

The background of the slide is a watercolor-style wash of various shades of blue, ranging from deep navy to light sky blue, with soft, irregular edges. The text is overlaid on this background.

Abnormal Uterine Bleeding in Adolescents

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March 12, 2026

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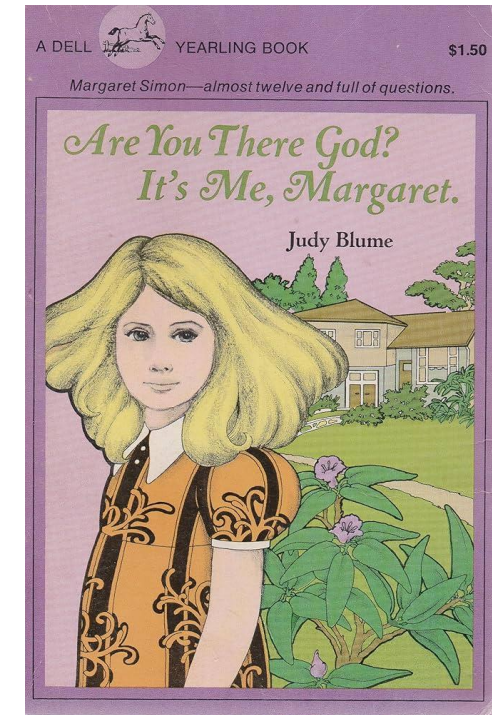
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Learning Objectives

- Describe the typical menstrual patterns of adolescents
- Identify menstrual bleeding patterns requiring evaluation
- Describe the evaluation and management of heavy or irregular periods in adolescents in a primary care setting

Menstruation is a Vital Sign

- Document LMP + menstrual pattern
 - Identify medical conditions
 - Abnormal cycles can have health consequences
 - Educate families



Menstrual History

- Menarche
- Cycle duration and frequency
 - Day 1 to Day 1
 - Track
- Flow
 - *“How often do you have to change a pad or a tampon? What type?”*
 - *“Do you ever bleed through clothes?”*
 - *“Do you ever have to miss activities?”*

Normal Menstruation in Adolescents

Menarche (median)	12.4 years
Mean cycle interval	32 days in 1 st gynecologic year
Menstrual cycle interval	21-45 days <ul style="list-style-type: none">• 75% during 1st year• 95% are 21-38 days by 4th year
Menstrual flow length	2-7 days
Menstrual product use	3-8 pads/tampons per day

Patterns

Ovulation → regular periods



Anovulation → widely spaced, unpredictable, or prolonged bleeding



Definitions

Primary amenorrhea	No menarche by age 15
Secondary amenorrhea	Cessation of regular menses x 3 mos or irregular menses x 6 mos
Oligomenorrhea	Normal flow at prolonged intervals <ul style="list-style-type: none">• Year 0 to <1: < 6/yr, avg >60 days• Year 1 to <3: <8/yr, avg >45 days• Year 3+: <9/yr, avg >38 days
Menorrhagia	Prolonged/heavy flow at normal intervals
Metrorrhagia	Bleeding at irregular intervals
Menometrorrhagia	Prolonged/heavy flow at irregular intervals

May Require Evaluation

Too Little	Too Much
Not started within 3 years of thelarche	Last > 7-8 days
Not started by 14 + hirsutism, excessive exercise, or ED	Soaking pad/tampon > Q1-2 hrs, soaking through clothes/sheets
Not started by 15	Heavy periods + excessive bruising or family h/o bleeding disorder
Cycles >45 days	Cycles < 21 days (<19 in 1 st year)
Cycles >90 days, even once	

Causes of AUB

- **Immature HPO Axis → Anovulation**
- **Coagulopathy**
 - Platelet function disorders (von Willebrand Dz=most common)
 - Other bleeding disorders
 - Clotting factor deficiencies
 - Thrombocytopenia
 - Fibrinolytic pathway defects
- **Pregnancy**

Causes of AUB

- **Endocrinopathy**

- Hyperandrogenic anovulation
 - PCOS
 - Nonclassical CAH
 - Androgen-producing tumors
- Hypothalamic dysfunction
 - Functional hypothalamic amenorrhea
 - ED/weight loss/excessive exercise
 - Stress
 - Chronic disease
- Hyperprolactinemia
- Thyroid disease
- Primary pituitary disease
- Primary ovarian insufficiency
- Cushing Disease

Causes of AUB

- **Infections**
 - Cervicitis
 - Condyloma
 - Vaginitis
- **Abnormalities of the GU Tract**
 - Congenital malformation
 - Rhabdomyosarcoma
 - Foreign body
 - Polyp, fibroid

Causes of AUB

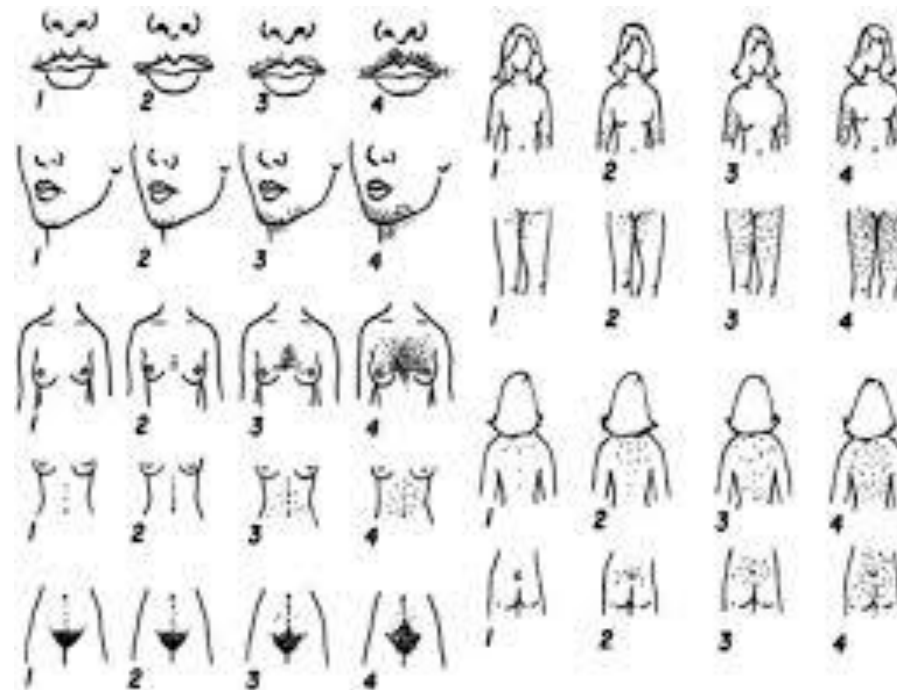
- **Medications**
 - Chemotherapy, radiation
 - Anticoagulants
 - Contraceptives
 - Spironolactone

History

- **Menstrual hx**
- **Sexual hx**
- **ROS**
 - Bleeding/bruising
 - Hair loss/growth
 - Weight changes
 - Visual changes
 - Galactorrhea
 - Headaches
 - Energy
 - Exercise
 - Acute/chronic disease
 - Stress
- **Family hx**
 - Bleeding/clotting
 - Irregular periods
 - Infertility
 - DM
 - Thyroid
- **Medications**

Physical Exam

- Height, weight, BMI
- BP
- Skin
 - Hirsutism
 - Acne
 - Bruising, petechiae
 - AN
- Thyroid
- SMR Breast
- GU
 - Virilization



Case 1: Nadia, age 14

- CC: “Periods come twice a month and long”
- Menarche= 8 mos prior
- Periods Q20-24 days, last 7-8 days
- Not sexually active
- Negative ROS, Family hx

Evaluation?

Case I: Evaluation

- HCG negative
- CBC normal

Case I: Management

- **Normal**
- Anticipatory guidance
- Period tracking
- NSAIDs
- RTC if prolonged periods, symptoms of anemia, interest in hormonal treatment

Case 2: Mindy, age 13

- Periods Q3-7 weeks, x 1-2 weeks w/variable flow
- LMP 3 weeks ago, still bleeding
- Menarche 1 year ago
- (+) Fatigue
- (-) Other bleeding, easy bruising
- Not SA
- Family hx negative
- PE normal w/SMR 4, 5

Evaluation?

Evaluation of Heavy/Prolonged MB

- **HCG**
- **TSH**
- **CBC**
- PT, PTT, fibrinogen, von Willebrand Ag and activity, Factor VIII activity

- GC/Chlamydia?
- Prolactin?
- Testosterone?
- Pelvic US?

Case 2: Workup

- HCG neg
- TSH nl
- CBC: Hgb 11, MCV low, RDW high
- Coagulopathy labs: NI
- **HPO Axis Immaturity**
 - Diagnosis of exclusion
 - Tends to improve with time
 - Monitor for worsening, recurrence, other emerging pathology

Mild HMB (Hgb > 12)

- Observation and reassurance
- Track periods
- Consider hormone treatment, NSAIDs
- F/U in 3-6 mos, sooner if worsens

Moderate HMB (Hgb 9-12)

- Hormonal treatment
 - **Continuous COCs until Hgb normalizes**
 - 30-35 EE
 - If active heavy bleeding, BID-TID until bleeding stops then QD
 - Antiemetic
 - Medroxyprogesterone 10 mg Q4-6 hrs if EE contraindicated
 - Then 10-30 mg x 7 d, 10-20 mg x 14 d
 - Cycle 10 mg from the 1st-14th of each month
- Transexamic acid?
- Fe
- F/U 1 week- 1 mo
 - If no significant improvement in 24-48 hours, call office

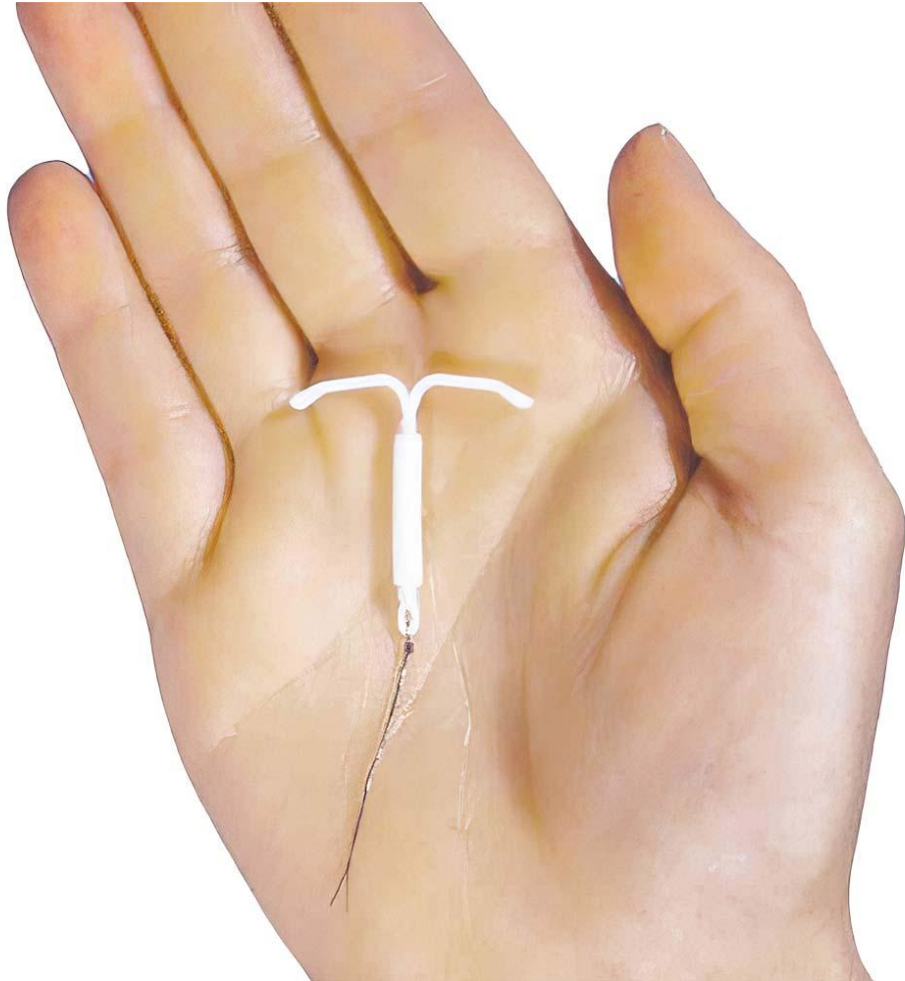
The net effect of each COC is determined by the individual progestin's characteristics, dosage, and combination with EE.

- Pink- less androgenic; Blue-more androgenic
- Green- higher progestin potency; Yellow- lower progestin potency
- Red- fewer bleeding days (compares FDA approval studies, which may not be appropriate)

Progestin Generation	Progestin	Name	Progestin mg/EE mcg	Active/Placebo	
1 st	Norethindrone acetate/NE	Lo Loestrin Fe	1/10, 10	26/2	
		Gildess, Junel, Loestrin Fe 1/20, Microgestin	1/20, (+/- Fe)	21/7 Micro non-Fe=21s	
		Minastrin 24 Fe, Loestrin 24 Fe	1/20, Fe	24/4	
		Gildess, Junel, Loestrin Fe 1.5/30, Microgestin	1.5/30, (+/- Fe)	21/7 Micro non-Fe=21s	
		Generess Fe	0.8 NE/25, Fe chewable	24/4	
		Zenchant Fe, Zeosa	0.4 NE/35, Fe chewable	21/7	
		Qycon 35	0.4 NE/35	21/7	
		Nortrel 0.5/35, Brevicon, Modicon	0.5 NE/35	21/7	
		Ortho-Novum 1/35, Necon 1/35, Nortrel 1/35, Norethin, Norinyl 1/35	1 NE/35	21/7	
	Ethinodiol diacetate	Zovia 1/35E, Demulen 1/35	1/35	21/7	
		Zovia 1/50E, Demulen 1/50	1/50	21/7	
	2 nd	Levonorgestrel -Lowest clot risk	Alesse, Aviane, Lutera, Sronyx, Orsythia, Levlite	0.1/20	21/7
			Levlen, Portia-28, Nordette 28, Levora 0.15/30, Lillow, Marlissa	0.15/30	21/7
Enpresse, Trivora			0.05-0.075-0.125/30-40	21/7 Triphasic	
Amethia Lo, Lo Seasonique			0.1/20, 10	84/7	
Amethia, Camrese, Seasonique			0.15/30, 10	84/7	
Seasonale, Introvale, Jolessa, Quasense			0.15/30	84/7	
Norgestrel		Lo/Ovral 28, Cryselle, Low-Ogestrel	0.3/30	21/7	
3 rd	Desogestrel -Higher VTE risk?	Azurette, Kariva, Mircette	0.15/20, 10	21/2/5	
		Caziant, Cyclessa, Cesia, Velivet	0.15-0.125-0.15/25	21/7 Triphasic	
		Apri, Desogen, Reclipsen, Solia, Emoquette, Ortho-Cept 28	0.15/30	21/7	
	Norgestimate	Ortho Tri-Cyclen Lo	0.18-0.215-0.25/25	21/7 Triphasic	
		MonoNessa, OrthoCyclen, Sprintec, Previfem	0.25/35		
4 th	Drospirinone -Anti-androgenic -Mineralocorticoid -Higher VTE risk?	Gianvi, Loryna, Vestura, Yaz	3/20	24/4	
		Beyaz	3/20, Folate	24/4	
		Ocella, Syeda, Yasmin, Zarah	3/30	21/7	

Medical Conditions/Side Effect Management			
Acne, hirsutism, seborrhea	Higher EE, lower androgen (Yasmin, Desogen, Ortho-Cyclen)	Nausea	Lower EE
Weight gain	Lower EE, lower progestin, lower androgen	Headaches	Lower EE, lower progestin
Breakthrough bleeding	Higher EE, higher progestin	Breast tenderness	Lower EE, lower progestin
Bloating	Drospirinone	Mood changes, fatigue	Lower progestin (PMDD- Yaz, Yasmin FDA)
PCOS	Lower androgen	Severe cramps	Higher progestin

IUS



- Progestin- IUDs
- Amenorrhea common within 6 mos
- OK for nulliparous and non SA

Severe HMB (Hgb < 9)

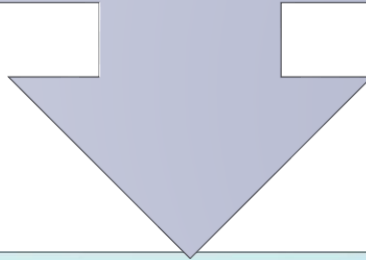
- Hospitalize?
 - Hgb < 8
 - Hemodynamically unstable
- 30-50 EE COC Q4 hours until bleeding stops, then QID x 3 days, TID x 3 days, BID x 2 weeks, QD until Hgb normal
- COC x 6 mos+

Case 3: Blaire, age 12

- Since menarche 3 mos ago, periods are heavy w/soaking and large clots, prolonged x10-15 days
- C/o fatigue
- Not SA
- Family history negative for bleeding/clotting disorder

Evaluation?

Bleeding disorder present in up to 1/3 patients with menorrhagia



Suspect bleeding disorder

Menorrhagia starts at menarche

Anemia

Other bleeding

Family history

Case 3: Evaluation

- HCG neg
- TSH nl
- CBC: Hgb 9.5
- vWF:Ag below 30
- Plasma vWF activity low
- Factor VIII activity low
- PT, PTT normal

Von Willebrand's Disease

- COCs can increase vWF:Ag
- Refer to Hematology
- Ongoing COCs

Case 4: Polly, age 16

- Menarche at 10
- Periods were regular, then Q2-3 mos for past 2 years
- LMP 4 mos ago
- ROS:
 - Hair growth on face, abdomen
 - Weight gain 10# this year
 - Not SA
- Family History
 - Mom- DM, HTN, obesity

Case 4: Exam

- BMI 95th%
- Moderate AN
- Mild pustular acne on back and chest, moderate on face
- Moderate terminal hair growth on chin, sideburns, abdomen

Evaluation?

Evaluation of Oligo/Secondary Amenorrhea

- HCG
- TSH
- Prolactin
 - 100+ → Brain MRI
 - 30-100 → Repeat w/AM draw; if still high, refer to endo
- FSH, LH
- Estradiol

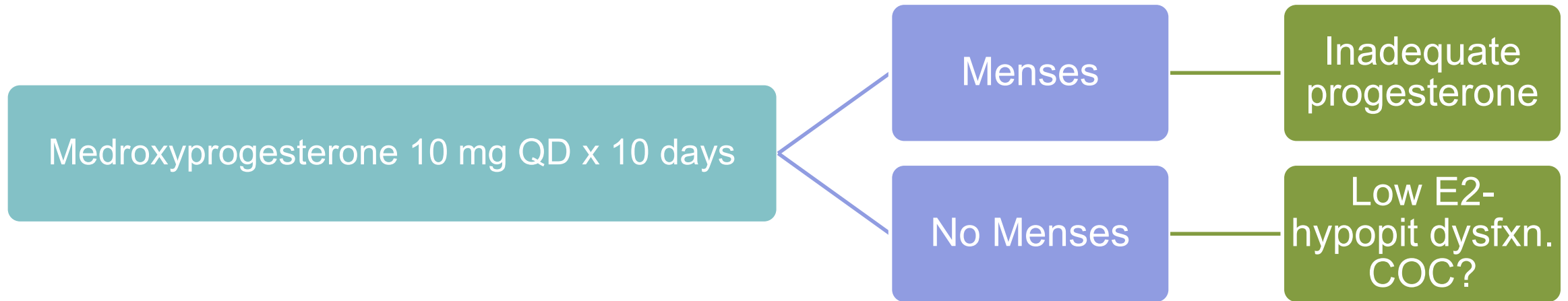
- *R/o chronic dz: HgbA1C, celiac, ESR, Chem 14?*

Evaluation of Oligo/Secondary Amenorrhea

Hyperandrogenism

- AM Free testosterone* (if only direct available, order total testosterone)
 - >150 → pelvic US and adrenal CT
 - 60-150 → PCOS eval
- DHEAS
 - >700 → adrenal CT
- 17-OHP
 - >200 → endo referral for NCCAH
- IGF-1?
- Cortisol?
- US?

Provera Challenge



Case 4: Workup

- All normal except Free Testosterone mildly elevated
- Menstruated after Provera Challenge

PCOS: Diagnosis

Irregular Periods	Hyperandrogenemia Clinical OR Lab	
Persist x 2 years	Moderate-severe hirsutism	↑ Testosterone
	Mod-severe inflammatory acne resistant to antibiotics	

- +/- ↑ LH: FSH, ↑ DHEAS
- Need to exclude DDX
 - Virilization suggests another cause

PCOS: Associations

- Obesity (50%)
- Insulin resistance
 - AN
 - Metabolic syndrome
 - DM
 - Sleep disordered breathing
 - Hepatic steatosis
- Endometrial hyperplasia/ca
- Fertility

PCOS: Treatments

- Healthy nutrition and exercise
- COC 30-35 EE
 - Progestin only contraceptive or Provera 10 mg x 10 days Q3 mos if EE contraindicated
- Metformin
- Spironolactone
- GLP-1 receptor agonist?

Case 5: Hattie, age 15

- Menarche at 11, periods were monthly until 5 months ago
- ROS:
 - New school, anxious
- PE:
 - Lost 20 lbs; BMI 90th% → 50th%
 - No hirsutism, deepened voice, clitoromegaly, headaches, vision changes, nipple discharge
 - SMR 5, 5

Evaluation?

Case 5: Secondary Amenorrhea

- HCG neg
- TSH nl
- Prolactin nl
- FSH low, LH nl
- E2 low-nl
- HgbA1C, celiac, ESR, Chem 14 nl

Case 5: Functional Hypothalamic Amenorrhea

- Due to weight loss
- Refer for ED treatment
- Do not rx COCs unless SA
- Food is the best treatment

Pearls

- Anovulatory HPO Immaturity, Functional Hypothalamic Amenorrhea, and PCOS are diagnoses of exclusion
- Cycles > 90 days need eval
- Monitor menstrual concerns over time; may need further evaluation
- Provide information on treatment options so that families can make their own best decisions



Questions?

- **Send me an e-consult!**
- Small group sessions
- Mentoring

