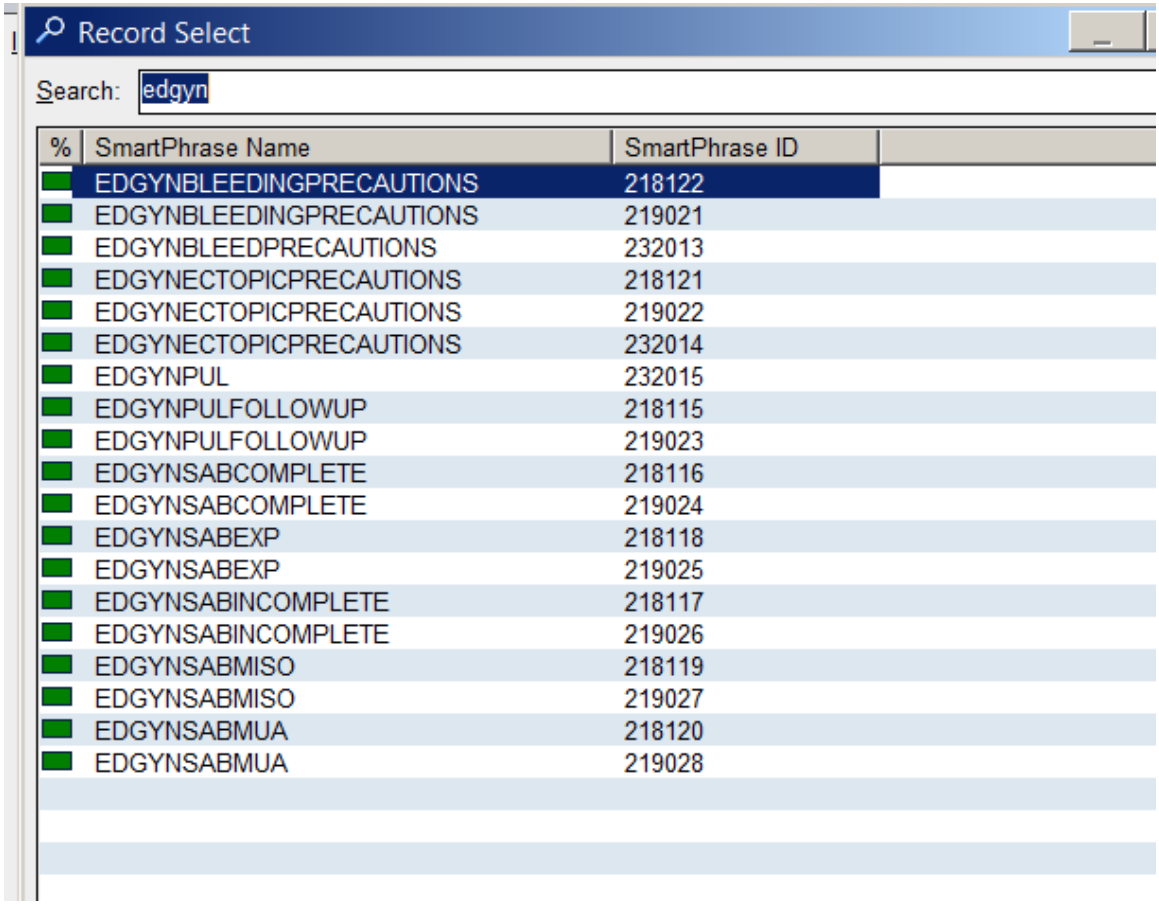
7. Barnhart KT. Clinical practice. Ectopic pregnancy. N Engl J Med 2009;361(4):379–87.

8. Trinder J, Brocklehurst P, Porter R, Read M, Vyas S, Smith L. Management of miscarriage: expectant, medical, or surgical? Results of randomised controlled trial (miscarriage treatment (MIST) trial). BMJ 2006;332(7552):1235–40.

9. LINDA W PRINE HM. Office Management of Early Pregnancy Loss. 2011;:1–8.

10. Luise C, Jermy K, May C, Costello G, Collins WP, Bourne TH. Outcome of expectant management of spontaneous first trimester miscarriage: observational study. BMJ 2002;324(7342):873–5.

Standardized AVS Patient Instructions



Early IUP (.edgyniupfollowup)

While you were in the emergency department, we confirmed that you have an early pregnancy inside the uterus, or womb. It is too early to tell whether this pregnancy will develop normally, but we know that you do NOT have an ectopic pregnancy (a pregnancy outside the uterus which may be life-threatening).

Based on your ultrasound, your due date is ***.

You should return to the emergency department if:

- you have bleeding >2 soaked pads/hour for 4 hours
- you feel dizzy or lightheaded because of your bleeding

- you have pain that cannot be controlled with acetaminophen (Tylenol)
- you have nausea and vomiting and are unable to keep anything down

If you are concerned or have questions, you can reach a doctor 24-hours at 415-885-7788, and ask to speak with the gynecologist on call.

If this is a pregnancy you are planning to continue, and would like to establish prenatal care at UCSF or SFGH, you can make an appointment at the following numbers:

Obstetrics Services at Parnassus
400 Parnassus Ave., Floor B1, Suite A-096
San Francisco, CA 94143
Phone: (415) 353-2566
Fax: (415) 353-2496

San Francisco General Hospital

1001 Potrero Avenue

San Francisco, CA 94110

(415) 206-3409

If this is not a pregnancy you are planning to continue and you would like to schedule a termination, or you would like to schedule an appointment for counseling about your options in this pregnancy, you can make an appointment at the following numbers:

Women's Options Center
2356 Sutter St.
San Francisco, CA 94143-1648
Phone: (415) 353-7003
Fax: (415) 353-9605

Women's Options Center

San Francisco General Hospital

1001 Potrero Avenue

San Francisco, CA

(415) 206-8476

Pregnancy of Unknown Location (.edgynpulfollowup)

While you were in the emergency department, we confirmed that you are pregnant, but were not able to see your pregnancy on an ultrasound. This means that your pregnancy is either...

... a very early, normal pregnancy in the uterus, or womb,

... a very early miscarriage, or an abnormal pregnancy in the uterus, or womb, that has not yet passed, or

... a pregnancy in the tube or near the ovary, which can cause bleeding that can be life threatening.

In order to determine which of these is happening you will need to have another lab test to measure your pregnancy hormone (beta-HCG) in 48 hours (on *** at *** AM/PM) and another ultrasound (on *** at *** AM/PM). If you do not yet have an appointment for the ultrasound, you will be contacted by the Gynecology Service regarding that appointment in the next 24 hours. If you do not receive a call, please call 415-885-7788, and ask to speak with the gynecologist on call.

Until your appointment, you should return to the emergency department if:

- you have pain that cannot be controlled with acetaminophen (Tylenol)
- you have bleeding >2 soaked pads/hour for 4 hours
- you feel dizzy or lightheaded because of your bleeding
- you have nausea and vomiting and are unable to keep anything down

If this is not a pregnancy you are planning to continue, please let the Gynecology Service know. You will still need to have some additional lab tests, and possibly additional ultrasounds, but you may schedule a termination (either with medication or a procedure), or an appointment for counseling about your options in this pregnancy at the following numbers:

Women's Options Center
2356 Sutter St.
San Francisco, CA 94143-1648
Phone: (415) 353-7003
Fax: (415) 353-9605

Women's Options Center

San Francisco General Hospital

1001 Potrero Avenue

San Francisco, CA

If you are concerned or have questions, you can reach a doctor 24-hours at 415-885-7788, and ask to speak with the gynecologist on call.

Completed SAB (.edgynsabcomplete)

While you were in the emergency department, we confirmed that you were pregnant, but had a miscarriage. This means that the pregnancy was abnormal and could not grow and develop. Many women feel grief and sadness after losing a pregnancy, which is a normal reaction, although it is also normal to feel relief or nothing at all. It is important to remember that there is nothing that you could have done differently to change the outcome of this pregnancy - most miscarriages are caused by genetic problems with the pregnancy that are unrelated to the ability of either parent to have a healthy, normal pregnancy.

Based on your ultrasound and your bleeding, all of the tissue has passed from the uterus, or womb. Because the tissue has passed, your bleeding should slow down significantly, and will likely stop within the next few weeks. You should expect your menses to return in about 4-6 weeks. If it does not, take a home pregnancy test and call the gynecologist.

You are not required to have a follow-up doctor's appointment, but if you would like to discuss this pregnancy loss with a gynecologist, or have questions or concerns about getting pregnant in the future, please call 415-885-7788 to schedule an appointment. Also plan to call or schedule an appointment if this pregnancy was unplanned and you would like to consider birth control options.

You should return to the emergency department if:

- you have bleeding >2 soaked pads/hour for four hours
- you feel dizzy or lightheaded because of your bleeding
- you have pain that cannot be controlled with acetaminophen (Tylenol)
- you have nausea and vomiting and are unable to keep anything down

If you are concerned or have questions, you can reach a doctor 24-hours at 415-885-7788, and ask to speak with the gynecologist on call.

Incomplete SAB (.edgynsabincomplete)

While you were in the emergency department, we confirmed that you were

pregnant, but are having a miscarriage. This means that the pregnancy was abnormal and could not grow. Many women feel grief and sadness after losing a pregnancy, which is a normal reaction, although it is also normal to feel relief or nothing at all. It is important to remember that there is nothing that you could have done differently to change the outcome of this pregnancy - most miscarriages are caused by genetic problems with the pregnancy that are unrelated to the ability of either parent to have a healthy, normal pregnancy.

Based on your ultrasound and your bleeding, not all of the tissue has passed from the uterus, or womb. We discussed waiting for the tissue to pass on its own (expectant management), using medicine (misoprostol), or having a procedure (manual uterine aspiration) to remove the tissue. Instructions on one of more of these strategies is included below.

insert specific guidance here

You should return to the emergency department if:

- you have bleeding >2 soaked pads/hour for four hours
- you feel dizzy or lightheaded because of your bleeding
- you have pain that cannot be controlled with acetaminophen (Tylenol)
- you have nausea and vomiting and are unable to keep anything down
- you have fevers and lower abdominal pain

If you are concerned or have questions, you can reach a doctor 24-hours at 415-885-7788, and ask to speak with the gynecologist on call.

.edgynsabexp

While you are passing the pregnancy tissue, we expect that your bleeding may be heavier than a heavy period. You may pass tissue that looks like meat, which is normal. After this, your bleeding should get lighter and stop within the next few weeks. You are not required to have a follow-up doctor's appointment, but if you would like to discuss this pregnancy loss with a gynecologist, or have questions or concerns about getting pregnant in the future, please call 415-885-7788 to schedule an appointment. To ensure the pregnancy tissue is completely gone, you should do a home pregnancy test in 4 weeks after your miscarriage. If it is positive, you should call the number above. You should expect your period to return in 4-6 weeks. Also plan to call or schedule an

appointment if this pregnancy was unplanned and you would like to consider birth control options.

.edgynsabmiso

Since the pregnancy tissue has not started to pass on its own, the misoprostol will help your uterus, or womb, to cramp and pass the pregnancy tissue. When this happens we expect that your bleeding may be heavier than a heavy period. You may pass tissue that looks like hamburger, which is normal. After this, your bleeding should get lighter and stop within the next few weeks. You are not required to have a follow-up doctor's appointment, but if you would like to discuss this pregnancy loss with a gynecologist, or have questions or concerns about getting pregnant in the future, please call 415-885-7788 to schedule an appointment. To ensure the pregnancy tissue is completely gone, you should do a home pregnancy test in 4 weeks after your miscarriage. If it is positive, you should call the number above. You should expect your period to return in 4-6 weeks. Also plan to call or schedule an appointment if this pregnancy was unplanned and you would like to consider birth control options.

.edgynsabmua

Since the pregnancy tissue has not started to pass on its own, the manual uterine aspiration will remove all of the tissue. You should call one of the following two numbers to schedule your procedure, depending on where you would like to receive your care:

Women's Options Center
2356 Sutter St.
San Francisco, CA 94143-1648
Phone: (415) 353-7003
Fax: (415) 353-9605

Women's Options Center

San Francisco General Hospital

1001 Potrero Avenue

San Francisco, CA

(415) 206-8476

After the procedure, you may have light bleeding, and it should stop within the next few weeks. You are not required to have a follow-up doctor's appointment, but if you would like to discuss this pregnancy loss with a gynecologist, or have

questions or concerns about getting pregnant in the future, please call 415-885-7788 to schedule an appointment.

.edgynectopicprecautions

Until your appointment or follow-up ultrasound, you should return to the emergency department if:

- you have pain in your abdomen that cannot be controlled with acetaminophen (Tylenol)
- you have bleeding >2 soaked pads/hour for four hours
- you feel dizzy or lightheaded because of your bleeding
- you have nausea and vomiting and are unable to keep anything down

If you are concerned or have questions, you can reach a doctor 24-hours at 415-885-7788, and ask to speak with the gynecologist on call.

.edgynbleedingprecautions

Until your appointment or follow-up ultrasound, you should return to the emergency department if:

- you have bleeding >2 soaked pads/hour for four hours
- you feel dizzy or lightheaded because of your bleeding
- you have pain that cannot be controlled with acetaminophen (Tylenol)
- you have nausea and vomiting and are unable to keep anything down

If you are concerned or have questions, you can reach a doctor 24-hours at 415-885-7788, and ask to speak with the gynecologist on call.