Abnormal Uterine Bleeding in Adolescents: Evaluation and Treatment

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Objectives

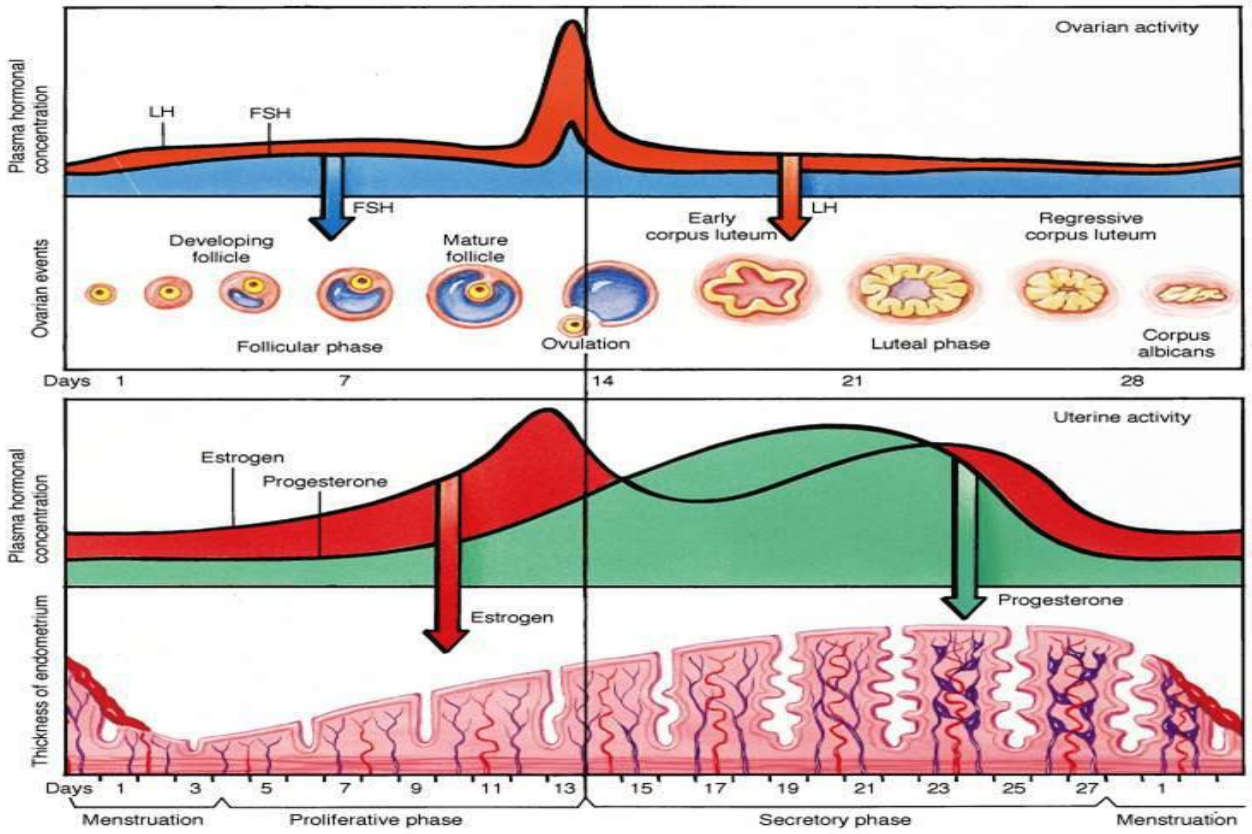
Determine	Determine what is normal menstrual bleeding
Define	Define heavy menstrual bleeding
Determine	Determine causes of abnormal uterine bleeding
Discuss	Discuss the appropriate evaluation
Discuss	Discuss what treatment options are available

What is a normal menstrual cycle?

A. An **interval of 21-35 days**, **length of 5-7 days**, and a **flow of 35-50 mL**
B. An **interval of 15 – 35 days**, **length of 3-5 days**, and a **flow of 50 mL – 80 mL**
C. An **interval of 21- 35 days**, **length of 3 – 5 days**, and **a flow of 50 mL – 80 mL**
D. No menstrual cycle is normal, it’s just not normal for a person to bleed every month

Normal menstrual cycle

- **Interval**
  - 21 to 35 days
- **Length**
  - 5 to 7 days
- **Flow**
  - 35-50 mL



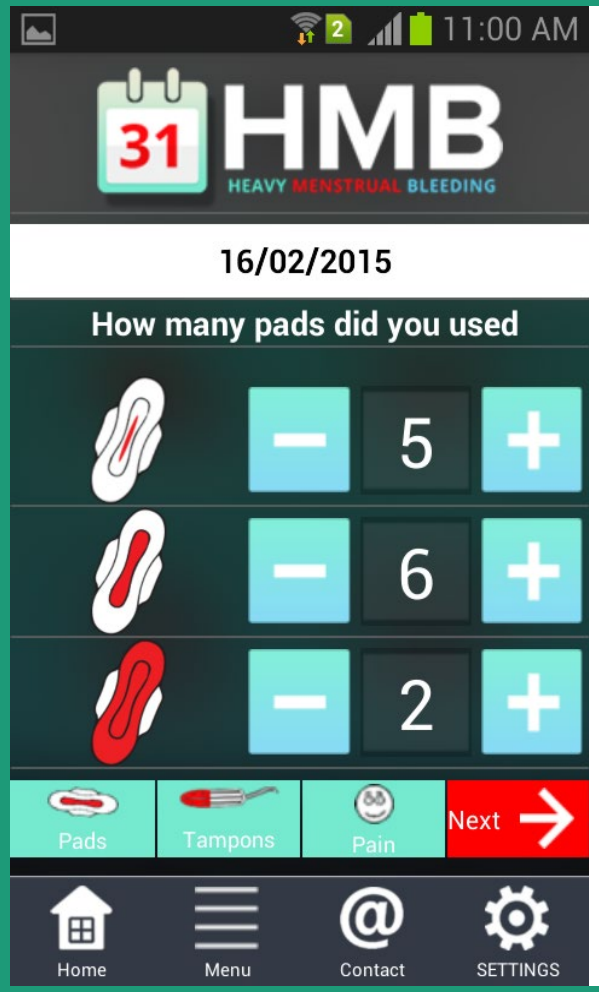
Heavy Menstrual Bleeding

Defined as more than 80 mL per cycle

- Changing pad and/or tampon every 1-2 hours
- Passing large clots more than 1-inch in diameter

Heavy Menstrual Bleeding (HMB)

- Pictorial Blood Assessment Chart (PBAC)
- Fatigue severity scores
- Low ferritin levels



FATIGUE SEVERITY SCALE (FSS)

Date _____ Name _____

Please circle the number between 1 and 7 which you feel best fits the following statements. This refers to your usual way of life within the last week. 1 indicates "strongly disagree" and 7 indicates "strongly agree."

Read and circle a number.	Strongly Disagree → Strongly Agree						
1. My motivation is lower when I am fatigued.	1	2	3	4	5	6	7
2. Exercise brings on my fatigue.	1	2	3	4	5	6	7
3. I am easily fatigued.	1	2	3	4	5	6	7
4. Fatigue interferes with my physical functioning.	1	2	3	4	5	6	7
5. Fatigue causes frequent problems for me.	1	2	3	4	5	6	7
6. My fatigue prevents sustained physical functioning.	1	2	3	4	5	6	7
7. Fatigue interferes with carrying out certain duties and responsibilities.	1	2	3	4	5	6	7
8. Fatigue is among my most disabling symptoms.	1	2	3	4	5	6	7
9. Fatigue interferes with my work, family, or social life.	1	2	3	4	5	6	7

VISUAL ANALOGUE FATIGUE SCALE (VAFS)

Please mark an "X" on the number line which describes your global fatigue with 0 being worst and 10 being normal.

0 1 2 3 4 5 6 7 8 9 10

Screening Tool to Identify Adolescents with HMB

Box 1. Screening Tool to Identify Adolescents With Heavy Menstrual Bleeding for Testing and Evaluation for Underlying Bleeding*

1. How many days did your period usually last, from the time bleeding began until it completely stopped?
   i. Less than 7 days
   ii. Greater than or equal to 7 days
   iii. Don't know
2. How often did you experience a sensation of "flooding" or "gushing" during your period?
   i. Never, rarely, or some periods
   ii. Every or most periods
   iii. Don't know
3. During your period did you ever have bleeding where you would bleed through a tampon or napkin in 2 hours or less?
   i. Never, rarely, or some periods
   ii. Every or most periods
   iii. Don't know
4. Have you ever been treated for anemia?
   i. No
   ii. Yes
   iii. Don't know
5. Has anyone in your family ever been diagnosed with a bleeding disorder?
   i. No
   ii. Yes
   iii. Don't know
6. Have you ever had a tooth extracted or had dental surgery?
   i. No (If no, go to question 7)
   ii. Yes
   iii. Don't know
   6a. Did you have a problem with bleeding after tooth extraction or dental surgery?
      i. No
      ii. Yes
      iii. Don't know
7. Have you ever had surgery other than dental surgery?
   i. No (If no, go to question 8)
   ii. Yes
   iii. Don't know
   7a. Did you have bleeding problems after surgery?
      i. No
      ii. Yes
      iii. Don't know

(continued)

Box 1. Screening Tool to Identify Adolescents With Heavy Menstrual Bleeding for Testing and Evaluation for Underlying Bleeding* (*continued*)

8. Have you ever been pregnant?
   i. No
   ii. Yes
   iii. Don't know
   8a. Have you ever had a bleeding problem following delivery or after a miscarriage?
      i. No
      ii. Yes
      iii. Don't know

How to Use the Screening Tool

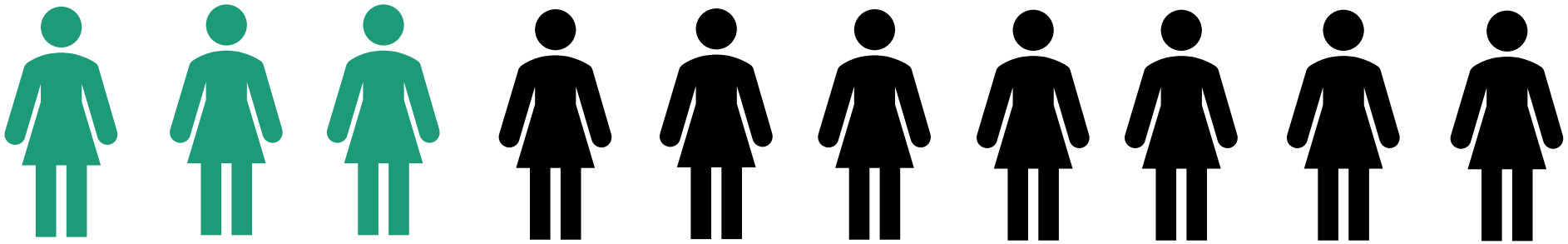
The screening tool is considered to be positive if 1 of the following 4 criteria were met:

1. The duration of menses was greater than or equal to 7 days and the woman reported either "flooding" or bleeding through a tampon or napkin in 2 hours or less with most periods;
2. A history of treatment of anemia;
3. A family history of a diagnosed bleeding disorder; or
4. A history of excessive bleeding with tooth extraction, delivery or miscarriage, or surgery

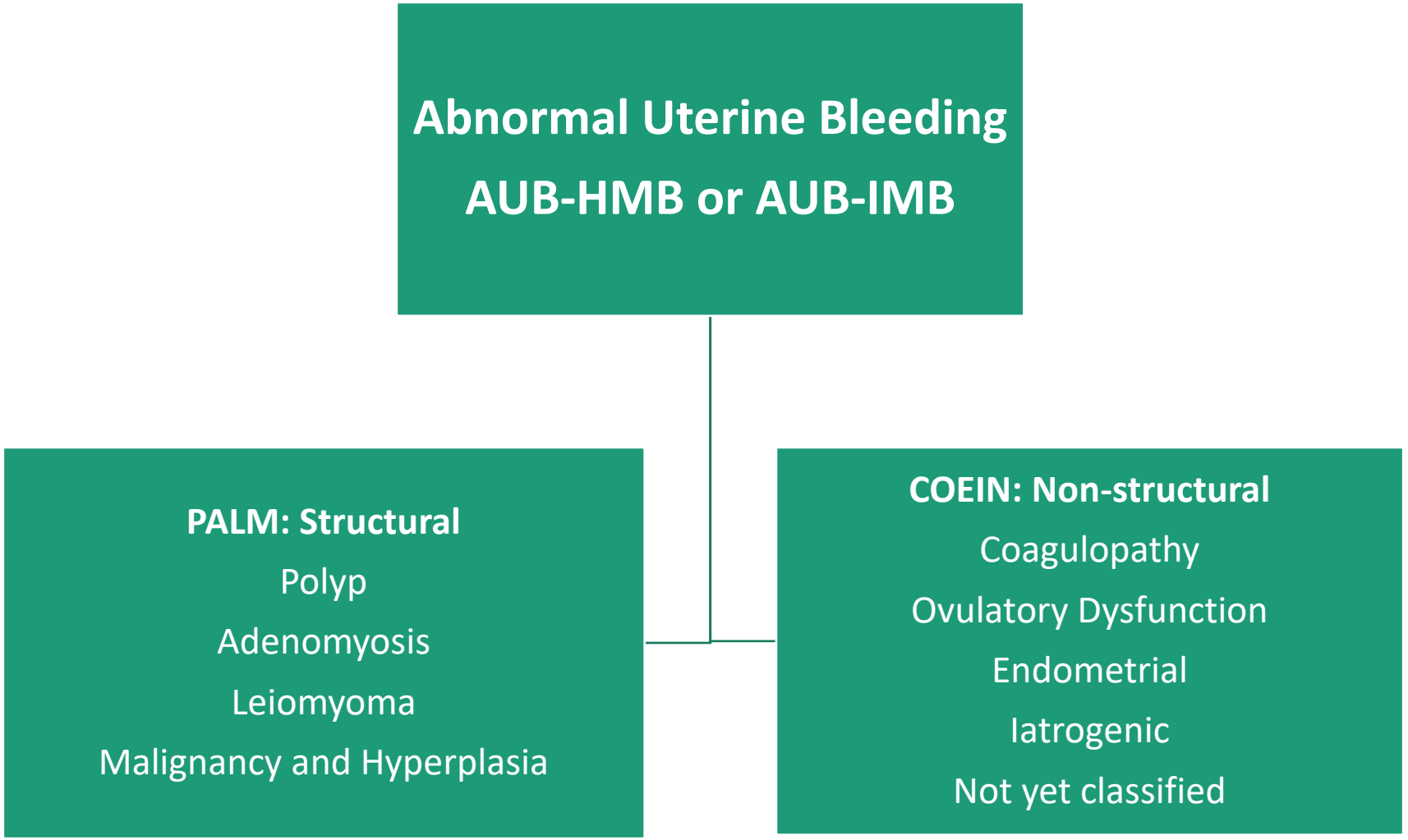
Adapted from Philipp CS, Faiz A, Dowling NF, Beckman M, Owens S, Ayers C, et al. Development of a screening tool for identifying women with menorrhagia for hemostatic evaluation. Am J Obstet Gynecol 2008;198:163.e1–8; Philipp CS, Faiz A, Heit JA, Kouides PA, Lukes A, Stein SF, et al. Evaluation of a screening tool for bleeding disorders in a US multisite cohort of women with menorrhagia. Am J Obstet Gynecol 2011;204:209.e1–7.

Heavy Menstrual Bleeding

- **How common is (HMB)**
  - 1 out of every 5 women has heavy menstrual bleeding
  - As high as 30% among adolescents



2011 FIGO Classification for Abnormal Uterine Bleeding



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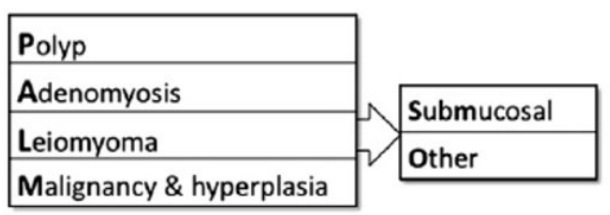
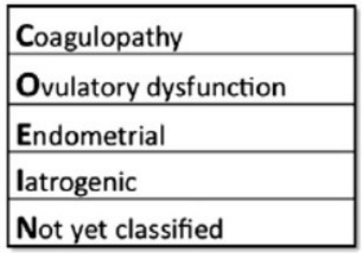
AUB-HMB

- **Non-structural (COEIN)**
  - Coagulopathy
  - Ovulatory Dysfunction
  - Endometrial
  - Iatrogenic
  - Not yet classified





What percentage of adolescents hospitalized due to AUB-HMB have a coagulation disorder?

A. 48%

B. 33%

C. 19%

D. < 1%

AUB-Coagulopathy

- Bleeding disorders occur in 20% of adolescent girls
- 33% of adolescent girls hospitalized for HMB, have a bleeding disorder

Common Bleeding Disorders in Adolescents

Platelet Function Disorders
Von Willebrand Disease • Type 1 • Type 2 • Type 3
Glanzmann thrombasthenia
Bernard-Soulier syndrome
Delta storage pool disorders
Other Disorders
Clotting factor deficiencies
Thrombocytopenia
Fibrinolytic pathway defects

AUB-Coagulopathy

- **Bleeding disorders occur in 20% of adolescent girls**
- **33% of adolescent girls hospitalized for HMB, have a bleeding disorder**
- **Clinical Screening**
  - Heavy menstrual bleeding since menarche
  - One of the following
    - Postpartum hemorrhage
    - Surgery-related bleeding
    - Bleeding associated with dental work
  - Two or more of the following symptoms
    - Bruising one to two times per month
    - Epistaxis one to two times per month
    - Frequent gum bleeding
    - Family history of bleeding symptoms
- **Laboratory screening**
  - Pregnancy test, PTT, PT, CBC with platelets, Ristocetin cofactor activity

AUB-Coagulopathy

- **Adolescent patients undergoing cancer treatment**
  - Hematologic malignancies
  - Result of chemotherapy, radiation therapy, or bone marrow suppression leading to thrombocytopenia
  - Disruption of the hypothalamic-pituitary axis

What is the most common cause of AUB in adolescents?

A. Coagulopathy

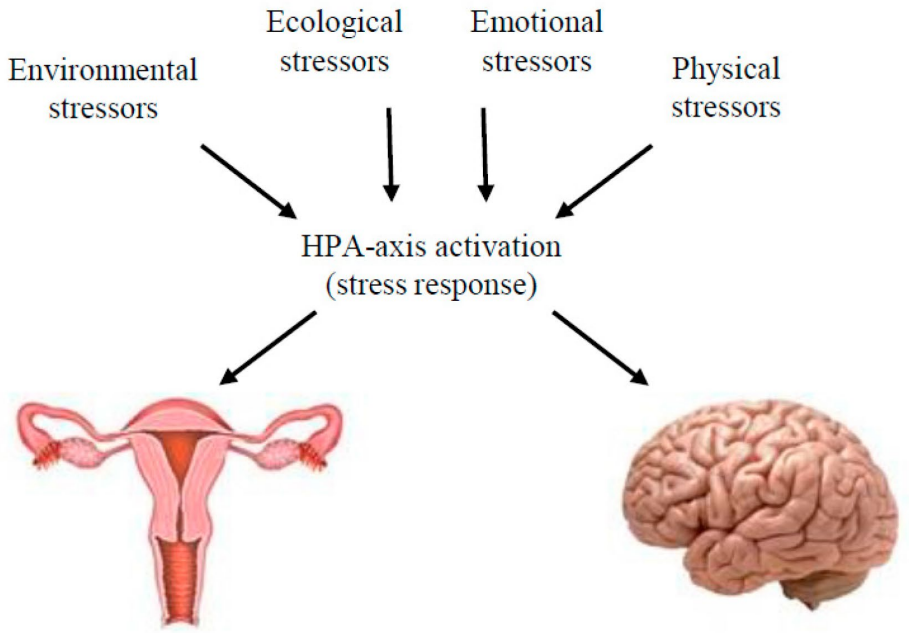
B. Ovarian Dysfunction

C. Endometrial cancer

D. Iatrogenic

AUB-Ovulatory Dysfunction

- Can range from amenorrhea to irregular heavy bleeding
- Most common cause of AUB in adolescents
- Irregular cycles in adolescents up to 3 years after menarche can be normal



- Lower FSH/LH ratio
- Lower oocyte competence
- Inhibition of epithelial cell proliferation
- Altered follicular fluid composition
- Reduced number of implantation sites
- Inhibition of stromal cell proliferation
- Altered uterine gene expression

- Lower GnRH levels
- Reduced gonadotropin release
- GnIH neurons
- Higher immune activation

AUB-Ovulatory Dysfunction

Immaturity of the hypothalamic-pituitary-ovarian axis	Polycystic Ovarian Syndrome (PCOS)	Obesity	Others
• By 36 months after menarche, 60-80% of menstrual cycles are 21-35 days	• One study found that up to 33% of adolescents with AUB, had PCOS	• Obesity among adolescents 12-19 years old has increased from 5% to 18.4%	• Thyroid dysfunction • Hyperprolactinemia • Nonclassical congenital hyperplasia due to 21 hydroxylase deficiency • Cushings

AUB-Ovulatory Dysfunction

- **Evaluation**
  - **History and physical exam**
  - **Pregnancy test**
  - **PCOS**
    - Testosterone (total and free)
    - Diagnosed by hyperandrogenism and oligomenorrhea
  - **Other causes**
    - TSH (thyroid dysfunction)
    - Prolactin (prolactinemia)
    - 17-hydroxyprogesterone (non-classical CAH)

AUB-Iatrogenic

- Steroids
- Oral, vaginal contraception, Intrauterine contraception
  - Erratic use
  - Atrophic endometrium
- Anticonvulsants and antibiotics
- Tricyclic antidepressants and Phenothiazines
- Anti-coagulation

Common Cause by Age Group

13 – 18 Years	19 – 39 Years	40 Years to Menopause
• Persistent anovulation	• Pregnancy	• Anovulatory bleeding
• Hormonal contraceptive use	• Structural lesions (polyps, fibroids)	• Endometrial hyperplasia or cancer
• Pregnancy	• Anovulatory cycles (e.g. PCOS)	• Endometrial atrophy
• Pelvic infection	• Hormonal contraceptive use	• Fibroids
• Coagulopathies		
• Tumors	• Endometrial hyperplasia	

History

- Age of menarche
- Acute vs. chronic
- Quality and quantity
- Sexual and reproductive history
- Medication history
- Prescription and non-prescription medications
- Family History

Physical Exam

Signs of anemia
BMI
Abdominal exam
Pelvic exam
Acanthosis nigricans, striae, obesity
Bruising, petichiae

Diagnostic Testing

Initial Labs	Evaluation for disorders of hemostasis	Evaluation for von Willebrand disease	Other lab tests
• CBC • Type and cross • Pregnancy test	• PTT • PT • Fibrinogen	• vW factor antigen • Ristocetin cofactor • Factor VIII	• TSH • Serum iron, TIBC, Ferritin • LFT • Chlamydia

Imaging

- Transvaginal ultrasound
- MRI
- Hysteroscopy
- Sonohysterogram

Treatment Options

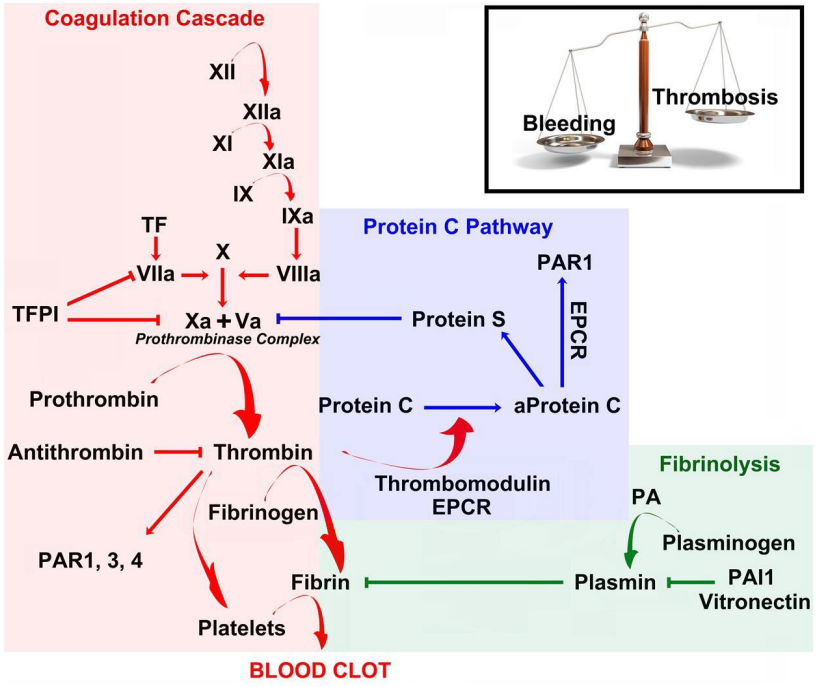
Acute	Chronic
• Conjugated estrogen • Oral contraceptive pill taper • Oral progesterone • Tranexamic acid	• NSAIDs • Oral contraceptive • Vaginal contraceptive • Injectable contraceptive • Subdermal implant • Hormonal intrauterine device

Acute Treatment: Hormonal

- Conjugated Estrogen
  - 2.5 mg po q 6 hours or 25 mg IV q 6 hours
  - Contraindications: Breast Cancer, history of or active VTE, liver disease

Acute Treatment: Hormonal

- **Oral Contraceptives**
  - Combination oral contraceptives
    - Monophasic, high estrogen pill (35 – 50 mcg pill)
      - 3 pills for 3 days
      - 2 pills for 2 days
      - 1 pill per day until pack complete
    - Contraindicated in patients greater than 35 years old who smoke or have hypertension or history of VTE
  - Oral progesterone
    - Oral medroxyprogesterone 10-20 mg every 6-12 hours
    - Norethindrone acetate 5-10 mg every 6 hours



Acute Treatment: Non-hormonal

- Tranexamic Acid
  - Tranexamic Acid (TXA) is an oral medication that works to prevent fibrin degradation
  - Reduces HMB, regardless of cause
  - Contraindicated if history of VTE
  - Do not use with combination OCP or estrogen

Treatment - Chronic

NSAIDs

Oral contraceptives (OCP)

- Combination OCP
  - Choose a monophasic pill
- Progesterone only OCP

Vaginal contraceptive

Injectable contraceptive

Subdermal implant

Hormonal intrauterine device (52 mg of Levonorgestrel)

Adolescents with Physical and Mental Disabilities

Things to Consider…

- **Adolescents with mental and physical disabilities may have additional disorders contributing to menstrual irregularities**
  - Epilepsy: PCOS occurs in 10-20%, Anticonvulsants affect cytochrome P450
  - Antipsychotics can cause hyperprolactinemia
  - Hypothyroidism is more prevalent in women with Down's syndrome
  - Adolescents with low weight due to feeding tubes may experience hypothalamic amenorrhea
- **Goal for treatment should be menstrual flow reduction, amenorrhea may be difficult to achieve**
  - Avoid premenarchal amenorrhea
  - Avoid surgery unless exhausted all other options

Treatment	Specific Benefit	Disability concerns
NSAIDs	Decreased flow and pain	GI side effects
Combination oral contraceptive	Decreased flow and pain Can be used long term	Risk of DVT if immobile Daily use for cycle control Anticonvulsants can affect efficacy
Contraceptive patch	Decreased flow and pain Can be used long term Used weekly	Risk of DVT if immobile Anticonvulsants can affect efficacy Can irritate the skin causing removal
Contraceptive ring	Decreased flow and pain Can be used long term Used monthly	Risk of DVT if immobile Anticonvulsants can affect efficacy May be difficult to place
Oral progestin Progestin only oral contraceptive	Decreased flow and pain Can be used long term	Daily use for cycle control Breakthrough bleeding Anticonvulsants can affect efficacy
Depot medroxprogesterone acetate	Possible amenorrhea Decreased pain Every 3 months	Breakthrough bleeding Weight gain Can cause osteoporosis when used > 10 yrs
Progesterone implant * Not first-line	Possible amenorrhea Decreased pain Every 3 years	Breakthrough bleeding Placement may be difficult
Progesterone IUD	Possible amenorrhea Every 5 years	Breakthrough bleeding initially Placement may need to be done in the OR

Adopted from Menstrual manipulation for adolescents with physical and developmental disabilities. Committee Opinion No 668. American College of Obstetricians and Gynecologists. Obstet Gynecol 2016; 128: e20-5

Adolescents Undergoing Cancer Treatment

Things to Consider…

- At high risk of abnormal menstrual bleeding
- Tailor to patient – work with oncologist
  - GnRH agonists
  - Combination oral contraceptive
  - Progestin only therapy
- Considered need for contraception

Summary

- **Heavy menstrual bleeding is more common than you may think**
- **Remember PALM-COEIN for causes**
- **There are hormonal and non-hormonal treatment options available**
- **Special consideration should be given when determining a cause and choosing a treatment for abnormal uterine bleeding in women with disabilities**

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Thank you!

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