Abnormal Uterine Bleeding
Heavy Menstrual Bleeding in Adolescents

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Definition:
An acute episode of heavy menstrual bleeding is one that, in the opinion of the clinician, is of sufficient quantity to require immediate intervention to prevent future blood loss. Normal menstrual cycles in adolescents typically last for 7 days of fewer and occur 21-45 days apart. The average cycle requires the use of 3-6 pads or tampons per day.

Incidence:
It is thought that up to 20-30% women experience abnormal uterine bleeding during their menstrual life.

Etiology/Differential Diagnosis:
Anovulation is the most common etiology of abnormal uterine bleeding during adolescence. During the first 2-3 years following menarche, many cycles are anovulatory due to the immaturity of the hypothalamic-pituitary-ovarian axis which can subsequently lead to abnormal bleeding. There are other causes of anovulation that also occur in adolescents which can also lead to abnormal bleeding. Bleeding disorders are found in anywhere from 5-24% of women with heavy menstrual bleeding and up to 20% of adolescents who present with heavy menstrual bleeding. An expanded differential diagnosis is in Addendum 1.

Diagnostic Evaluation:
History: Menstrual history should include onset of menarche, cycle length and variability over time, amount of menstrual blood loss. A confidential history should establish if patient is sexually active, including consensual and coerced sex. Specific questions should be asked to determine possibility of bleeding/coagulation disorder (see Table 2 in Addendum 1). Chronic medical conditions and current medications should be reviewed to assess for other possible etiologies of bleeding.

Physical Examination: Focus on detecting signs of conditions known to cause abnormal bleeding such as obesity, hirsuitism, acne, acanthosis that might suggest androgen excess/PCOS; thyroid enlargement or nodules that may suggest thyroid derangement; and bruising or petechiae that might suggest bleeding disorders. An external genitourinary and abdominal exam should be performed in all patients presenting with abnormal bleeding. If the patient is sexually active a speculum exam and bimanual exam should also be included. If the patient is experiencing pain and an internal GU exam cannot be performed (ie patient not sexually active) a transabdominal pelvic ultrasound should be considered.

Guideline Inclusion Criteria:
Post-menarchal adolescent female (up to age 18)
Patient/parent report of heavy menstrual bleeding

Guideline Exclusion Criteria:
Pregnancy
Contraindication to estrogen
Active malignancy
Inability to tolerate po medication

Practice Recommendations and Clinical Management
(for full recommendations see attached pathway and addendums)

Principles of Clinical Management
The initial management of heavy menstrual bleeding should be based on vital signs, symptoms, hemoglobin level and bleeding status. Patient’s ability to take estrogen based on CDC medical eligibility should be assessed prior to any management decisions. The most relevant absolute contraindications to estrogen in adolescent patients are listed below.

Sample of absolute contraindications to estrogen
- History of migraine headache with aura
- Personal history of DVT/PE/CVA or known clotting disorder
- Malignant HTN
All patients should have a prompt hemodynamic assessment upon presentation. Significant hemodynamic compromise should be treated per normal protocol with fluid resuscitation and stabilization. Treatment of bleeding should be done simultaneously and per treatment protocol. If patient not able to take po medication, should be excluded from treatment algorithm. Once hemoglobin level is available, use level and amount of current bleeding to determine appropriate therapy.

**Laboratory Testing:**

Urine hCG
CBC
PT/PTT
Type and Screen
TSH +/- free T4
Von Willebrand panel if screen (Table 2) positive
Free/Total Testosterone, DHEA-S, FSH, LH if irregular cycles

**Imaging:**
In the majority of adolescents presenting with abnormal uterine bleeding with heavy and prolonged cycles, routine imaging is not needed as the etiology is typically related to anovulation and not structural causes. However, if the patient is complaining of abdominal or pelvic pain imaging may be warranted.

Sexually active patients with abdominal/pelvic pain and bleeding can be considered for a transvaginal pelvic ultrasound to augment the speculum and bimanual exam.

Non-sexually active patients with abdominal/pelvic pain and bleeding can be considered for a transabdominal ultrasound.

For patients whose bleeding is not responding to appropriate hormonal management at 24 hours, consider an ultrasound.

**Pharmacotherapy:**
All patients who present with heavy menstrual bleeding should be discharged on iron therapy.

Patients with mild anemia can be started on NSAIDs if no contraindication exists.

Patients with more significant anemia should be started on combination oral contraceptive pills with dosing frequency dependent on hemoglobin and amount of current bleeding.

Oral contraceptive pills should be monophasic (dose of estrogen and progesterone should be equal in every pill) and should contain 30-35 mcg of ethinyl estradiol. Examples include: Nortrel 1/35 (on formulary at DCMC), Lo/Ovral, Necon 1/35, Sprintec, or Mononessa. A well-known side effect of estrogen-containing therapy is nausea, thus patients starting on oral contraceptive pills may benefit from an anti-emetic 2 hours prior to dosing of pills.

**Inpatient Management:**
Administration of oral contraceptive pills should begin immediately, once decision is made to admit (should start in the emergency room).

A pad count should be started to gain an objective measure of bleeding.

Reassessment of bleeding should occur in 12-24 hours and if bleeding has not slowed or stopped, therapy may need to be altered which can include one of the following:

- Increased OCP dosing frequency to every 4 hours
- Increased estrogen amount in OCP to 50mcg (Ogestrel)
- Starting IV estrogen (Premarin) for 2-3 doses (must be done concurrently with an OCP to prevent bleeding recurrence when stopped)
- Starting tranexamic acid.
- In over 90% of cases of heavy menstrual bleeding in adolescents, bleeding stops with oral OCP therapy without need for escalation of care or surgical intervention.
Consult/Referrals:
Adolescent medicine and hematology consults can be considered based on individual patient and clinician comfort.

Adolescent Medicine Clinic direct line: 512-324-6534
Indicate whether the patient was seen in the Emergency Department only or admitted to the hospital.

**Admission Criteria:**
A patient with a hemoglobin level of less than 8 and active bleeding should be considered for hospital admission.

Patients with hemoglobin of greater than 8 but less than 10 should be considered for admission if there are concerns about their adherence to therapy and they have continued heavy bleeding, unstable vital signs, or persistently symptomatic.

**Discharge Criteria:**
Patients who are discharged from the hospital should have normal vital signs for age and no orthostatic hypotension, tolerating PO intake, and have a good follow-up plan in place and be able to obtain medication prior to or immediately after discharge. They should have a good understanding of the dosing of the medication, given that it is often complex.

Physician should order 3 packages of Nortrel 1/35 to have available for the patient at discharge from inpatient service. Discharge prescription from the ED should be based on provider preference.

Consider discharge prescription for Ortho-Cyclen or Sprintec for uninsured patients.

**Outcome Measures**
Discharge Prescription for OCP
Hospital Length of Stay
Emergency Department Length of Stay
Average Cost
15 & 30 Day Readmission Rate

**Patient Disposition**

**Discharge Instructions:**
Patients should follow-up with Adolescent Medicine in 3-5 days following discharge for a bleeding assessment as well as repeat CBC.

All patients and parents should understand the risk of DVT/PE that accompany all estrogen-containing products. Signs and symptoms should be reviewed and instructions on what to do should these occur.

Clear dosing instructions and taper schedule should be provided to patient with dates and times of medication administration. Prescriptions should be sent to the pharmacy with clear dosing instructions and dispense 3 packages for ICD9: 626.2.
INCLUSION CRITERIA
Post-menarchal female with heavy bleeding

Unstable vital signs?

NO

Urine HCG

Positive

Transfer to adult Emergency Department for evaluation by OB

NO

Positive for Bleeding Disorder?

NO

Does patient have irregular cycles?

NO

Abnormal Uterine Bleeding Treatment Algorithm

YES

CBC with diff Type & Screen TSH reflex to T4 PT/PTT

Positive

Screen for Bleeding Disorder

NO

Consider: FSH LH DHEA-S Free & Total T

External GU examination

Consider internal GU exam AND/OR Transabdominal pelvic ultrasound

SEXUALLY ACTIVE?

YES

Internal & External GU examination including speculum

External GU examination

Sexually Active?

NO

Patient Complaining of pelvic pain?

NO

Patient Complaining of pelvic pain?

YES

Consider Serum HCG Consider transvaginal pelvic US

YES

GC/CT Testing

Consider: Serum HCG

NO

External GU examination

Unstable vital signs?

YES

Transfer to Emergency Department OR Continue on ED Treatment Pathway

Urine HCG

Negative

Screen for Bleeding Disorder

Bleeding Disorder Screen

Positive with any one of the following:

- Heavy menstrual bleeding since menarche
- Post-partum hemorrhage
- Surgery or dental-related bleeding
- Clots > 10mm
- Patient description as “gushing”

Positive with any two of the following:

- Bruising 1-2 times a month
- Epistaxis 1-2 times a month
- Frequent gum bleeding
- Family history of bleeding symptoms

EXCLUSION CRITERIA
Pregnancy
Active malignancy
Intolerance to PO medication

Sample of absolute contraindications to estrogen

- History of migraine headache with aura
- Personal history of DVT/PE/CVA or known clotting disorder
- Malignant HTN (Refer to CDC recommendations for additional contraindications)
ABNORMAL UTERINE BLEEDING
HEAVY MENSTRUAL BLEEDING IN ADOLESCENTS
ED/OUTPATIENT TREATMENT PATHWAY

INCLUSION CRITERIA
Post-menarchal female with heavy bleeding

- Assess for contraindication to estrogen based on CDC/WHO medical eligibility criteria
- Consult/Call Adolescent Medicine for treatment recommendations

RECOMMENDATIONS

Iron
FeSO4 325mg BID Dosing

High dose of NSAIDs (if no contraindication)
Naproxen
10-15 mg/kg/day BID dosing
May offer OCP per pt/family preference

HGB > 11

Bleeding SLOWING

HGB 10 - 11

OCP Therapy:
STEP 1: q12h until bleeding stops
STEP 2: Daily pills

YES

DISCHARGE
Reevaluate in 3 months OR if symptoms change
May follow-up with Adolescent Medicine

HGB 9 - 10

OCP Therapy:
STEP 1: q12h until bleeding stops
STEP 2: Daily (without placebos) until HGB > 10

YES

DISCHARGE
Follow-up with Adolescent Medicine in 5 to 7 days for CBC and Bleeding Assessment

HGB 8 - 9

ADMIT CRITERIA
1) Concerns about adherence/treatment/transportation
2) Continued heavy bleeding
3) Unstable vital signs
4) Persistently symptomatic

NO

HGB < 8

ADMIT

Start OCP Therapy: As soon as possible in ED

OCP Therapy:
STEP 1: q6h for 2 days
STEP 2: q8h for 3 days
STEP 3: q12h for 14 days
STEP 4: Daily (without placebos) until HGB > 10
Consider Ondanestron 2h prior to OCP Therapy.

DISCHARGE CRITERIA
- Stable vital signs
- Follow-up plan in place
- Patient able to obtain medication prior to or upon discharge

DISCHARGE
Reevaluate by phone next day

Oral Contraceptive Pills (OCP)
Inpatient
Nortrel
Outpatient
Monophasic OCP with 30 or 35 mcg ethinyl estradiol
Options: Nortrel, Lo Ovral, Necon 1/35, Sprintec or Mononessa)

Exclusion Criteria
- Pregnancy
- Active malignancy
- Intolerance to PO medication

EXCLUSION CRITERIA

Contraindications to estrogen
- History of migraine headache with aura
- Personal history of DVT/PE/CVA or known clotting disorder
- Malignant HTN
(Refer to CDC recommendations for additional contraindications)

Discharge Instructions:
1. Review risks of thrombosis with estrogen-containing medication. Signs and symptoms of DVT/PE should be explained and instructions given on what to do should patient experience.
2. Clear dosing instructions for OCPs with taper instructions written with times and dates of pills until follow-up.
3. Prescription should be sent to pharmacy with instructions to dispense 3 packages of Nortrel for ICD9: 626.2 + prescription to outpatient pharmacy. Uninsured patients should have prescription for Ortho-Cyclen or Sprintec.
4. Review what to do should patient start bleeding on therapy.
**Inclusion Criteria**

Post-menarchal female with heavy bleeding

- HGB < 8
- HGB < 9 - 10 with:
  1) Concerns about adherence/treatment/transportation **AND**
  2) Continued heavy bleeding **OR** Unstable vital signs

**Exclusion Criteria**

- Pregnancy
- Active malignancy
- Intolerance to PO medication

**Oral Contraceptive Pills (OCP)**

- Inpatient
- Nortrel
- Outpatient
- Monophasic OCP with 30 or 35 mcg ethinyl estradiol
- Options: Nortrel, Lo Ovral, Necon 1/35, Sprintec or Mononessa

**Sample of absolute contraindications to estrogen**

- History of migraine headache with aura
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(Refer to CDC recommendations for additional contraindications)

**Evidence-Based Outcomes Center**

**Discharge Criteria**

- Stable vital signs
- Follow-up plan in place
- Patient able to obtain medication prior to or upon discharge

**Follow-up with Adolescent Medicine in 3 to 5 days for CBC and Bleeding Assessment**

**Discharge Instructions**

1. Review risks of thrombosis with estrogen-containing medication. Signs and symptoms of DVT/PE should be explained and instructions given on what to do should patient experience.
2. Clear dosing instructions for OCPs with taper instructions written with times and dates of pills until follow-up.
3. Prescription should be sent to pharmacy with instructions to dispense 3 packages of Nortrel for ICD9: 626.2 + prescription to outpatient pharmacy. Uninsured patients should have prescription for Ortho-Cyclen or Sprintec.
4. Review what to do should patient start bleeding on therapy.
Table 12: Differential Diagnosis of Causes of abnormal uterine bleeding in Adolescents

<table>
<thead>
<tr>
<th>Anovulatory Bleeding</th>
<th>Uterine Problems</th>
<th>Endometriosis</th>
<th>Trauma</th>
<th>Foreign body (retained tampon)</th>
<th>Systemic Diseases</th>
<th>Medications</th>
</tr>
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<tbody>
<tr>
<td>• Immature HPO axis</td>
<td>• Submucous myoma</td>
<td></td>
<td>• Vaginal laceration</td>
<td></td>
<td>• Diabetes mellitus</td>
<td>• Hormonal contraceptives</td>
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<td>• Nutritional deficiency/malnutrition</td>
<td>• Congenital anomalies</td>
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<td>• Renal disease</td>
<td>• Anticoagulants</td>
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<td>• Chronic illness</td>
<td>• Polyp</td>
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<td></td>
<td></td>
<td>• Systemic lupus erythematosus</td>
<td>• Platelet inhibitors</td>
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<td>• Carcinoma</td>
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<td>• Androgens</td>
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<td>• Use of IUD</td>
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<td>• Spironolactone</td>
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<td>• Ovulation bleeding</td>
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### Table 2: Bleeding Disorder Screening

Positive screen is one or more of the following:

<table>
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<th>• Heavy bleeding since menarche</th>
<th>Kouides Questionnaire</th>
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<td>• One of the following</td>
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<td>o Post-partum hemorrhage</td>
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<tr>
<td>o Surgery-related bleeding</td>
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<tr>
<td>o Bleeding associated with dental work</td>
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<td>• Two or more of the following</td>
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<tr>
<td>o Bruising 1 or 2 times per month</td>
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<td>o Epistaxis 1 or 2 times per month</td>
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<tr>
<td>o Frequent gum bleeding</td>
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<td>o Family history of bleeding symptoms</td>
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<tr>
<td>• Clots &gt;10 mm</td>
<td>Adolescent Screen</td>
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<tr>
<td>• Description of “gushing”</td>
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</table>

### Table 3: Sample of absolute contraindications to estrogen

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<td>Personal history of DVT/PE/CVA or known clotting disorder</td>
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<tr>
<td>Malignant HTN</td>
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<tr>
<td>Distorted uterine cavity</td>
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<tr>
<td>Breast cancer</td>
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<tr>
<td>Cirrhosis (severe)</td>
</tr>
<tr>
<td>Diabetes mellitus w/ nephropathy/retinopathy/neuropathy</td>
</tr>
<tr>
<td>Endometrial cancer</td>
</tr>
<tr>
<td>Gestational trophoblastic disease</td>
</tr>
<tr>
<td>Systolic ≥ 160 or diastolic ≥ 100</td>
</tr>
<tr>
<td>Vascular disease</td>
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<tr>
<td>Liver tumors (malignant or hepatocellular adenoma)</td>
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<tr>
<td>Peripartum cardiomyopathy (moderately or severely impaired cardiac function)</td>
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<tr>
<td>Puerperal sepsis</td>
</tr>
<tr>
<td>Immediately post-septic abortion</td>
</tr>
<tr>
<td>Pregnant</td>
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<tr>
<td>Current purulent cervicitis or chlamydial infection or gonorrhea</td>
</tr>
<tr>
<td>Stroke</td>
</tr>
<tr>
<td>Thrombogenic mutations</td>
</tr>
<tr>
<td>Tuberculosis (pelvic)</td>
</tr>
<tr>
<td>Unexplained vaginal bleeding</td>
</tr>
<tr>
<td>Viral hepatitis (acute or flare)</td>
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</tbody>
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EBOC Project Owner: Maria Monge, MD

Approved by the Abnormal Uterine Bleeding Evidence-Based Outcomes Center Team

Revision History
Date Approved: May 4, 2015
Next Review Date: May, 2017

Abnormal Uterine Bleeding EBOC Team:
Maria Monge, MD
Meena Iyer, MD
Winnie Whitaker, MD
Sujit Iyer, MD
Thanh Hao Ngo, MD
Patrick Boswell

EBOC Committee:
Sarmistha Hauger, MD
Dana Danaher RN, MSN, CPHQ
Mark Shen, MD
Deb Brown, RN
Robert Schlechter, MD
Levy Moise, MD
Sujit Iyer, MD
Tory Meyer, MD
Nilda Garcia, MD
Meena Iyer, MD
Michael Auth, DO