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 experiences 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 |

Last updated: 5/4/2015
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 tranexemic 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.

Patient Disposition

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.

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.

Outcome Measures
Discharge Prescription for OCP
Hospital Length of Stay
Emergency Department Length of Stay
Average Cost
15 & 30 Day Readmission Rate
INCLUSION CRITERIA
Post-menarchal female with heavy bleeding

Unstable vital signs?
YES
Transfer to Emergency Department OR
Continue on ED Treatment Pathway
NO

Urine HCG
Positive
Transfer to adult Emergency Department for evaluation by OB
Negative

Sexually Active?
YES
External GU examination
NO

Internal & External GU examination including speculum

Patient Complaining of pelvic pain?
YES
GC/CT Testing
Consider Serum HCG
Consider transvaginal pelvic US
NO

Von Willebrand Panel
YES
Positive for Bleeding Disorder?
NO

Does patient have irregular cycles?
YES
Consider:
- FSH
- LH
- DHEA-S
- Free & Total T
NO

Abnormal Uterine Bleeding Treatment Algorithm

SCREEN FOR BLEEDING DISORDER
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

CMS 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)

EXCLUSION CRITERIA
- Pregnancy
- Active malignancy
- Intolerance to PO medication

For questions concerning this pathway, Click Here
Last Updated May 4, 2015
**Sample of absolute contraindications to estrogen**
- History of migraine headache with aura
- Personal history of DVT/PE/CVA or known clotting disorder
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(Refer to CDC recommendations for additional contraindications)

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**ED/OUTPATIENT TREATMENT PATHWAY**

**INCLUSION CRITERIA**
Post-menarchal female with heavy bleeding

**EXCLUSION CRITERIA**
- Pregnancy
- Active malignancy
- Intolerance to PO medication

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

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

**DISCHARGE (3) Follow-up with Adolescent Medicine in 5 to 7 days for CBC and Bleeding Assessment**

**INPATIENT**

**INPATIENT**

**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

**ADMIT**

**DISCHARGE (2) Reevaluate in 3 months OR if symptoms change**
May follow-up with Adolescent Medicine

**HGB > 11**

**HGB 10 - 11**
Bleeding SLOWING

**HGB 9 - 10**
Bleeding SLOWING

**HGB 8 - 9**

**HGB < 8**

**DISCHARGE**
Reevaluate immediately. Continue for normal pack dosing.

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

**OCP (2) Daily starting immediately.**
Continue for normal pack dosing.

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

**Consider Consult/Call Adolescent Medicine for treatment recommendations.**

**ADMIT**

**Consider Consult/Call Adolescent Medicine**
Document 2 reliable phone numbers for patient
Reevaluate by phone next day

**Consider Ondanestron 2h prior to OCP Therapy.**

**DISCHARGE (2) Reevaluate by phone next day**

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

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**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.

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For questions concerning this pathway, Click Here
Last Updated May 4, 2015
**ABNORMAL UTERINE BLEEDING**  
**HEAVY MENSTRUAL BLEEDING IN ADOLESCENTS**  
**INPATIENT TREATMENT PATHWAY**

**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

- Begin Treatment Immediately  
- Start pad count for objective measure of bleeding  
- Consider transfusion needs on individual basis  
- Consider Adolescent Medicine consult  
- Consider Hematology consult if bleeding screen positive or results of screening tests positive

Assess for contraindication to estrogen based on CDC/WHO medical eligibility criteria

- Consult/Call Adolescent Medicine for treatment recommendations.

**OCP Therapy:**  
STEP 1: q6h for 2 days  
STEP 2: q8h for 3 days  
STEP 3: q12h for 14 days  
STEP 4: Daily (without placebo) until HGB > 10

- Continue OCP Therapy

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

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

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**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.
### Addendum 1

**Table 1**: Differential Diagnosis of Causes of abnormal uterine bleeding in Adolescents

<table>
<thead>
<tr>
<th>Anovulatory Bleeding</th>
<th>Uterine Problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Immature HPO axis</td>
<td>• Submucous myoma</td>
</tr>
<tr>
<td>• Nutritional deficiency/malnutrition</td>
<td>• Congenital anomalies</td>
</tr>
<tr>
<td>• Chronic illness</td>
<td>• Polyp</td>
</tr>
<tr>
<td></td>
<td>• Carcinoma</td>
</tr>
<tr>
<td></td>
<td>• Use of IUD</td>
</tr>
<tr>
<td></td>
<td>• Ovulation bleeding</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Endocrine Disorders</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Hypo- or hyperthyroid</td>
</tr>
<tr>
<td>• Adrenal disease</td>
</tr>
<tr>
<td>• Hyperprolactinemia</td>
</tr>
<tr>
<td>• Polycystic ovary syndrome</td>
</tr>
<tr>
<td>• Ovarian failure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pregnancy-related complications</th>
<th>Ovarian Problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Threatened ab</td>
<td>• Functional cyst</td>
</tr>
<tr>
<td>• Spontaneous, incomplete, missed ab</td>
<td>• Tumor</td>
</tr>
<tr>
<td>• Ectopic pregnancy</td>
<td></td>
</tr>
<tr>
<td>• Gestational trophoblastic disease</td>
<td></td>
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<tr>
<td>• Complications of termination procedures</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Infection</th>
<th>Trauma</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Cervicitis</td>
<td>• Vaginal laceration</td>
</tr>
<tr>
<td>• Vaginitis</td>
<td></td>
</tr>
<tr>
<td>• Endometritis</td>
<td></td>
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<tr>
<td>• PID</td>
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</table>

<table>
<thead>
<tr>
<th>Bleeding Disorders</th>
<th>Foreign body (retained tampon)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Thrombocytopenia (ITP, TTP, leukemia, aplastic anemia, hypersplenism, chemotherapy)</td>
<td></td>
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<tr>
<td>• Clotting disorders (von Willebrand disease, disorders of platelet function, liver dysfunction)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Vaginal abnormalities</th>
<th>Systemic Diseases</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Carcinoma or sarcoma</td>
<td>• Diabetes mellitus</td>
</tr>
<tr>
<td></td>
<td>• Renal disease</td>
</tr>
<tr>
<td></td>
<td>• Systemic lupus erythematosus</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Cervical Problems</th>
<th>Medications</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Cervicitis</td>
<td>• Hormonal contraceptives</td>
</tr>
<tr>
<td>• Polyp</td>
<td>• Anticoagulants</td>
</tr>
<tr>
<td>• Hemangioma</td>
<td>• Platelet inhibitors</td>
</tr>
<tr>
<td>• Carcinoma or sarcoma</td>
<td>• Androgens</td>
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<td></td>
<td>• Spironolactone</td>
</tr>
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<td></td>
<td>• Antipsychotics</td>
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</table>
### Table 2: Bleeding Disorder Screening

<table>
<thead>
<tr>
<th>Positive screen is one or more of the following:</th>
<th></th>
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<tbody>
<tr>
<td>• Heavy bleeding since menarche</td>
<td>Kouides Questionnaire</td>
</tr>
<tr>
<td>• One of the following</td>
<td>Adolescent Screen</td>
</tr>
<tr>
<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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<tr>
<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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<tr>
<td>o Family history of bleeding symptoms</td>
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<tr>
<td>• Clots &gt;10 mm</td>
<td></td>
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<tr>
<td>• Description of “gushing”</td>
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</tbody>
</table>

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

<table>
<thead>
<tr>
<th>History of migraine headache with aura</th>
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<tbody>
<tr>
<td>Personal history of DVT/PE/CVA or known clotting disorder</td>
<td></td>
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<tr>
<td>Malignant HTN</td>
<td></td>
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<tr>
<td>Distorted uterine cavity</td>
<td></td>
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<tr>
<td>Breast cancer</td>
<td></td>
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<tr>
<td>Cirrhosis (severe)</td>
<td></td>
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<tr>
<td>Diabetes mellitus w/ nephropathy/retinopathy/neuropathy</td>
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<tr>
<td>Endometrial cancer</td>
<td></td>
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<tr>
<td>Gestational trophoblastic disease</td>
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<tr>
<td>Systolic &gt; 160 or diastolic &gt; 100</td>
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<tr>
<td>Vascular disease</td>
<td></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>
<td></td>
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<tr>
<td>Immediately post-septic abortion</td>
<td></td>
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<tr>
<td>Pregnant</td>
<td></td>
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<tr>
<td>Current purulent cervicitis or chlamydial infection or gonorrhea</td>
<td></td>
</tr>
<tr>
<td>Stroke</td>
<td></td>
</tr>
<tr>
<td>Thrombogenic mutations</td>
<td></td>
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<tr>
<td>Tuberculosis (pelvic)</td>
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<tr>
<td>Unexplained vaginal bleeding</td>
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<tr>
<td>Viral hepatitis (acute or flare)</td>
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</tbody>
</table>
References


EBOC Project Owner: Maria Monge, MD

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

Revision History
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