JOHNS HOPKINS ALL CHILDREN'S HOSPITAL

Abnormal Uterine Bleeding Clinical Pathway

JOHNS HOPKINS
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Rationale

This protocol was developed by a consensus group of ACH-JHM hospitalists, hematologist/oncologists, emergency center physician assistants as well as obstetricians/gynecologists in an effort to standardize the management of children with abnormal uterine bleeding. It addresses several clinical questions and problems, including: classification, differential, hospitalization criteria, work-up, medical management and recommendations for long-term care.

Background

Abnormal Uterine Bleeding (AUB) is defined as bleeding from the uterine corpus that is abnormal in regularity, volume, frequency and/or duration in the absence of pregnancy. According to the American College of Obstetrics and Gynecologists (ACOG), a normal menstrual cycle occurs every 24 to 38 days with up to eight days of bleeding[1]. AUB can be chronic (lasting longer than six months), acute, or an acute episode in the setting of chronic bleeding. The average amount of menstrual blood loss is 30 to 40 mL. A loss greater than 80 mL is considered to be abnormal and pathologic[9].

Classification

Classification of abnormal uterine bleeding can range from mild to severe. Mild AUB is defined as menses that are slightly prolonged with modest increase in flow, or cycles that are increased in frequency, for greater than 2 months duration. Hemoglobin (Hgb) levels and vital signs are normal in these patients (Hgb >11g/dl). Moderate AUB is defined as menses that are moderately prolonged with flow that is moderate to heavy. Cycles are frequent, occurring every 1-3 weeks and often lasting greater than seven days. Patients may present with mild anemia, but are typically asymptomatic. (Hgb 9-11 g/dl). Severe AUB is defined as menses that are significantly prolonged with substantial flow, to the degree where normal cycles are disturbed. Vital signs can be affected. Anemia is typically present, with hemoglobin levels often less than 9 g/dL.[3]

Differential

The differential for abnormal uterine bleeding is expansive. Therefore, a thorough history and physical examination is imperative. Etiologies can be classified as “related to uterine structural abnormalities” and “unrelated to uterine structural abnormalities.” They are categorized with the acronym **PALM-COEIN**: Polyp, Adenomyosis, Leiomyoma, Malignancy and hyperplasia, Coagulopathy, Ovulatory dysfunction, Endometrial, Iatrogenic, and Not otherwise classified.[10] Clinical concern for complications of pregnancy and/or infections, including those that are sexually transmitted, warrant prompt investigation.[3] Differential diagnosis includes anovulation (the most common cause of AUB), complications of pregnancy, infections such as pelvic inflammatory disease, bleeding disorders such as idiopathic thrombocytopenic purpura and von Willebrand disease (up to 13%), systemic diseases such as systemic lupus erythematosus, endocrine etiologies such as hypo/hyperthyroidism and polycystic ovarian syndrome, eating disorder or weight changes, oncologic mass, retained foreign body, vaginal trauma, medication side effects and anatomic abnormalities.[3]

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EC and Inpatient Abnormal Uterine Bleeding Algorithm

Mild AUB

Menses are slightly prolonged w/ modest increase in flow or cycles that are increased in frequency for greater than 2 months duration.

Hgb usually greater than 11g/dl.

Work up

Orthostatic vital signs
CBC if the patient has signs or symptoms of anemia
Urine pregnancy test.
STD testing and Pelvic/Bimanual Exam, if sexually active.
Pelvic US

Does Not Meet Admission Criteria

See Management Below

See Discharge Planning Below

Moderate AUB

Menses are moderately prolonged, flow is moderate to heavy. Cycles are frequent, occurring every 1-3 weeks, often lasting > 7 days.

May have mild anemia but are typically asymptomatic.

Hgb usually 9-11g/dl.

Work-Up

Obtain the following labs *PRIOR* to transfusion or receipt of estrogen: CBC, PT, PTT, von Willebrand diagnostic evaluation, type and screen, Ferritin level, Iron level, TIBC transferrin saturation, reticulocyte level, fibrinogen level

Other Labs to Consider:
TSH, T4, serum prolactin, LH, FSH and serum free testosterone

Orthostatic vital signs
Urine pregnancy test.
STD testing, if sexually active.
Pelvic/Bimanual Exam
Consider Pelvic US

Criteria for Admission

(1) Hemoglobin <8 gm/dl.
(2) Patients who are orthostatic.
(3) Heavy bleeding & Hg < 10.
(4) Hemoglobin between 8 and 10 and unsure of timely follow-up.

Severe AUB

Menses are significantly prolonged w/ substantial flow, normal cycles are disturbed.

Anemia is typically present.

Hgb usually less than 9g/dl.

Work-Up

***IF STABLE* obtain the following labs *PRIOR* to transfusion or receipt of estrogen:** CBC, PT, PTT, von Willebrand diagnostic evaluation, type and screen, Ferritin level, Iron level, TIBC transferrin saturation, reticulocyte level, fibrinogen level

Other Labs to Consider:
TSH, T4, serum prolactin, LH, FSH and serum free testosterone

Orthostatic vital signs
Urine pregnancy test.
STD testing, if sexually active.
Pelvic/Bimanual Exam
Consider Pelvic US

Meets Admission Criteria

Contact Hospitalist for admission

Moderate AUB: Observation Status
Severe AUB: Inpatient Status

See Management in the Moderate to Severe AUB Algorithm

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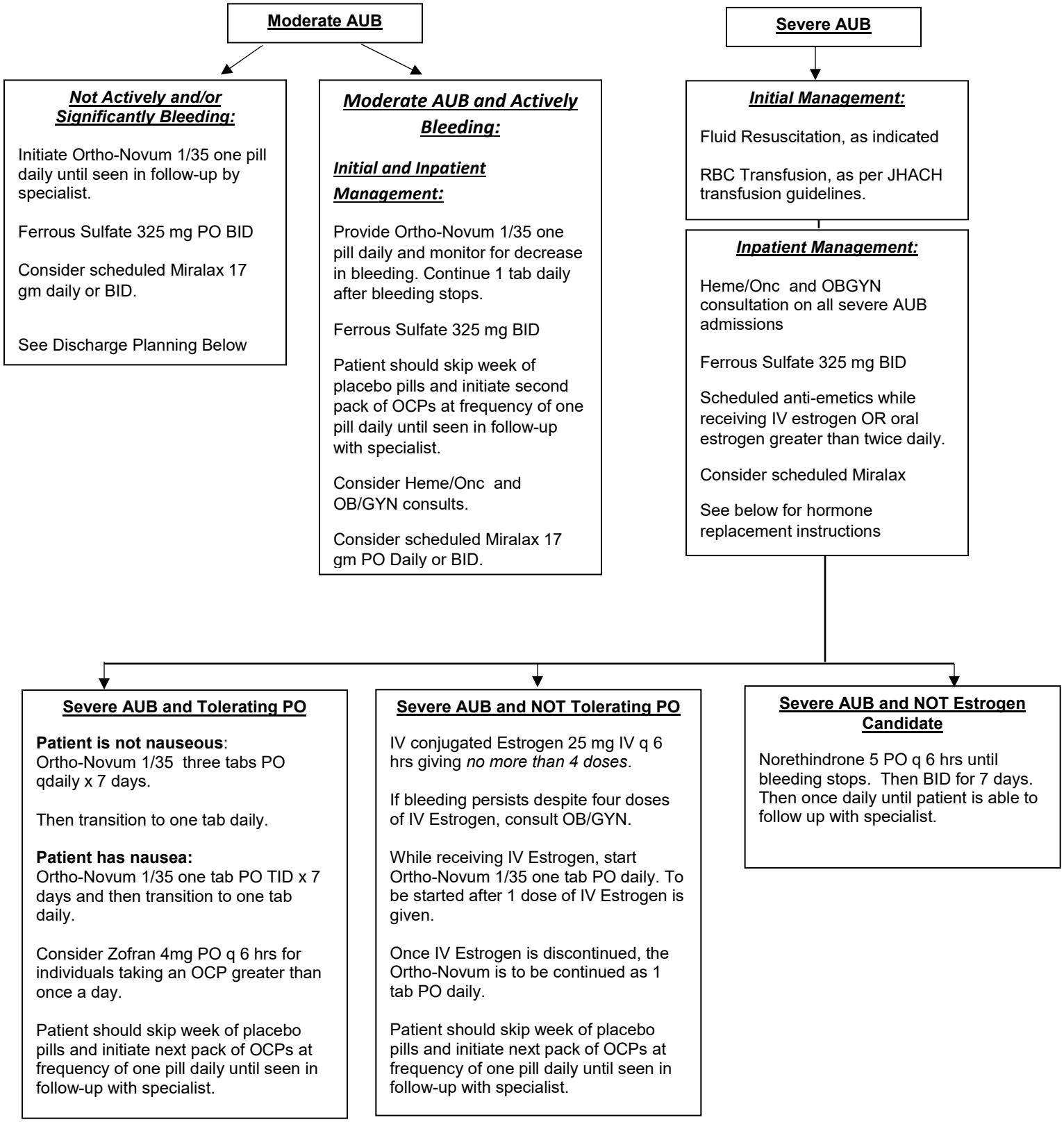
Moderate to Severe Abnormal Uterine Bleeding Algorithm



Hospitalization Criteria

(1) Hemoglobin <8 gm/dl.
(2) Patients who are orthostatic.
(3) Heavy bleeding and hemoglobin < 10.
(4) Hemoglobin between 8 and 10 and unsure of timely follow-up.[3]

Abnormal Uterine Bleeding (AUB) Workup

For mild abnormal uterine bleeding, orthostatic vital signs should be performed.[3] If the patient is showing signs or symptoms or anemia, a CBC should be obtained.

Pelvic exam should be performed to visualize the cervix, evaluate for foreign body and/or alternative sources of bleeding. A bimanual exam is useful in assessing for masses as well as in evaluating the uterus and adnexa and is therefore recommended.[3] In virginal patients or those with excessive bleeding, an external genital examination is an acceptable alternative.[3] [Evidence Level 5 Local Consensus, Recommended].

A pelvic ultrasound should be performed. Transabdominal ultrasound is appropriate unless the patient has a history of sexual activity, in which case a transvaginal ultrasound may be performed. A transabdominal ultrasound is an acceptable alternative in virginal patients or those with excessive bleeding.[3]

A urine pregnancy test should be obtained. Any patient with a history of sexual activity and/or in whom sexual activity is suspected, *N. gonorrhoeae* and *C. trachomatis* NAATs are recommended. Additional STI testing should also be considered.[3]

For patients with moderate and severe AUB, the following laboratory studies should be obtained ***prior*** to transfusion or receipt of estrogen: CBC, type and cross (as indicated), PT, PTT, Iron level, transferrin saturation, ferritin level, reticulocyte count, fibrinogen level, and Von Willebrand diagnostic evaluation. The Von Willebrand panel will include testing for Von Willebrand Disease as well as factor VIII activity level. Please note the Von Willebrand panel can be obtained 7 days after estrogen products are discontinued if unable to obtain prior to starting.

TSH and T4 should be obtained if history is concerning for thyroid dysfunction. Serum prolactin, LH, FSH and serum free testosterone are recommended in patients with chronic history of AUB and exhibit acne or hirsutism on exam.[3]

Mild Abnormal Uterine Bleeding Clinical Management

Patients with mild AUB should receive Ferrous Sulfate 325 PO mg BID in an effort to prevent anemia. [3]

Long-term management and follow-up care are imperative in AUB patients. Please see Discharge Planning, Outpatient Management, and Follow-Up below.

Moderate Abnormal Uterine Bleeding Clinical Management

Hematology/Oncology and OB/GYN consultation should be obtained as needed. [Evidence Level 5 Local Consensus, Recommended].

Patients should receive Ferrous Sulfate 325 mg PO BID.[3]

For patients with mild anemia and not actively and/or significantly bleeding:

Initiate Ortho-Novum 1/35, one pill daily.[3] Patient should skip week of placebo pills and initiate second pack of OCPs at frequency of one pill daily until seen in follow-up with specialist. It is also recommended the patient not require admission for treatment. [Evidence Level 5 Local Consensus, Recommended].

Patients with moderate bleeding at time of presentation:

Provide Ortho-Novum 1/35, one pill daily and monitor until bleeding stops. Continue 1 tab daily for 21 days until seen in follow-up with specialist. [Evidence Level 5 Local Consensus, Recommended]. It is important to counsel patient and families regarding “active” vs “placebo” birth control pills as well. [3]

Special Consideration: In patients that cannot take estrogen (arterial or venous thromboembolic disease, hepatic dysfunction or disease): start Medroxyprogesterone 5-10 mg PO once daily until follow up with specialist.

Severe Abnormal Uterine Bleeding Clinical Management

Inpatient Hematology/Oncology consultation as well as an OB/GYN consultation are recommended in severe AUB patients. [Evidence Level 5 Local Consensus, Recommended].

Initial management includes fluid resuscitation and pure RBC transfusion, as per ACH JHM transfusion guideline.[3]

If the patient is tolerating oral intake and not nauseous: Initiate Ortho-Novum 1/35 three tabs PO daily x 7 days. Then transition to one tab daily until follow up with OB/GYN[3] If the patient is able to take oral intake but having some nausea, initiate Ortho-Novum 1/35 one tab TID x 7 days, and then transition to one tab daily until they follow up with OB/GYN. The patient should skip the week of placebo pills and initiate the next pack of OCPs at a frequency of one pill daily until seen in follow-up with specialist. [Evidence Level 5 Local Consensus, Recommended].

Patients should receive Ferrous Sulfate 325 mg PO BID.

Consider giving Zofran 4 mg ODT as needed for nausea for patients receiving IV estrogen or in patients receiving OCPs more than twice daily. Additionally, thought should be given to scheduled Miralax for constipation prophylaxis.[3]

If unable to tolerate PO:
Initiate IV conjugated estrogen 25 mg IV every 6 hours giving *no more than 4 doses*. If bleeding persists despite four doses of IV estrogen, consult OB/GYN. [Evidence Level 5 Local Consensus, Recommended]

While receiving IV estrogen it is important to initiate oral contraceptives as a means of providing progestin. This is done in an effort to stabilize the endometrium and prevent withdrawal bleeding once IV estrogen is discontinued. Therefore, it is recommended that ***while*** receiving IV estrogen, (after the first dose) patients be started on Ethinyl Estradiol 35mcg and Norethindrone 1 mg (Ortho-Novum 1/35) one tab by mouth daily.[3] Patient should skip week of placebo pills and initiate next pack of OCPs at frequency of one pill daily until seen in follow-up with specialist. [Evidence Level 5 Local Consensus, Recommended].

Special Considerations

In patients that cannot take estrogen (arterial or venous thromboembolic disease, hepatic dysfunction or disease): start Norethindrone 5 PO every 6 hours until bleeding stops. Then transition Norethindrone to 5 mg PO BID x 7 days. Then once daily until follow up.

Discharge

Patients should be considered for discharge when hemoglobin and bleeding have stabilized and orthostatic vital signs are normal. The above regimen of OCP treatment should continue until follow up with a primary physician, gynecologist or the Menorrhagia clinic. Patients should call for follow up in the ACH Menorrhagia/AUB clinic where they will be seen by Dr. Irmel Ayala of ACH Hematology/Oncology and Dr. Jasmine Reese of ACH Adolescent and Young Adult Medicine. Provide the family with AUB Discharge Instructions and encourage them to keep a menstrual calendar or chart to bring to their outpatient appointments. Provide Ortho-Novum 1/35 mcg tablet prescription to take as directed, dispense quantity 3 packs with 3 refills. Please include a diagnosis of Abnormal Uterine Bleeding for the pharmacy staff to avoid authorization issues. If possible, send the prescription to the ACH pharmacy prior to discharge to assure that any insurance or prior authorization issues can be addressed. Additionally, provide a prescription for ferrous sulfate 325 mg PO BID for 90 days. If oral tablet ferrous sulfate cannot be taken, liquid equivalent generic can be substituted. Ferrous Sulfate with 65 mg of elemental iron is preferred over multivitamins that include iron. Lastly consider prescriptions for constipation prophylaxis or treatment with the iron and anti-emetics for the OCP's.

Discharge Planning, Outpatient Management and Follow Up:

1. Follow-up with PCP in 1-2 days.
2. All patients, regardless of severity, are to follow-up in the ACH Menorrhagia/AUB Clinic where they will be seen by both Dr. Reese of Adolescent and Young Adult Medicine and Dr. Ayala of ACH Heme/Onc. Please utilize the Physician Access Line (PAL) to arrange outpatient follow-up within 2-4 weeks of hospital discharge. Be sure to request the ACH Menorrragia/AUB Clinic in your notation to the Physician Access Line. Alternatively, patients can follow up with Dr. Ayala in the Hematology clinic depending on availability.
5. If indicated, please utilize the Physician Access Line to arrange follow-up with Endocrine within 2-4 weeks.
6. Provide patient/family with AUB Discharge Instructions prior to discharge.
7. Patient is to keep menstrual calendar and bring to outpatient appointments.
8. Provide Ortho-Novum 1/35 mcg tab prescription.
    - Dispense: 3 packs
    - Directions: “As directed”
    - Refills: 6
    - Under “Special Instructions” please include notation of "See depart instructions for AUB weaning schedule." Alternatively, physicians may elect to copy and paste the weaning schedule here, as character limits allow.
    - Under “Note to Pharmacist” please include notation of "Diagnosis: AUB" as means of alerting the pharmacist to use the ICD10 code for AUB to avoid problems with authorization and/or subsequent refills.
    - Prescription should be sent to ACH Pharmacy to assure that any insurance or authorization issues are addressed prior to discharge.
9. Provide prescription for Ferrous Sulfate 325 mg PO BID x 90 days. All prescriptions should be sent to ACH Pharmacy so insurance and authorization issues may be addressed prior to discharge. Counsel patient/family that patient will likely require supplementation for several months.
10. Consider prescription for constipation prophylaxis. All prescriptions should be sent to ACH Pharmacy so insurance and authorization issues may be addressed prior to discharge.
11. Consider prescription for anti-emetic in patient’s receiving OCPs more than twice daily. All prescriptions should be sent to ACH Pharmacy so insurance and authorization issues may be addressed prior to discharge.

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Outcome Measures

- Length of Stay
- Time to specialist follow up
- Percent of patients who follow up with one of our specialists after initial visit

Clinical Pathway Team

Abnormal Uterine Bleeding Clinical Pathway

Johns Hopkins All Children's Hospital

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Also Reviewed by:

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Disclaimer

Clinical Pathways are intended to assist physicians, physician assistants, nurse practitioners and other health care providers in clinical decision-making by describing a range of generally acceptable approaches for the diagnosis, management, or prevention of specific diseases or conditions. The ultimate judgment regarding care of a particular patient must be made by the physician in light of the individual circumstances presented by the patient.

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Appendix A:

Abnormal Uterine Bleeding Patient Discharge Instructions

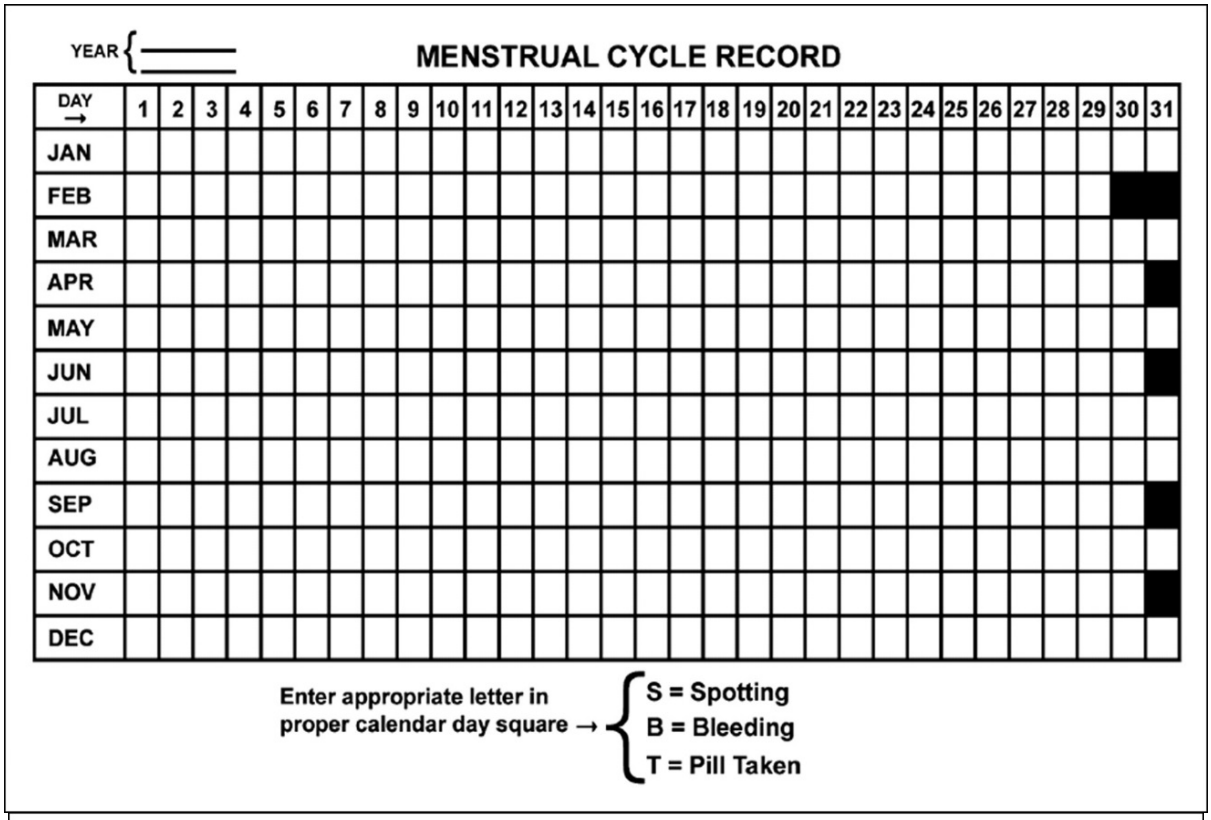
1) Please keep track of your bleeding using the calendar below. Bring this with you when you see OB/GYN after you leave the hospital.

2) Birth Control Pills
   a) Continue to take your birth control pills when you leave the hospital.
   b) Follow the schedule you are given until you see OB/GYN after you leave the hospital.
   c) Do not take the week of inactive birth control pills. Instead, start a new pack of birth control pills and continue to follow the schedule given to you until you see OB/GYN after you leave the hospital.
   d) Bleeding or "spotting" can happen when you go from taking birth control pills twice a day to once a day.
   e) Birth control pills can cause headache or upset stomach. If you were given Zofran® (ondansetron) you may take it before you take your birth control pills to help with upset stomach.
   f) It is important to not run out of birth control pills. If you are going to run out, call the OB/GYN office at the telephone number below.
   g) Call the OB/GYN office at the telephone number below if you have questions on how to take your birth control pills, if you have bleeding or other questions or before you stop your birth control pills for any reason.

3) Iron (Ferrous Sulfate)
   a) Continue to take your iron pills twice a day after you leave the hospital.
   b) You may need to take iron for several months or longer.
   c) It is important to not run out of iron pills. If you are going to run out of iron pills call the OB/GYN office or Hematology clinic.
   d) Iron can cause constipation. If this happens, take one cap of MiraLAX® (polyethylene glycol 3350) one or two times a day. If this does not help, call your doctor.
   e) Iron pills can cause upset stomach or dark stools. If you have an upset stomach when taking iron, try to take it with orange juice or food.
   f) Call the OB/GYN office at the telephone number below if you have questions about your iron pills or before you stop your iron pills for any reason.

<u>Follow-Up</u>

1. See your Pediatrician within one or two days after leaving the hospital.
2. Follow-up in the Hematology clinic or in the Johns Hopkins All Children's Menorrhagia/Abnormal Uterine Bleeding Clinic as scheduled, typically within 2-4 weeks of leaving the hospital. In this clinic you will see Dr. Jasmine Reese of ACH Adolescent and Young Adult Medicine as well as Dr. Ayala of ACH Hematology/Oncology.


YEAR
MENSTRUAL CYCLE RECORD
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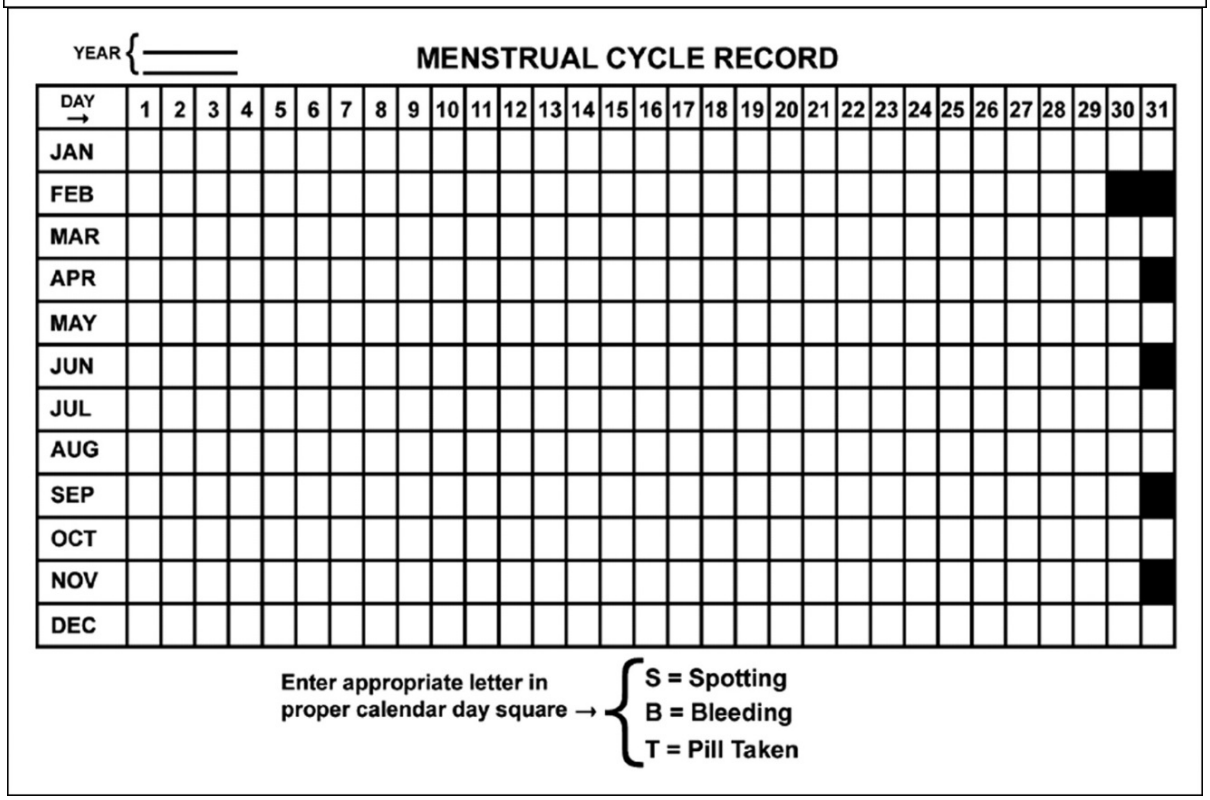
B = Bleeding
T = Pill Taken


YEAR
MENSTRUAL CYCLE RECORD
DAY →
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DEC
Enter appropriate letter in proper calendar day square →
S = Spotting
B = Bleeding
T = Pill Taken