

JOHNS HOPKINS ALL CHILDREN'S HOSPITAL

Abnormal Uterine Bleeding Clinical Pathway

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This pathway is intended as a guide for physicians, physician assistants, nurse practitioners and other healthcare providers. It should be adapted to the care of specific patient based on the patient's individualized circumstances and the practitioner's professional judgment.

Abnormal Uterine Bleeding Clinical Pathway

Rationale

This clinical pathway was developed by a consensus group of Johns Hopkins All Children's Hospital (JHACH)-Johns Hopkins Medicine (JHM) Hospitalists, Hematologists/Oncologists (Heme/Onc), Emergency Center (EC) providers, and Obstetricians/Gynecologists (OB/GYN) 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 [Cowan]. 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 [Hallberg].

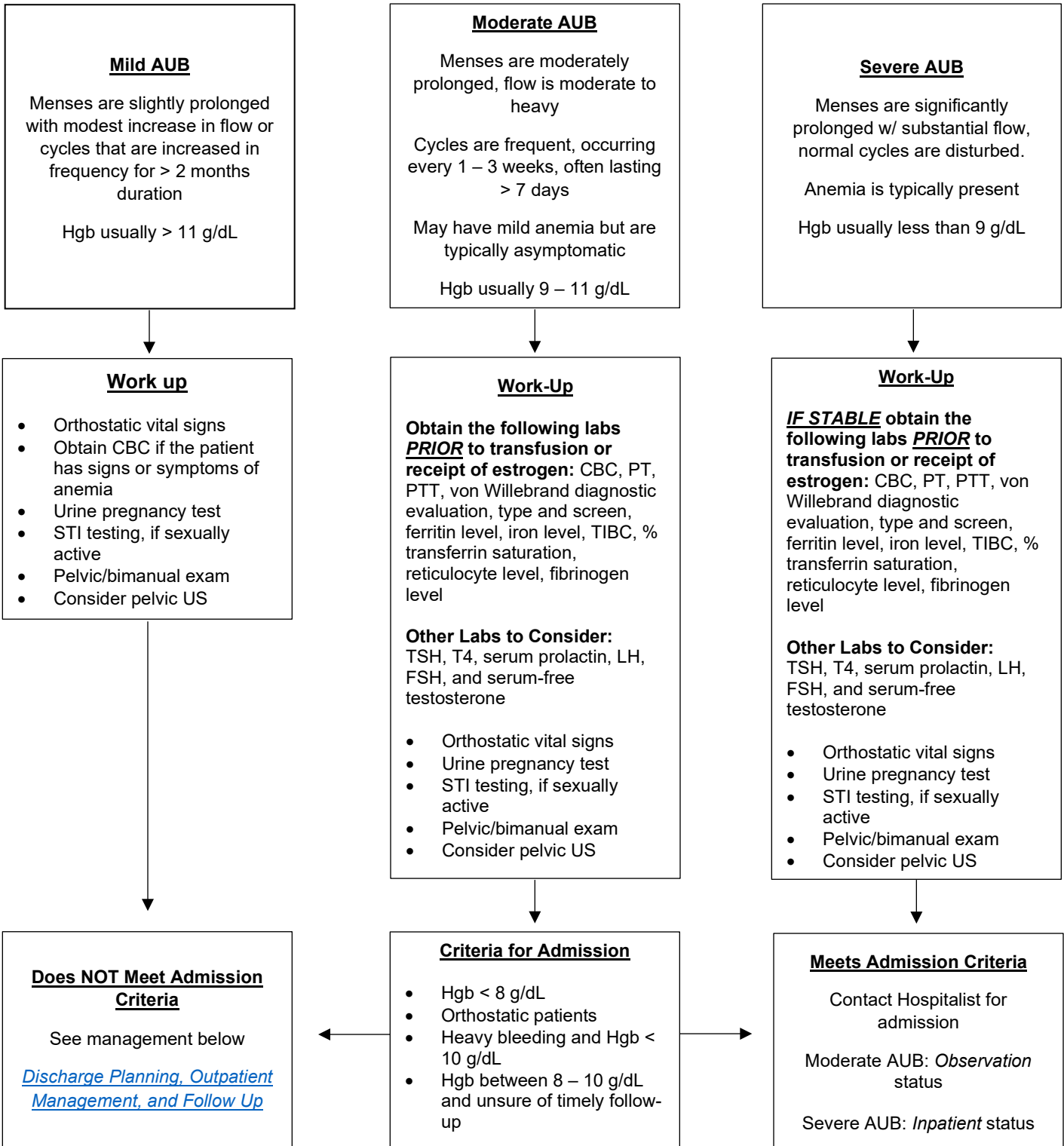
Classification of abnormal uterine bleeding: [Emans]

- Mild: menses that are slightly prolonged with a modest increase in flow or cycles that are increased in frequency for > 2 months duration. Hemoglobin (Hgb) levels are > 11 g/dL and vital signs are normal in these patients.
- Moderate: moderately prolonged menses with a moderate to heavy flow. Cycles are frequent, occurring every 1 – 3 weeks and often lasting > 7 days. Patients may present with mild anemia or Hgb levels between 9 – 11 g/dL but are typically asymptomatic.
- Severe: menses that are significantly prolonged with substantial flow, to the degree where normal cycles are disturbed. Anemia is typically present, with Hgb levels often < 9 g/dL.

Differential:

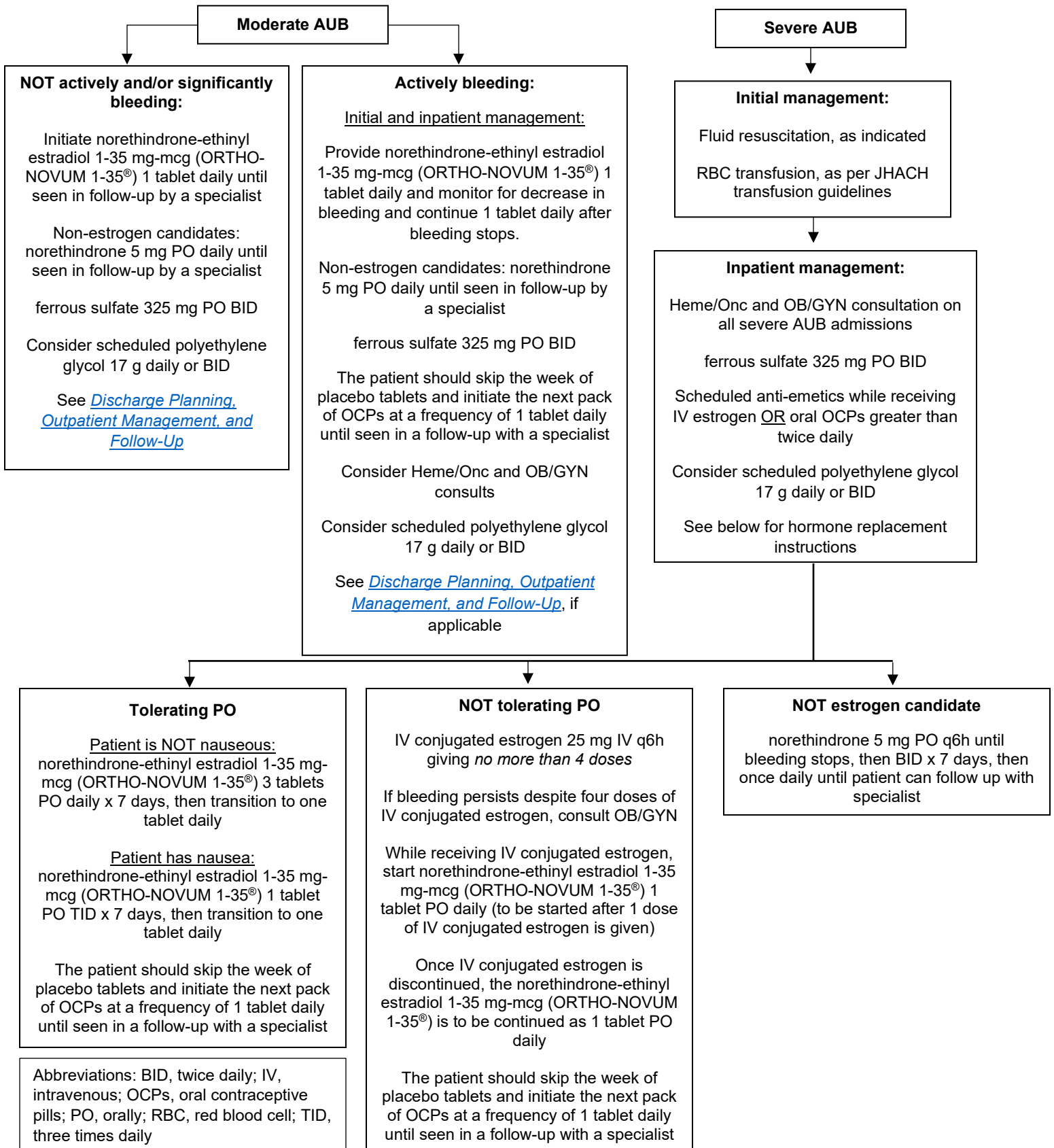
The differential for AUB is expansive. Therefore, a thorough history and physical examination is imperative. Etiologies can be classified as “related to uterine structural abnormalities” and “unrelated to uterine structural abnormalities.” They are categorized with the acronym **PALM-COEIN**: polyp, adenomyosis, leiomyoma, malignancy and hyperplasia, coagulopathy, ovulatory dysfunction, endometrial, iatrogenic, and not otherwise classified [Committee on Gynecologic Practice]. Clinical concerns for complications of pregnancy and/or infections, including those that are sexually transmitted, warrant prompt investigation [Emans]. 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 [Emans].

EC and Inpatient Abnormal Uterine Bleeding Algorithm



Abbreviations: CBC, complete blood count; FSH, follicle-stimulating hormone; LH, luteinizing hormone; PT, prothrombin; PTT, prothrombin time; STI, sexually transmitted infection; TIBC, total iron binding capacity; T4, thyroxine; TSH, thyroid stimulating hormone; US, ultrasound

Moderate to Severe Abnormal Uterine Bleeding Algorithm



Hospitalization Criteria

- Hgb < 8 g/dL
- Orthostatic patients
- Heavy bleeding and Hgb < 10 g/ dL
- Hgb between 8 – 10 g/dL and unsure of timely follow-up [Emans]

Abnormal Uterine Bleeding (AUB) Workup

For mild AUB, orthostatic vital signs should be performed [Emans]. If the patient is showing signs or symptoms of anemia, a CBC should be obtained.

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

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

A urine pregnancy test should be obtained. For any patient with a history of sexual activity and/or in whom sexual activity is suspected, *Neisseria gonorrhoeae* and *Chlamydia trachomatis* nucleic acid amplification tests (NAATs) are recommended. Additional STI testing should also be considered [Emans].

For patients with moderate and severe AUB, the following laboratory studies should be obtained **before** 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. Note, the Von Willebrand panel can be obtained 7 days after estrogen products are discontinued if unable to be obtained before starting estrogen products.

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 a chronic history of AUB and who exhibit acne or hirsutism on the exam [Emans].

Mild AUB Clinical Management

Patients with mild AUB should receive ferrous sulfate 325 PO mg BID to prevent anemia [Emans].

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

Moderate AUB Clinical Management

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

Patients should receive ferrous sulfate 325 mg PO BID [Emans].

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

Initiate one tablet daily of norethindrone-ethinyl estradiol 1-35 mg-mcg (ORTHO-NOVUM 1-35®) [Emans]. Patients should skip the week of placebo pills and initiate the second pack of OCPs at a frequency of one tablet daily until seen in follow-up with a specialist. It is also recommended the patient not require admission for treatment [Evidence Level 5 Local Consensus, Recommended].

Patients with moderate bleeding at the time of presentation:

Provide norethindrone-ethinyl estradiol 1-35 mg-mcg (ORTHO-NOVUM 1-35®), one tablet, and monitor until the bleeding stops. Continue 1 tablet daily for 21 days until seen in follow-up with a specialist [Evidence Level 5 Local Consensus, Recommended]. It is important to counsel patients and families regarding “active” versus “placebo” birth control tablets as well [Emans].

Special Consideration: Patients who cannot take estrogen (e.g., arterial or venous thromboembolic disease, hepatic dysfunction/disease) start norethindrone 5 mg PO once daily until follow-up with a specialist. If there is difficulty obtaining norethindrone outpatient or compliance concern, medroxyprogesterone (Depo-Provera®) 150 mg intramuscular (IM) should be administered before discharge.

Severe AUB Clinical Management

Inpatient Heme/Onc and OB/GYN consultations are recommended [Evidence Level 5 Local Consensus, Recommended].

Initial management includes fluid resuscitation and RBC transfusion, as per ACH JHM transfusion guidelines [Emans].

If the patient tolerates oral intake and is NOT nauseous, initiate norethindrone-ethinyl estradiol 1-35 mg-mcg (ORTHO-NOVUM 1-35®) three tablets PO daily x 7 days. Then transition to one tablet daily until follow-up with OB/GYN [Emans]. If the patient can take it orally but having nausea, initiate norethindrone-ethinyl estradiol 1-35 mg-mcg (ORTHO-NOVUM 1-35®) one tablet TID x 7 days, and then transition to one tablet daily until follow-up with OB/GYN. The patient should skip the week of placebo tablets and initiate the next pack of OCPs at a frequency of one tablet daily until seen in a follow-up with a specialist [Evidence Level 5 Local Consensus, Recommended].

Patients should receive ferrous sulfate 325 mg PO BID.

Consider providing ondansetron for nausea in patients receiving IV conjugated estrogen or in patients receiving OCPs more than twice daily. Additionally, consider scheduling polyethylene glycol for constipation prophylaxis [Emans].

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 conjugated estrogen, consult OB/GYN [Evidence Level 5 Local Consensus, Recommended].

While receiving IV conjugated estrogen it is important to initiate oral contraceptives as a means of providing progestin. This is done to stabilize the endometrium and prevent withdrawal bleeding once IV conjugated estrogen is discontinued. Therefore, it is recommended that *while* receiving IV conjugated estrogen (after the first dose), patients be started on norethindrone-ethinyl estradiol 1-35 mg-mcg (ORTHO-NOVUM 1-35[®]) one tablet PO daily [Emans]. The patient should skip the week of placebo tablets and initiate the next pack of OCPs at a frequency of one tablet daily until seen in a follow-up with a specialist [Evidence Level 5 Local Consensus, Recommended].

Special Considerations: In patients who cannot take estrogen (e.g., arterial or venous thromboembolic disease, hepatic dysfunction/disease): start norethindrone 5 mg PO every 6 hours until bleeding stops. Then transition norethindrone to 5 mg PO BID x 7 days. Then once daily until follow-up. If there is difficulty obtaining norethindrone outpatient or compliance concern, medroxyprogesterone (Depo-Provera[®]) 150 mg intramuscular (IM) should be administered before discharge.

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 care provider (PCP), Gynecologist, or the Menorrhagia/AUB Clinic. Patients should call for follow-up in the JHACH Menorrhagia/AUB Clinic where they will be seen by Dr. Irmel Ayala of JHACH Hematology/Oncology and Dr. Jasmine Reese of JHACH Adolescent and Young Adult Medicine. Provide the family with [Abnormal Uterine Bleeding Patient Discharge Instructions](#) and encourage them to keep a menstrual calendar or chart to bring to their outpatient appointments. Provide norethindrone-ethinyl estradiol 1-35 mg-mcg (ORTHO-NOVUM 1-35[®]) 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 JHACH pharmacy before discharge to ensure 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 is preferred over multivitamins that include iron. Lastly, consider prescriptions for constipation prophylaxis and anti-emetics.

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 JHACH Menorrhagia/AUB Clinic where they will be seen by both Dr. Reese of Adolescent and Young Adult Medicine and Dr. Ayala of JHACH Heme/Onc
 - a. Please utilize the Physician Access Line (PAL) to arrange outpatient follow-up within 2 – 4 weeks of hospital discharge

- b. Be sure to request the JHACH Menorrhagia/AUB Clinic in notation to PAL
 - c. Alternatively, patients can follow up with Dr. Ayala depending on availability
3. If indicated, please utilize PAL to arrange follow-up with Endocrinology within 2 – 4 weeks
4. Provide patient/family with [Abnormal Uterine Bleeding Patient Discharge Instructions](#) before discharge
5. The patient is to keep a menstrual calendar and bring it to outpatient appointments
6. Provide norethindrone-ethinyl estradiol 1-35 mg-mcg (ORTHO-NOVUM 1-35®)
 - a. Dispense: 3 packs
 - b. Directions: "As directed"
 - c. Refills: 3
 - d. Under "Special Instructions" please include a notation of "See depart instructions for AUB weaning schedule"
 - i. Alternatively, physicians may elect to copy and paste the weaning schedule here, as character limits allow
 - e. Under "Note to Pharmacist" please include a notation of "Diagnosis: abnormal uterine bleeding" as a means of alerting the pharmacist to use the ICD10 code for AUB to avoid problems with authorization and/or subsequent refills
7. Provide prescription for ferrous sulfate 325 mg PO BID x 90 days
 - a. Counsel patient/family that patient will likely require supplementation for several months
8. Consider a prescription for constipation prophylaxis
9. Consider a prescription for anti-emetics in patients receiving OCPs more than twice daily
10. Send all prescriptions to JHACH Pharmacy so insurance and authorization issues may be addressed before discharge

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Outcome Measures

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

Clinical Pathway Team

Abnormal Uterine Bleeding Clinical Pathway

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Disclaimer

Clinical Pathways are intended to assist physicians, physician assistants, nurse practitioners, and other healthcare 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 the 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 an 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 an 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 an 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 headaches or upset stomach. If you were given ondansetron, you may take it before you take your birth control pills to help with an 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 polyethylene glycol 3350 (MiraLAX®) one or two times a day. If this does not help, call your doctor.
 - e. Iron pills can cause an upset stomach or dark stool. 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.

Follow-Up

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

YEAR { _____ }

MENSTRUAL CYCLE RECORD

DAY →	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
JAN																															
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OCT																															
NOV																															
DEC																															

Enter appropriate letter in
 proper calendar day square →

S = Spotting
B = Bleeding
T = Pill Taken