HY OBGYN Shelf Review

Some MS4
Introduction

-Welcome to M3.

-The key to doing well on rotations is to study early with a decent resource (ask upperclassmen), and get through (aka do and thoroughly review) the UWorld questions and 4 NBME practice exams.

-The review videos by Emma Ramahi/Onlinemeded are also clutch. Use them!

-The OBGYN shelf is a management heavy shelf. The test writers are profoundly gifted at writing ambiguous questions. To counter this, focus on first understanding the material and then being familiar with case scenarios that buttress these concepts (our focus today).

-3rd year builds on Step 1 material. Many exam questions depend on your ability to recognize disease scripts (with unusual wording) that draw on pathophysiology you already know. It is especially important in your studying to focus on risk factors for disease, sequential steps in management of disease, and establishing a diagnosis in the context of clinical clues.
-One of the strongest indicators of future success on Step 2 is strong performance on shelf exams. I would encourage you to study hard for and try to do well on these exams. You’ll thank yourself next year. Unlike Step 1, there is no good comprehensive step 2 resource.

-To do well on NBME exams-> don’t make assumptions (don’t pick an answer based on something that is not there), pick the simple answer that has the most evidence, don’t overthink questions (just put everything together), mark questions you want to return to down the line (don’t spend 5 mins on a question with a first pass), study hard (the more you know, the better you’ll perform), and practice a lot (UWorld and others especially the NBMEs).

-Disclaimer
A 22 yo G1P1 female visits her obstetrician 1 week after she delivered a boy that weighed 6 Lbs and 4 ounces. The delivery was unremarkable with APGAR scores of 8 and 9 at 1 and 5 minutes respectively. The patient plans to have her next baby when she graduates from graduate school 2 years from now. In addition to routine screening for postpartum depression, what is the next best step in the management of this patient?

a. Discussion of the benefits of breastfeeding as an excellent long term form of birth control.
c. Prescription for a combined oral contraceptive pill.
d. Prophylactic sertraline for postpartum depression.
e. Obtaining consent for the administration of depo medroxyprogesterone acetate during this visit.
Q1 Key
- The best answer here is E.

- In the postpartum period, breastfeeding may be ok as birth control for a 6 mo period, however it is not completely reliable.

- In a woman that expresses a desire for birth control postpartum, resist the temptation to prescribe anything containing estrogen (inhibits breastfeeding, C is wrong).

- Progestin only contraceptives are the ideal option on your NBME. HY associations wrt to these contraceptives include-the MOA revolving around thickening cervical mucus, protection against endometrial cancer, avoidance in the setting of breast cancer (or other progesterone receptor positive gynecologic malignancies), an association of injectable progesterone with a delayed return to fertility after discontinuation (up to a year), possible weight gain, and in some cases, a decrease in bone mineral density.

- As an aside, treat breast mastitis with dicloxacillin.
- It is also HY to know that breastfeeding is associated with a decreased risk of:

**Breast cancer** - Prolactin shuts down GnRH which nukes estrogen production. Estrogen drives many breast cancers.

**Ovarian cancer** - Prolactin shuts down GnRH which causes anovulation. With anovulation, the ovarian epithelium does not have to be broken down and repaired each month (which happens with ovulation). This reduces the potential for malignant transformation of ovarian epithelium.

- Breast feeding also helps with **weight loss**.

- A woman with HIV, active TB, or active herpes lesions on the breast should not breastfeed. Should a woman with **mastitis (S. Aureus, give dicloxacillin)** breastfeed? **Galactosemia** is also a contraindication to breastfeeding.
Q2

Given the following clinical scenarios, what is the most likely diagnosis?

22 yo F is tearful 3 days after delivery. She has been breastfeeding and taking good care of the baby.

22 yo F is brought to the ED by her husband 3 days after delivery. He found a small radio taped to her head. She claims to be receiving detailed instructions from outer space on how sacrificing her baby would end world hunger.

22 yo F comes to her 3 week postpartum visit. She looks dishevelled and admits to occasionally having thoughts of hurting the baby which she feels remorseful about. She has been breastfeeding the baby but no longer enjoys activities she loved before she got pregnant. She is accompanied by her husband who appears to be supportive.
Q2 Key

Given the following clinical scenarios, what is the most likely diagnosis?

22 yo F is tearful 3 days after delivery. She has been breastfeeding and taking good care of the baby—**Postpartum blues. Reassure the parent, avoid prescribing medications.**

22 yo F is brought to the ED by her husband 3 days after delivery. He found a small radio taped to her head. She claims to be receiving detailed instructions from outer space on how sacrificing her baby would end world hunger—**Postpartum psychosis (consider with hallucinations, hearing voices, etc). Hospitalize involuntarily if need be, start an atypical/typical antipsychotic.**

22 yo F comes to her 3 week postpartum visit. She looks dishevelled and admits to occasionally having thoughts of hurting the baby which she feels remorseful about. She has been breastfeeding the baby but no longer enjoys activities she loved before she got pregnant. She is accompanied by her husband who appears to be supportive—**Postpartum depression. The patient will match 5/9 of the SIGECAPS symptoms (including depressed mood or anhedonia) on your test. Don’t be swayed by the presence of only 4 symptoms. Prescribe an SSRI.**
Q3

4 days after the cesarean delivery of a 9 Lb female, a 33 yo G2P2002 complains of abdominal pain. Vital signs include BP 120/80, HR 99 bpm, RR 19 bpm, T 102.3. Physical exam is notable for diffuse lower abdominal tenderness and foul smelling vaginal discharge. A decision was made to pursue cesarean delivery secondary to an arrest of the active phase of labor. What is the most important risk factor for this patient’s presentation?

a. Multiple cervical exams.
b. Maternal infection prior to delivery.
c. Arrest of the active phase of labor.
d. Fetal macrosomia.
e. Cesarean delivery.
-As you probably know already, the NBME absolutely loves testing risk factors on 3rd year shelf exams. As you go through the year, consider making a running list of risk factors (and screening guidelines) for stuff. You’ll thank yourself on Step 2.

-This patient has endometritis which is a uterine infection typically after delivery. Anything that can introduce external microbes to the internal environment of the uterus is a risk factor.

-Cesarean delivery, multiple cervical checks, prolonged labor, prolonged rupture of membranes, and chorioamnionitis (infection of the amniotic fluid) all serve as RFs for endometritis. The most important however is cesarean delivery. E is correct.

-The most common treatment regimen on NBMEs for endometritis is the combination of clindamycin and gentamicin (ECG-> Endometritis = Clindamycin/Gentamicin).
Q3 Key contd.

- For your exam, do not confuse endometritis with chorioamnionitis. **Chorioamnionitis** is an infection of the amniotic fluid. The HY RF here is a **prolonged rupture of membranes**.

- The underlying mechanism here is the **ascension of bugs up the vaginal tract** after membranes are ruptured. Consider this as your dx in the setting of a **prolonged ROM and tachycardia (HR > 160) in the fetus** (aka still not delivered) or in a Q stem discussing **foul smelling amniotic fluid**.

- Treatment here is with **ampicillin and gentamicin** + **induce labor ASAP**. If you see mention of a **stillborn** child with abscesses in multiple parts of the body in the setting of **foul smelling amniotic fluid, consider Listeria** as the offending agent (granulomatosis infantisepticum). Another weird HY scenario to be aware of is the need to **give GBS prophylaxis if a woman has ROMed for > 18 hrs.**
Diagnosing and Dating Pregnancy

- Pregnancy is diagnosed with a **B-HCG** which can often be detected in the serum up to 1 week before it can be detected in the urine.

- Checking the B-HCG will be the next best step in management for a host of practice/real exam Q’s you’ll encounter -> **woman presenting with amenorrhea, woman presenting with concerning signs for an ectopic pregnancy**, etc.

- A woman’s due date can be derived by **adding 7 days to the first day of her LMP, subtracting 3 mo, and adding 1 year** (Naegele’s Rule).

- For example, a woman with the first day of her LMP being August 8 2017 will be due on the 15th of May 2018 (add 7 days, August 15 2017; subtract 3 mo May 15 2017; Add 1 year May 15 2018).
Other Pregnancy Basics

-A woman that is G4P3104 has;

Been pregnant 4 times (gravidity)

Had 3 term pregnancies (term = > 37 weeks to < 42 weeks).

Had 1 preterm pregnancy (preterm = > 20 weeks but < 37 weeks)

Had 0 abortions (no pregnancy loss prior to 20 weeks).

And has 4 living children (basically the sum of the last 3 numbers).

This is the commonly used TPAL system. Remember that parity has to do with the number of children a woman has.
Q4-Do You Want To A Pregnant Millionaire???

Match the pregnancy change to the most likely 1 liner;

- A blue/purple cervix and vagina
- Blotchy pigmentation of the face
- Changes in arterial blood pressure (first 20 weeks)
- Changes in arterial blood pressure (after 20 weeks)
- Plasma volume changes
- Systemic Vascular Resistance changes/Oncotic pressure changes
- Cardiac output changes
- Cardiac output changes with being supine
- RBC mass changes
- Hgb/Hct changes
- Levels of coagulation factors
- Gastric motility/gastric emptying time
- Colonic motility/colonic transit time
- Effects of gastric motility/colonic motility changes
- Acid base imbalance/Tidal volume change
- Ureteral size changes
- Changes in serum BUN/Cr/GFR/Creatinine Clearance
- Glucose and Protein levels in the urine
- Pituitary size changes/possible sequelae of this change
- Thyroid size change/TBG change/Total Thyroid hormone levels/Free thyroid hormone
- B-HCG levels
Q4 Key-Do You Want To Be A Pregnant Millionaire??

Match the pregnancy change to the most likely 1 liner;
A blue/purple cervix and vagina—**Chadwick’s sign** (progesterone vasodilation increases vascularity).
Blotchy pigmentation of the face—**Chloasma**.
Changes in arterial blood pressure (first 20 weeks)—**decrease** (progesterone is a smooth muscle relaxant).
Changes in arterial blood pressure (after 20 weeks)—**increase** (but still ends up being less than normal).
Plasma volume changes—**increases 50%** (makes sense, mom loses blood during delivery, so she should prepare!)
Systemic Vascular Resistance changes/Oncotic pressure changes—**decrease** (progesterone)/**decrease** (low albumin).
Cardiac output changes—**increase** (HR and SV—**from increased plasma volume—both go up**).
Cardiac output changes with being supine—**decrease** (uterus compresses the IVC).
RBC mass changes—**increase by 30%** (O2 carrying capacity goes up).
Hgb/Hct changes—**decrease** (remember that Hgb is a mass/volume ratio—plasma volume goes up more than RBC mass).
Levels of coagulation factors—**increase** (pregnancy is a hypercoagulable state).
Gastric motility/gastric emptying time—**decrease/increase** (predisposes to heartburn from reflux of gastric contents).
Colonic motility/colonic transit time—**decrease/increase**—again all from progesterone mediated smooth muscle relaxation.
Effects of gastric motility/colonic motility changes—**gastric reflux (heartburn)/constipation**.
Acid base imbalance/Tidal volume change—**respiratory alkalosis secondary to hyperventilation** (TV increases).
Ureteral size changes—**increase** (from progesterone vasodilation), causes urinary stasis, increased UTI risk.
Changes in serum BUN/Cr/GFR/Creatinine Clearance—**decrease/decrease/increase/increase**.
Glucose and Protein levels in the urine—**increase** (glucose transport maximum goes down in the PCT).
Pituitary size changes/possible sequelae of this change—**increase** (producing more hormones)/Sheehan’s Syndrome.
Thyroid size change/TBG change/Total Thyroid hormone levels/Free thyroid hormone—**first 3 increase/last is unchanged**.
B-HCG levels—**increase for first 10 weeks, then decrease**, more HCG = more vomiting (hyperemesis gravidarum).
A 32 yo F at 36 weeks gestation comes to the ED because she has not felt her baby move for the past 36 hours. Physical exam reveals a distance of 37 cm from the pubic bone to the top of the uterus. No fetal cardiac tones are detected on doppler ultrasound. The rest of the exam is within normal limits. The patient’s blood pressure is 105/78, HR 78 bpm, RR 16 bpm, T 99.1 F. In addition to patient centered counseling and a demonstration of physician empathy, what is the next best step in the management of this patient?

a. Transvaginal ultrasonography.
b. Insertion of an internal uterine pressure catheter.
c. Cesarean delivery of the deceased fetus.
d. Induction of labor with IV Oxytocin.
e. Discharge with return in 7 days for a planned C Section.
Q5 Key

-The best answer here is D. With a deceased fetus, the next step in management is to console the mom, respect her decisions, and consider induction of labor with the goal of achieving a vaginal delivery.

-On the NBME exams, resist the temptation to offer a C-section. The risk of the surgery is not worth it.

-You should also avoid options that involve leaving the baby in place for a prolonged period of time to avoid sepsis and potential death in the mom.
A 25 yo primigravida at 10 weeks gestation presents for her first prenatal visit. Maternal exam and vital signs are within normal limits. Maternal Hb is 11g/dL and WBC is 6000. A most recent pap smear conducted 5 months earlier was unremarkable. Rubella titers are within normal limits. The patient is HbSAb +ve, HbCAb -ve, and HbSAg -ve. A chlamydia, syphilis, and HIV screen are all negative. What is the next best step in the management of this patient?

a. Urinalysis.
b. Administration of Vitamin A to promote fetal limb development.
c. Administration of the intranasal influenza vaccine.
d. Administration of the measles, mumps, and rubella vaccine.
e. Continue routine prenatal care.
Q6 Key

-The best answer here is A. Pregnant women should get a urinalysis at their first prenatal visit as a means of screening for asymptomatic bacteriuria which can progress to a life threatening pyelonephritis (tx pyelo with IV ceftriaxone, consider nitrofurantoin, amoxicillin, or fosfomycin for asymptomatic bacteriuria). The presence of urinary frequency/urgency in the setting of suprapubic pain should guide you towards cystitis as the more likely dx over pyelonephritis (flank pain, CVA tenderness).

-One odd factoid is the need to maintain a female with pyelonephritis on suppressive therapy (possibly with nitrofurantoin) for the rest of her pregnancy.

-For future exams, non-pregnant females with asymptomatic bacteriuria deserve NO treatment.

-After a pregnant woman is treated for a UTI, consider performing a test of cure.

-As an aside, pregnant females should also receive folate and iron supplementation during the pregnancy. Vitamin A in excessive amounts is a teratogen.
Q7

What is the most appropriate timeframe for the following prenatal tests/interventions?

Rh (D) immune globulin in an Rh- female

Vaginal swab for S. Agalactiae (GBS)

Screening for GDM

Chorionic Villus Sampling

Screening US for NTDs

Amniocentesis, Quadruple Screen
Q7 Key
What is the most appropriate timeframe for the following prenatal tests/interventions?

Rh (D) immune globulin in an Rh- female- **28 weeks** *(not for Rh- mom + Rh- dad).*

Vaginal swab for S. Agalactiae (GBS)- **35-37 weeks.**

Screening for GDM- **24-28 weeks.**

Chorionic Villus Sampling- **10-13 weeks.**

Screening US for NTDs- **18-20 weeks.**

Amniocentesis, Quadruple Screen- **After 15 weeks. Usually before 20 weeks.**

It is particularly important to know when fetal chromosomal anomaly tests can be completed. In addition to the ones mentioned below, cell free DNA can be done after 10 weeks. Invasive procedures (say amniocentesis) deserve prophylactic Rh (D) immune globulin (even before 28 weeks).
Q7 Key contd.

- Elevated AFP in a mom’s serum should clue you into NTDs (also elevated acetylcholinesterase in amniotic fluid), omphalocele, gastroschisis, twin (or higher) pregnancies, incorrect dating (may be the MCC).

- Decreased AFP and Estriol, with increased inhibin A and B-HCG = Down’s Syndrome (T21) on your test. A decrease in the AFP, Estriol, and B-HCG on your test = T18 (Edward’s Syndrome->associate with rocker bottom feet and overlapping digits on your exam).

- If a quad screen is +ve on your test, consider getting a screening US as your next step before proceeding to the invasive stuff.

- Remember the famous lecithin:sphingomyelin ratio of 2 or greater from Step 1 as an indication of fetal lung maturity.
Gestational Diabetes Mellitus (GDM)

- In an earlier slide, we discussed screening for GDM b/w 24-28 weeks. This is typically done with a 1 hr and a 3 hr Oral Glucose Tolerance Test (OGTT). It is highly unlikely that you’ll need to memorize the specific cutoff values for your exam.

- Treatment of GDM revolves around dietary changes/exercise (consume less carbs) and insulin. Metformin/Glyburide is now being used quite commonly for GDM but it has not necessarily made its way into NBME territory (yet).

- Pregnant females are predisposed to getting GDM secondary to the production of Human Placental Lactogen (HPL), a hormone that increases insulin resistance which ultimately creates a state of hyperglycemia that shunts more energy towards the fetus.

- GDM has solid associations with macrosomia, polyhydramnios (a hyperglycemic baby makes more urine), neonatal hypoglycemia (and hypocalcemia), and preeclampsia.
Gestational Diabetes Mellitus (GDM) contd.

-A woman that is diabetic before pregnancy can have many of the complications discussed in the previous slide. In addition, her baby has fairly significant risks of *cardiac problems* (*hypertrophic cardiomyopathy* is the one classically tested) and certain “lower body” problems like;

**Sirenomelia** (fusion of the legs).

**Caudal regression syndrome** (sacral hypoplasia).

-Other classically tested factoids include the presence of *hypocalcemia at birth*, the > 4500g fetal weight cutoff as a reason to offer a C-Section, etc.

-Some women with GDM or diabetes before pregnancy receive increased surveillance in the 3rd trimester as a means of assessing fetal wellbeing.
Q8

Given the following maternal BMIs, what is the recommended weight gain during pregnancy?

BMI 32
BMI 17
BMI 23
BMI 27
Given the following maternal BMIs, what is the recommended weight gain during pregnancy?

BMI 32-This patient is obese (11-20 pounds).

BMI 17-This patient is underweight (28-40 pounds).

BMI 23-This patient has a normal weight (25-35 pounds).

BMI 27-This patient is overweight (15-25 pounds).
Given the following scenarios what is the most likely diagnosis?

A 39 yo F presents with mood swings and amenorrhea for the past year. During the interview, she describes having severe episodes of intense sweating and palpitations once or twice daily. Her medication list includes levothyroxine and physical exam reveals skin hyperpigmentation.

A 19 yo F presents with intense anal pruritus. Physical exam reveals erythema of the vulvovaginal area. She recently completed a course of Ciprofloxacin for lobar pneumonia. She has a history of Type 1 DM. pH of her vaginal secretions are 4.3. KOH prep reveals spores and structures resembling hyphae.
Q9 Key

Given the following scenarios what is the most likely diagnosis?

A 39 yo F presents with mood swings and a lack of menses for the past year. During the interview, she describes having severe episodes of intense sweating and palpitations once or twice daily. Her medication list includes levothyroxine and physical exam reveals skin hyperpigmentation—this is premature ovarian failure. This diagnosis is considered in the setting of menopausal sx before the age of 40. This patient likely has an autoimmune destruction of her ovaries given the history of Addison’s disease (hyperpigmentation) and hypothyroidism (Hashimoto’s).

A 19 yo F presents with intense anal pruritus. Physical exam reveals erythema of the vulvovaginal area. She recently completed a course of Ciprofloxacin for lobar pneumonia. She has a history of Type 1 DM. pH of her vaginal secretions are 4.3. KOH prep reveals spores and structures resembling hyphae.
The second patient has **Candida Vulvovaginitis**. Remember the association with a vaginal pH < 4.5, the presence of hyphae on KOH prep and an association with risk factors like DM, recent antibiotic use, and immunosuppression. Give an antifungal cream or oral fluconazole. You do not need to treat partners.

As an aside, remember the association of **Gardnerella Vaginalis** with a vaginal pH > 4.5, the presence of clue cells on KOH prep, and a “fishy” vaginal discharge. Treat with Metronidazole. Do not treat partners.

Consider **Trichomonas Vaginitis** in an exam Q detailing a female with a frothy, green, foul smelling discharge. They would usually mention something about severe pelvic inflammation (aka strawberry cervix/cervical erythema). You’ll see “motile structures” on KOH prep. Give metronidazole to the patient AND her partner. A peripheral question may involve avoiding alcohol to prevent the unwelcome disulfiram effect.
With menopause, **FSH and LH levels rise while estrogen levels fall.**

For your test, think of the following “adjunctive” treatments of menopause.

**Dyspareunia (pain with sex)**- lubricants, vaginal estrogen (avoid in a woman with a history of an estrogen responsive malignancy).

**Osteoporosis**- Ca, Vit D (increases Ca and P reabsorption in the gut), bisphosphonates, and maybe SERMS like Raloxifene. Remember than **anorexia increases a female’s risk of early osteoporosis while obesity actually decreases the risk of osteoporosis since being obese makes you bear more weight.** However, **obesity increases your risk of osteoarthritis.** Make sure you understand all these statements!

**Super severe menopausal sxs**- Short term hormone replacement therapy (HRT). Good **contraindications** on your test-> **estrogen/progesterone responsive malignancies, history of thromboembolic disease/strokes, hepatic adenomas,** etc.
A 34 yo F at 10 weeks gestation is brought to the ER by her husband who is concerned about his wife having severe vomiting for the past week. Physical exam reveals skin tenting and a fall of > 20 mm Hg in the patient’s systolic blood pressures with changes from a supine to a standing position. Her weight today is 131 Lbs. Her weight is recorded as 140 Lbs in the chart 3 months ago. Further testing of this patient would most likely reveal?

a. A hyperchloremic, hyperkalemic, metabolic acidosis.
b. A normochloremic, normokalemic, metabolic alkalosis.
c. A hypokalemic, hypochloremic, metabolic alkalosis.
d. Cl, K, and body pH would be within normal limits.
e. A serum pH of 7.23.
- The best answer here is C, a **hypochloremic, hypokalemic, metabolic alkalosis**. This patient has **hyperemesis gravidarum/HG (loss of > 5% of pre-pregnancy weight secondary to immense vomiting + ketosis)**. HG may be a presentation of GTD.

- The vomiting leads to the loss of gastric acids which creates a metabolic alkalosis and hypochloremia (losing HCl). The volume depletion from vomiting increases the activity of the RAAS system which precipitates a concomitant hypokalemia.

- These patients deserve volume repletion with **IVFs, antiemetics** (ondansetron, metoclopramide, etc), and replenishment of necessary **electrolytes** (one NBME favorite appears to be thiamine/Vit B1).

- For “**morning sickness**” of pregnancy, consider recommending small, frequent, bland meals along with Vit B6 (pyridoxal phosphate) and doxylamine (antihistamine).
A 26 yo F presents to her obstetrician for a yearly checkup. She has a past history of HTN that has been well controlled with Captopril and lifestyle modifications. BP 120/80, HR 65 bpm, RR 15 bpm. Other vital signs and the physical exam are within normal limits. BMI is 23. The patient had a Mirena IUD implanted 18 months ago and wants it removed at this office visit since she got married 3 months ago and plans to have kids. Her last pap smear was 2 years ago. In addition to routine preventive guidance and recommendations on appropriate vitamin supplementation, what is the next best step in management?

- a. Pap smear.
- b. Follow up exam in 6 months.
- c. Switch Captopril to Irbesartan.
- d. A single IV Ampicillin shot for GBS prophylaxis.
- e. Switch Captopril to alpha methyldopa.
-The best answer here is E. This patient has a hx of HTN and desires pregnancy. She is currently on **captopril (an ACE-I) which is a teratogen** (together with ARBs like Irbesartan, they both cause renal problems in the fetus).

-Antihypertensives that are safe in pregnancy include **hydralazine** (**direct arteriolar vasodilator, remember drug induced lupus and anti-histone antibodies**), alpha methyldopa (**a2 agonist that kills NE release**), labetalol (**a/b adrenergic blocker**), and **nifedipine** (**dihydropyridine CCB**). A useful mnemonic is **“Hypertensive Moms Love Nifedipine”**.

-It is super super HY to know the “definitions” and associated “hypertensive gradations” associated with pregnancy. Your friends at the NBME and ACOG love this stuff!
Q11 Key contd.

-Chronic HTN is HTN before a woman gets pregnant. Tx appropriately.

-Gestational HTN is HTN (BP > 140/90) at > 20 weeks gestation. No proteinuria.

-Preeclampsia is HTN + proteinuria (> 300 mg/day). The pathophysiology is still shaky here but the buzz phrases to recognize on your exam include terms like endothelial dysfunction, abnormal blood vessel formation, etc.

-As always, know your risk factors. For preeclampsia, the strongest RFs include nulliparity, being a super young/super old mom (age extremes), having a prior hx of preeclampsia, hydatidiform moles, and chronic HTN. The most important RF is a prior hx of preeclampsia.
Q11 Key contd.

- **Preeclampsia with SEVERE features** revolves around preeclampsia with telltale signs of **end organ dysfunction** (elevated LFTs or BUN/Cr, low plts, headache, visual problems, etc). Alternatively, if a woman with **preeclampsia has a BP > 160/110**, she qualifies for the severe features definition.

- At this point, you should begin to consider **Mg as prophylaxis for seizures** (watch out for the HY SEs of decreased DTRs, respiratory depression, and cardiac depression). Other treatments to consider include labetalol/nifedipine for elevated BPs. Consider giving Ca gluconate in the setting of Mg toxicity.

- **Eclampsia** is **preeclampsia + seizures**. You should definitely give **Mg and proceed to immediate delivery**.

- **HELLP syndrome** is a preeclampsia variant with hemolysis (schistocytes on a blood smear), elevated LFTs, and low plts.
Q12

Given the following birth defects, what is the most likely teratogen?

RV hypoplasia, downward displacement of the tricuspid valve
Tooth discoloration
Cartilage damage
Stippling of the epiphyses, do not use this anticoagulant in a pregnant female with a DVT
Clear cell adenocarcinoma of the vagina
Renal problems in the fetus
Gray Baby Syndrome
Kernicterus (buildup of toxic bilirubin metabolites in the brain)
Smooth philtrum, microcephaly, thin upper lip
IUGR, hypoplastic nails, microcephaly, cleft lip
Q12 Key

Given the following birth defects, what is the most likely teratogen?

RV hypoplasia, downward displacement of the tricuspid valve—**Ebstein’s anomaly, Li toxicity.**
Tooth discoloration—**Tetracycline (binds Ca, avoid in pregnant women/kids < 8).**
Cartilage damage—**Fluoroquinolones.**
Stippling of the epiphyses, do not use this anticoagulant in a pregnant female with a DVT—**Warfarin (remember pregnancy is a hypercoagulable state w/Virchow’s triad, use heparin instead, also HY to know that heparin is used for APLA syndrome). These women should probably avoid E2 contraceptives in the future.**
Clear cell adenocarcinoma of the vagina—**Diethylstilbestrol (DES, also T shaped uterus).**
Renal problems in the fetus—**ACE-I and ARBs.**
Gray Baby Syndrome—**Chloramphenicol.**
Kernicterus (buildup of toxic bilirubin metabolites in the brain)—**TMP-SMX.**
Smooth philtrum, microcephaly, thin upper lip—**fetal alcohol syndrome.**
IUGR, hypoplastic nails, microcephaly, cleft lip—**Phenytoin (fetal hydantoin syndrome).**
A 21 yo F presents to her PCP with complaints of severe facial acne. Her LMP was 1 week ago. The patient is in a stable relationship with her boyfriend of 3 months and they use condoms inconsistently. Physical exam is notable for open and closed comedones clustered around the patient’s lower face. Prior attempts with tetracycline, benzoyl peroxide, and combined OCPs have failed to yield any positive results. The patient smokes 2 cigarettes per day and requests a prescription for isotretinoin. The most likely contraindication to this treatment regimen is?

a. The patient’s age.
b. The patient’s history of smoking.
c. The patient’s history of unprotected sexual intercourse.
d. The patient’s history of pseudotumor cerebri.
e. There are no contraindications to the use of isotretinoin in this patient population.
- The best answer here is C, a **history of unprotected sexual intercourse**. Isotretinoin is a potent teratogen and patients typically have to be on 2 forms of birth control to be on this medication.

- **Smoking is a contraindication to the use of combined OCPs** but not isotretinoin.

- In addition to the teratogens listed 2 slides ago, remember the association between AEDs and NTDs and thalidomide with limb anomalies (phocomelia).

- **Cocaine** use during pregnancy is associated with **painful vaginal bleeding in the 3rd trimester (abruption)**. A Q stem detailing a jittery, inconsolable newborn in a mom with “dangerous habits” should clue you into withdrawal from some kind of drug (more than likely **opioids**). Remember to avoid a **regular NSAID in pregnancy** (use **acetaminophen**) to avoid closing the baby’s ductus arteriosus too early.
A 29 yo G3P2 becomes unresponsive 15 minutes after delivering a 3900 g newborn. Vital signs include BP 40/palpable, HR 40 bpm, RR 6 bpm, and an O2 saturation of 78%. The attending notices blood oozing from a venipuncture site. What is the most likely diagnosis?

a. Pulmonary embolism.
b. Amniotic fluid embolism.
c. Hemolytic Uremic Syndrome.
d. Thrombotic Thrombocytopenic Purpura.
e. Respiratory depression from excessive epidural use.
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b. **Amniotic fluid embolism.**
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e. Respiratory depression from excessive epidural use.
Q15-Breast Triggers

44 yo M being treated for NYHA 3 heart failure presents with gynecomastia
32 yo postpartum female (4 weeks) presents with fever, breast tenderness/erythema
22 yo F presents with multiple mobile breast masses, these masses become more painful and “wax and wane” in size with the menstrual cycle
23 yo F presents with a solitary, mobile, well defined, painless breast mass
31 yo F presents with a bloody nipple discharge
49 yo F presents with a large breast mass, core needle biopsy reveals a mass containing structures with “leaf like projections” on histology
BRCA mutation that is more commonly associated with male breast cancers
Most common location of breast cancers
Receptor positivity commonly found in lobular carcinoma in situ (LCIS)
Most common form of invasive breast cancer
55 yo F presents with a breast mass. PE reveals peau d’orange changes
55 yo F presents with an eczematoid, scaly appearing lesion around the nipple
Differences in survival b/w lumpectomy w/radiation vs mastectomy for early stage breast cancers?
NBSIM of a female with DCIS who has a +ve sentinel LN biopsy
Pharmacological treatment of ER/PR +ve breast malignancies
Pharmacological treatment of Her2/Neu +ve breast malignancies
45 yo F with a hx of breast cancer treatment presents with JVD and an EF of 35%
55 yo F with a 10 yr hx of lymphedema from ALND presents with weight loss and what appears to be a purplish, necrotic, ulcerating mass on her left arm
Q15 Breast Triggers Key

44 yo M being treated for NYHA 3 heart failure presents with gynecomastia - Spironolactone

32 yo postpartum female (4 weeks) presents with fever, breast tenderness/erythema - mastitis (may become an abscess, encourage breastfeeding, give dicloxacillin)

22 yo F presents with multiple mobile breast masses, these masses become more painful and “wax and wane” in size with the menstrual cycle - fibrocystic change (OCPs, caffeine reduction may help)

23 yo F presents with a solitary, mobile, well defined, painless breast mass - fibroadenoma

31 yo F presents with a bloody nipple discharge - intraductal papilloma

49 yo F presents with a large breast mass, core needle biopsy reveals a mass containing structures with “leaf like projections” on histology - Phyllodes tumor

BRCA mutation that is more commonly associated with male breast cancers - BRCA2

Most common location of breast cancers - Upper outer quadrant of the breast

Receptor positivity commonly found in lobular carcinoma in situ (LCIS) - ER and PR positivity

Most common form of invasive breast cancer - Invasive ductal carcinoma

55 yo F presents with a breast mass. PE reveals peau d’orange changes - Inflammatory breast cancer

55 yo F presents with an eczematoid, scaly appearing lesion around the nipple - Paget’s breast dz

Differences in survival b/w lumpectomy w/radiation vs mastectomy for early stage breast cancers? - No

NBSIM of a female with DCIS who has a +ve sentinel LN biopsy - Axillary LN dissection

Pharmacological treatment of ER/PR +ve breast malignancies - Tamoxifen (SERM), Anastrozole (aromatase-I)

Pharmacological treatment of Her2/Neu +ve breast malignancies - Trastuzumab

45 yo F with a hx of breast cancer treatment presents with JVD and an EF of 35% - Trastuzumab toxicity (DCM)

55 yo F with a 10 yr hx of lymphedema from ALND presents with weight loss and what appears to be a purplish, necrotic, ulcerating mass on her left arm - lymphangiosarcoma
Breast cancer is a relatively tricky topic on the NBME. There are certain common scenarios where many alternative decisions can be made. However, there is usually only one correct answer (on the test, not clinical practice per se). Let’s consider a few of them.

A 45 yo F presents with complaints of a palpable left breast mass she noticed when she was taking a shower one week ago. What is the next best step in the management of this patient?

A 45 yo F presents with complaints of a palpable left breast mass she noticed when she was taking a shower one week ago. A diagnostic mammogram is negative. What is the next best step in the management of this patient?
Q16B-Breast Cancer Scenarios

A 25 yo F presents with breast pain. Her LMP started 3 days ago. PE is notable for multiple, mobile breast masses. What is the next best step in the management of this patient?

A 25 yo F presents to her yearly GYN appointment with complaints of a palpable breast mass she noticed while taking a shower. PE reveals an immobile, painless mass located close to the nipple. She has no family history of breast cancer. What is the next best step in the management of this patient?
Q16C-Breast Cancer Scenarios

A 25 yo F presents for her yearly GYN appointment with complaints of a mass she felt while taking a shower. PE reveals a palpable, immobile breast mass in the upper outer quadrant of the breast. Ultrasound reveals what appears to be a solid mass. What is the next best step in the management (NBSIM) of this patient?

For the same patient above, what is the NBSIM if the US revealed a cystic mass?

For the same patient above, what is the NBSIM if an FNA of the cystic mass revealed blood? Serous fluid?
Q16D-Breast Cancer Scenarios

For the patient in Q16C, what is the NBSIM if a prior US with FNA revealed serous fluid and a new US at this visit reveals a recurrence of the cyst?
Q16A Key-Breast Cancer Scenarios

A 45 yo F presents with complaints of a palpable left breast mass she noticed when she was taking a shower one week ago. What is the next best step in the management of this patient? - Get a mammogram.

A 45 yo F presents with complaints of a palpable left breast mass she noticed when she was taking a shower one week ago. A diagnostic mammogram is negative. What is the next best step in the management of this patient? - Get a core needle biopsy. Resist the temptation to pick any kind of follow up. In general, a palpable breast mass in the right patient population (older ish female) deserves a biopsy even w/a negative mammogram.
A 25 yo F presents with breast pain. Her LMP started 3 days ago. PE is notable for multiple, mobile breast masses. What is the next best step in the management of this patient? - **Reassure and f/u in a month or so. This is more than likely a fibrocystic change.**

A 25 yo F presents to her yearly GYN appointment with complaints of a palpable breast mass she noticed while taking a shower. PE reveals an immobile, painless mass located close to the nipple. She has no family history of breast cancer. What is the next best step in the management of this patient? - **Get an ultrasound to determine if it is a solid or cystic mass. Note how the age of the patient sheds some light on the “imaging” decision in the setting of what may be a high risk lesion. Age 30 appears to be the cutoff. They tend to make these clear cut scenarios (e.g. young F or old F).**
Q16C Key-Breast Cancer Scenarios

A 25 yo F presents for her yearly GYN appointment with complaints of a mass she felt while taking a shower. PE reveals a palpable, immobile breast mass in the upper outer quadrant of the breast. Ultrasound reveals what appears to be a solid mass. What is the next best step in the management (NBSIM) of this patient? - **Consider getting a core needle biopsy in this case.** When an US reveals a solid mass, temptation may ride high to proceed to a mammo; don’t do that -> get the biopsy.

For the same patient above, what is the NBSIM if the US revealed a cystic mass? - **Fine needle aspiration.**

For the same patient above, what is the NBSIM if an FNA of the cystic mass revealed blood? Serous fluid? - **If an FNA reveals blood, proceed to a core needle biopsy** (you can also send the fluid for cytology). If an FNA reveals serous fluid, consider sending the fluid for cytopathology and doing another US in a few weeks/months to see if the cyst recurs.
Q16D Key-Breast Cancer Scenarios
For the patient in Q16C, what is the NBSIM if a prior US with FNA revealed serous fluid and a new US at this visit reveals a recurrence of the cyst? **Get a core needle biopsy.**

Other breast cancer related HY factoids include;

Knowing that women age 40 or higher need breast cancer screening every year as per the ACS and every 2 years from 50-74 as per the USPSTF. However, I have seen both guidelines tested on exams and the first one appears to be right most of the time.

An excisional biopsy may be the right answer to a Q that is specific in mentioning that a mammogram reveals a small, well circumscribed breast mass.

Women with BRCA mutations generally get breast MRIs in addition to the routine mammogram. They get mammograms early as well. Remember the prophylactic TAHBSO to reduce the risk of future cancer development.
A 33 yo G2P1 female presents to Labor and Delivery at 34 weeks for evaluation of consistent uterine contractions. Her last pregnancy required a classical C-Section secondary to severe obesity. As the OBGYN resident walks into the room, the patient begins to complain of severe abdominal pain. A pelvic exam is notable for copious amounts of blood emanating from the vaginal canal. Fetal monitoring reveals a HR of 33 bpm. The patient has a history of cocaine use with her current pregnancy. What is the most likely diagnosis?

a. Placenta previa  
b. Vasa previa  
c. Umbilical cord prolapse  
d. Uteroplacental insufficiency  
e. Uterine rupture
- The best answer is E. This patient has a **ruptured uterus**. The clues in the Q stem include a history of a **classical uterine incision for a C-Section** and the sudden onset of severe abdominal pain.

- Other important associations to keep in mind include a **loss of fetal station**, the palpation of “fetal parts” in the abdomen, etc.

- The NBSIM is a **crash cesarean** section. This is an emergency.

- **Placenta previa** is a low implantation of the placenta which presents as **painless 3rd trimester vaginal bleeding**. **Vasa previa** revolves around the transection of “exposed” fetal blood vessels overlying the lower segment of the uterus. It also presents as **painless vaginal bleeding** in the 3rd trimester.

- Both diagnoses require C-sections. Vasa previa is particularly dangerous.
Postpartum Hemorrhage (PPH)-Definition

According to ACOG. Blood loss;
- Greater than 500 ml after a vaginal delivery.
- Greater than 1000 ml after a cesarean section.
PPH Etiologies

- Uterine atony (most common cause) - tone

- Lacerations (cervix, vagina) - tear.

- Retained placental contents - tissue.

- DIC in the obstetric setting - thrombin.

- Uterine inversion - topsy turvy.
PPH #1-Uterine Atony

Uterine Atony

- Uterus is overworked
  - Rapid Labor
  - Prolonged Labor
- Uterus is infected
  - Chorioamnionitis
- Uterus is "too" relaxed
  - Tocolytics
  - Halothane (PcAMP)
- Uterus is too distended
  - Volume
    - Multiple gestations
    - Polyhydramnios
    - Macrosomia

- Uterine Massage
- Bakri Balloon
- B. Lynch Sutures

"Tonic agents"

- Oxytocin (Gq → PLC)
- Methergine (5HT2A receptors)
- Heme-Abate (Carboprost)
- Dinoprostone (PGE₂)
- Misoprostol (PGE₁)

- Vasospastic Dz
- Asthma
- Hypotension
PPH #2-Lacerations

Occur in the setting of;

- Rapid vaginal deliveries with minimal control.
- Difficult vaginal deliveries (shoulder dystocia).
- Operative vaginal deliveries (forceps, vacuum extraction).

Treatment is via **surgical repair.**
PPH #3 - Retained Placental Contents

- Succenturiate lobes.

- Invasive placenta (accreta, increta, percreta).

- Treatment is with curettage under ultrasound guidance or manual removal.
PPH #4-DIC In Obstetric Settings

- Placental abruption.
- Amniotic fluid emboli.
- Prolonged retention of a demised fetus.
- Severe preeclampsia.
- Clinically presents with “diffuse oozing”/prolonged coagulation times/petechiae.
- Multimodal management (hematologic products, remove inciting uterine contents, ICU care).
PPH #5-Uterine Inversion

-Caused by a host of factors (excessive cord traction, weakness of the myometrium).

-Key risk factor is a history of a prior inversion.

-Clinical presentation is classically a non-palpable uterus in the presence of a bulging vaginal mass.

-Treatment is physical “replacement” of the uterus with uterotonics to aid contraction.
Uterine Inversion

Normal $\implies$ Excessive Trichon, Myometrial Weakness $\implies$ Inversion $\implies$ Replacement + Uterotonics (i.e., Oxytocin)
PPH Treatments When All Else Fails

- Standard treatments don’t work.
- Source of bleeding not identified.
- Arterial ligations (uterine—at 2 spots, internal iliacs).
- Hysterectomy.
PPH Sequelae

- Pituitary doubles in size in pregnancy.
- Massive blood loss gives rise to infarction.
- Presents as lactational failure/signs of hypopituitarism.

Sheehan Syndrome (ischemic pituitary stroke) vs apoplexy.
PPH Summary

> 500ml blood loss (VD)
> 1000ml blood loss (C/S)

↓

Post-Partum Hemorrhage

↓

- Soft uterus, palpable above umbilicus
- Uterine Atony
- Massage
- Suturing
- Bakri Balloon
- Uterotonics

↓

- Contracted uterus
- Vaginal/cervical lacerations

↓

Surgery

↓

- Retained placental contents

↓

Curettage w/US

↓

- Oozing from every site
- DIC
- ICU
- Heme pads
- Remove offending agents

↓

- Non-palpable uterus,
  "Beefy bulging" mass
- Inversion
- Replace + Uterotonics

↓

Last Resort

- Uterine artery embolization
- Internal iliac ligation
- Hysterectomy
Menorrhagia

- Excessive flow duration with menses (> 7 days) OR excessive volume of menses (80 ml/cycle). In clinic, patient perception is more important.

- Tend to have regularly timed menstrual cycles.

- History is often significant for extensive menstrual pad utilization (24+ a day or 1+ per hour).

- Differential diagnosis can be remembered with the PALM-COEIN mnemonic.

- Falls under the larger category of AUB.
PALM-COEIN (or POLICEMAN???)

- Polyps
- Adenomyosis
- Leiomyomas
- Malignancy (and hyperplasia)
- Coagulopathy (VWD, Bernard Soulier, Glanzmann's Thrombasthenia)
- Ovulatory dysfunction (e.g. PCOS)
- Endometrial causes
- Iatrogenic (e.g. IUDs)
- Not yet classified
Abnormal Uterine Bleeding (AUB)
- Heavy menstrual bleeding (AUB/HMB)
- Intermenstrual bleeding (AUB/IMB)

PALM: Structural Causes
- Polyp (AUB-P)
- Adenomyosis (AUB-A)
- Leiomyoma (AUB-L)
  - Submucosal myoma (AUB-L_{SM})
  - Other myoma (AUB-L_{O})
- Malignancy & hyperplasia (AUB-M)

COEIN: Nonstructural Causes
- Coagulopathy (AUB-C)
- Ovulatory dysfunction (AUB-O)
- Endometrial (AUB-E)
- Iatrogenic (AUB-I)
- Not yet classified (AUB-N)
Other Alphabet Soup

**Metrorrhagia** is bleeding between periods (think of a metro bus coming more often).

**Polymenorrhea** is bleeding occurring at intervals < 21 days apart.

**Oligomenorrhea** is bleeding occurring at intervals > 35 days apart.

**Hypomenorrhea** = regularly timed menses with very light flow.

**Menometrorrhagia** is heavy bleeding (> 80 ml) occurring at irregularly timed intervals.
Special Mention-Leiomyomas

Presentation-asymmetric nodularity of the uterus on PE (leiomyoma) vs symmetric smooth uterus (adenomyosis).

AUB, pain, anemia identified on CBC, infertility.

Diagnosis-good physical and a TVUS. Biopsy/MRI may also be used.

Medical therapy-OCPs/IUDs. Inhibit the HPG axis which shuts down estrogen production (leiomyomas are estrogen sensitive). Provide NSAIDS for pain.

Surgical therapy-myomectomy (if future fertility is desired), hysterectomy (if future fertility is NOT desired). Continuous GnRH (Leuprolide, turns off HPG axis) may be given prior to surgery to shrink the tumor.
Treatment

- Depends on specific etiology (e.g. PCOS has a large cluster of possible treatments).
- OCPs/IUDs/Progestin therapy (turn off HPG axis).
- Tranexamic acid (binds to and inhibits plasmin).
- Fe (if anemia is demonstrated on CBC).
- NSAIDS (inhibits prostaglandin synthesis).
- Leuprolide.
Life Threatening Hemorrhage

- 2 large bore IVs.
- IVF boluses.
- Type and cross, transfuse as needed (if Hb < 7, transfuse).
- IV Estrogen.
- If all else fails, call OBGYN-intracavitary tamponade, D&C, hysterectomy. Or IR can embolize the uterine artery.
Q18-Clinical Presentation

27 yo G0P0 presents for her routine GYN annual. She has no history of abnormal pap smears. Over the last decade, she has had **irregular periods**. She has been married for the past 3 years and despite having unprotected intercourse with her husband every other day, has **failed to have any children**. Physical exam reveals **male pattern hair growth around her chin** with no evidence of clitoromegaly. Her **BMI is 35 and her BP is 150/102**. She requests a referral to a dermatologist for a long standing **hyperpigmented lesion she noticed under her breasts and axilla** 6 months ago.

What is the most likely diagnosis?
Q18 Key-Clinical Presentation

27 yo G0P0 presents for her routine GYN annual. She has no history of abnormal pap smears. Over the last decade, she has had **irregular periods**. She has been married for the past 3 years and despite having unprotected intercourse with her husband every other day, has **failed to have any children**. Physical exam reveals **male pattern hair growth around her chin** with no evidence of clitoromegaly. Her **BMI is 35 and her BP is 150/102**. She requests a referral to a dermatologist for a long standing **hyperpigmented lesion she noticed under her breasts and axilla** 6 months ago.

What is the most likely diagnosis?

**Polycystic Ovarian Syndrome (PCOS).**
Diagnostic Criteria

PCOS is a clinical diagnosis and requires 2 out of the following 3 criteria:

- Polycystic ovaries on transvaginal ultrasound.

- Clinical or biochemical evidence of hyperandrogenism.

- Oligomenorrhea or Amenorrhea/other signs of anovulation.

Other “supporting criteria” not required for diagnosis include—an elevated LH/FSH ratio (usually > 3), signs of insulin resistance (acanthosis nigricans) and other signs of the metabolic syndrome (obesity, HTN, hyperlipidemia).
Diagnostic Labs/Evaluation

Rule out other causes of hyperandrogenism;

- TSH
- Prolactin
- Serum Testosterone
- DHEAS
- 17-Hydroxyprogesterone
- Pelvic Ultrasound
- Evaluation for other comorbidities-glucose intolerance, dyslipidemia, etc.
Pathophysiology of PCOS

- Clomiphene
- GnRH pulse frequency
- LH release (no variation, constant release)
- Anovulation (no LH "surge")
-下降
- Progesterone
- Amenorrhea
- Combined OCPs
- Hyperinsulinemia
- Metformin
- Weight Loss
- ↑ Androgen Production
- 5-Alpha Reductase
- DHT
- Hirsutism
- Aromatase
- Estrogen
- Endometrial Hyperplasia / Cancer
- Letrozole

- Spironolactone
Possible Sequelae

- Metabolic syndrome antecedents (CVD, Stroke).
- Infertility (most common cause of ovulatory factor infertility).
- Endometrial hyperplasia/cancer.
- Obstructive Sleep Apnea.
Reproduction - Clomiphene

- SERM.

- E2 antagonist (partial agonist) at the level of the hypothalamus/anterior pituitary.

- Antagonism removes E2 mediated negative feedback.

- Increased GnRH pulsatility.

- Promotes ovulation.

- With BMI > 30, Letrozole (an aromatase inhibitor is used to promote ovulation/reproduction).
HPG Axis Regularity-Combined OCPs

- Multiple mechanisms.
- Increase SHBG which decreases androgen levels.
- Supply progestin to prevent unopposed endometrial stimulation.
Hirsutism-Spiroolactone

- Inhibits 5-Alpha Reductase in the skin, reducing DHT synthesis.

- Androgen receptor blocker. Reduces androgen effects.
Insulin Resistance-Weight Loss/Metformin

- Has an unknown mechanism of action, mediates its many positive effects by improving insulin sensitivity.

- When combined with clomiphene, increases efficacy.

- Weight loss of as little as 5% also improves insulin sensitivity.

- With decreased fat, there’s decreased aromatase enzyme activity.
Other Agents

- Pulsatile Leuprolide.
- Human Menopausal Gonadotropin (LH/FSH mixture).
- Finasteride (5-alpha reductase inhibitor).
- Flutamide (androgen receptor blocker).
- Eflornithine (inhibits ornithine decarboxylase).
A 32 yo F presents to Labor and Delivery at 37 weeks gestation with consistent, moderately painful uterine contractions. Her pregnancy has been complicated by her history of diabetes mellitus. Fetal heart tracings are unremarkable. The patient was offered a C-Section secondary to fetal macrosomia but insisted on having a “natural” birth. During the second stage of labor, the baby’s anterior shoulder is stuck under the pubic symphysis. The baby is successfully delivered after repeated traction on the shoulder and arm in addition to applying maneuvers involving hip flexion in the mom. This baby’s delivery increases his risk of injury to?

a. The C5-6 roots of the brachial plexus  
b. The C8-T1 roots of the brachial plexus  
c. The C3-5 roots of the brachial plexus  
d. The C5 and T1 roots of the brachial plexus
- The best answer here is A. This baby has **shoulder dystocia**. Repeated traction on the shoulder increases the risk of **Erb Duchenne Palsy** which is a lesion of the C5–6 roots or upper trunk of the brachial plexus. Remember the classic description of the **waiter’s tip deformity** (elbow extended, forearm pronated, MCPs flexed).

- Shoulder dystocia can be treated with certain maneuvers including-*the application of suprapubic pressure*, the McRoberts maneuver (flex the mom’s hip and encourage her to push), and the feared (and usually not ideal) **Zavanelli maneuver**. If all else fails, a **C-Section** may be acceptable.

- Don’t be tempted by Klumpke’s palsy (C8-T1) which is a lower trunk brachial plexus injury you may encounter on your neuro shelf.

- In general, **macrosomic babies (usually > 4500g)** should have planned C-Sections since the risk of **cephalopelvic disproportion** is too high.
A Normal Fetal HR Tracing

This is a normal HR tracing. The average FHR is 110-160 bpm. There should be some squiggles present (variability). An acceleration is defined as a rise in HR by 15 bpm for 15s. The presence of 2 accelerations in a 20 min period constitutes a +ve NONSTRESS TEST. A nonreactive NST should make you proceed to a biophysical profile (BPP).
Biophysical Profile

- The BPP has 5 components -> NST, amniotic fluid volume, fetal breathing, movement, and tone. Your max score is 10 (2 each). If the score is an 8-10, the parents can be reassured and the pregnancy can proceed as planned.
Q20-Given the following FHR tracing, what is your dx?
Q20 Key-Given the following FHR tracing, what is your dx?

Early decelerations (head compression). Defined by the deceleration pairing up nicely (mirror image) with mom’s contraction. In a case where a fetus undergoing a contraction stress test has this finding, we can say that this HR pattern is reassuring.
Q21-Given the following FHR tracing, what is your dx?
Q21 Key-Given the following FHR tracing, what is your dx?

This is a **variable deceleration**. It is defined by an **abrupt drop** in the fetal HR. This “abrupt drop” could be before, during, or after mom’s contraction (does not matter). This is indicative of **umbilical cord compression**. In contrast with a variable deceleration, early decels have a gentle downslope.
Q22-Given the following FHR tracing, what is your dx?
Q22 Key-Given the following FHR tracing, what is your dx?

This is a **late deceleration**. Defined by the more **gradual downward slope of the FHR tracing**. In this case, the downward slope is “out of phase” with the maternal **contraction**. Contrast with the abrupt decline in a variable deceleration. This is indicative of **uteroplacental insufficiency/hypoxia in the fetus**. Turn the mom to a left lateral decubitus position and consider proceeding to delivery.
Q23-Given the following FHR tracing, what is your dx?
Q23 Key-Given the following FHR tracings, what is your dx?

Sinusoidal FHR tracing pattern. Indicative of severe anemia. Consider performing a percutaneous umbilical blood sampling (PUBS) to check the baby’s hematocrit. This is ideal b/c a transfusion can be done at the same time.
The VEAL CHOP mnemonic with FHR Tracings

-This is my favorite mnemonic in all of OBGYN. It is super useful.

VEAL (kinds of decelerations/accelerations);
Variable, Early, Accels, Late

CHOP (etiology);
Cord compression, Head compression, O for nothing, P for uteroPlacental insufficiency.
Q24

A 15 yo primigravida presents to her PCP with complaints of severe morning sickness and vaginal bleeding. She has been vomiting for hours everyday and has lost over 15 pounds since her LMP 8 weeks ago. She has been taking Benadryl to help with the nausea. BP is 140/98, HR 103 bpm, RR 18 bpm. A transvaginal US reveals a central heterogeneous mass in the uterus having a solid, hyperechoic area interspersed with a multitude of cystic areas. B-HCG is positive. What is the next best step in the management of this patient?

a. Recommendation for small, regular meal sizes.
b. Suction curettage.
c. Ondansetron therapy.
d. Immediate cesarean delivery.
e. Total abdominal hysterectomy with bilateral salpingo-oophorectomy.
Q24 Key

-The best answer here is B, suction curettage. This patient has a hydatidiform mole.

-HY RFs include a prior hx of hydatidiform moles and being super young/super old as a pregnant female.

-These moles arise from trophoblastic contents and are of 2 kinds—complete and partial moles.

-Partial moles arise from the fertilization of one egg by 2 sperm which gives rise to a triploid embryo (69 XXX/XXY/XYY). Partial moles contain fetal tissue, produce increased amounts of HCG, have a small risk of progressing to invasive moles, and essentially never progress to choriocarcinoma.
Complete moles on the other hand are a lot worse. They arise from the fertilization of an empty egg by 2 sperm OR from the fertilization of an empty egg by 1 sperm with subsequent duplication of the genetic material (so there are 46 chromosomes). Complete moles have no fetal tissue, produce tons of HCG, and have huge risks of progression to invasive moles AND choriocarcinoma.

Molar pregnancies may also present with a size of the uterus > dates or as hyperemesis gravidarum.

In the period following suction curettage for a molar pregnancy, the patient should be on birth control for about 6 mo with the HCG values followed to zero as a means of following disease recurrence/progression to the worrisome choriocarcinoma.
2 months after a suction curettage, the patient begins to have vaginal bleeding and shortness of breath. B-HCG is 350,000. What is the next best step in the management of this patient?
2 months after a suction curettage, the patient begins to have vaginal bleeding and shortness of breath. B-HCG is 350,000. What is the next best step in the management of this patient?

- Consider getting a **CXR. This is choriocarcinoma** until proven otherwise. **Methotrexate** is very effective in the treatment of choriocarcinoma. You would also perform a pelvic exam and an US (to evaluate for uterine/vaginal mets).

- Choriocarcinoma can present as hyperthyroidism since B-HCG shares a similar subunit with TSH (identical alpha subunits).

- In the same vein as molar pregnancy, instruct patients to be on birth control for a year in addition to trending B-HCG values down to zero.
Q26

Given the following case scenarios, what is the next best step in management?

A 29 yo G2P1 F presents for her first prenatal visit at 10 weeks gestation. She is Rh (D) -ve. Her anti-D immune globulin titer is negative. What is the NBSIM of this patient?

Assume a similar patient as that in the first vignette who is RH (D) negative with a +ve anti-D immune globulin titer. What is the NBSIM of this patient?
Q26 Key

Given the following case scenarios, what is the next best step in management?

A 29 yo G2P1 F presents for her first prenatal visit at 10 weeks gestation. She is Rh (D) -ve. Her anti-D immune globulin titer is negative. What is the NBSIM of this patient? - Leave things as is. Prevent sensitization by administering Rh (D) immune globulin at 28 weeks. Give this earlier if mom has a potential baby blood-mom’s blood mixing procedure like an amniocentesis, miscarriage, etc.

Assume a similar patient as that in the first vignette who is RH (D) negative with a +ve anti-D immune globulin titer. What is the NBSIM of this patient? - Get the dad’s blood type. If it’s -ve, the fetus has to be RH -ve. You won’t need to do anything. If the paternal blood type is Rh (D) +ve, there is a good chance the fetus will be Rh (D) +ve. There are some details along the way that are probably “too detailed” for the shelf but a “high anti-RhD titer in mom” should prompt tests for fetal anemia (like a doppler US of the MCA or sampling of fetal blood). If the fetus is anemic, consider an intrauterine blood transfusion and/or delivery.
Q27

A 35 yo F with a history of 4 C-Sections presents with painless vaginal bleeding at 32 weeks gestation. What is the next best step in management?
A 35 yo F with a history of 4 C-Sections presents with painless vaginal bleeding at 32 weeks gestation. What is the next best step in management?—The whole point of this Q is to highlight the importance of an US before performing a pelvic exam in a female presenting with 3rd trimester bleeding. This patient most likely has placenta previa. After making the dx of placenta previa (low lying placental insertion in the uterus), consider recommending pelvic rest to mom, administering steroids for fetal lung maturity (give Mg for neuroprotection if < 32 weeks), stabilize mom hemodynamically, and deliver by 36ish weeks if the previa has not resolved. In the Q stem with mom bleeding, consider delivery if fetal monitoring is non-reassuring.

Note the HY RFs here—C-Section history (biggest), older mom, twin/triplet/multiplet pregnancy.
Given the following clinical scenarios, what is the NBSIM/correct diagnosis?

A 37 yo G2P1 with a prior hx of C-Sections presents with severe bleeding after the 2nd stage of labor ultimately requiring a hysterectomy. Intraop evaluation of the uterus revealed an adherence of the placenta to the myometrium.

What would the dx be if the placenta invaded the myometrium?

What would the dx be if the placenta was found to have invaded the bladder?

A 23 yo G2P1 is rushed to the OR after fetal monitoring revealed multiple, persistent late decelerations. Her pregnancy has been uncomplicated. The OBGYN resident noticed severe vaginal bleeding after her membranes were ruptured.
Q28 Key

Given the following clinical scenarios, what is the NBSIM/correct diagnosis?

A 37 yo G2P1 with a prior hx of C-Sections presents with severe bleeding after the 2nd stage of labor ultimately requiring a hysterectomy. Intraop evaluation of the uterus revealed an adherence of the placenta to the myometrium? - **placenta accreta**.

What would the dx be if the placenta invaded the myometrium? - **placenta increta**.

What would the dx be if the placenta was found to have invaded the bladder? - **placenta percreta**. Placenta “AIP” is associated with a hx of C-sections.

A 23 yo G2P1 is rushed to the OR after fetal monitoring revealed multiple, persistent late decelerations. Her pregnancy has been uncomplicated. The OBGYN resident noticed severe vaginal bleeding after her membranes were ruptured - **This is Vasa Previa** (naked fetal vessels overlying the cervical os). Proceed to a C-Section w/o delay.
Q29

Given the following clinical scenarios, what is the NBSIM/correct diagnosis?

A 32 yo G2P1 at 34 weeks gestation is the only survivor of a severe MVA. She is brought to the ED by local ambulance. She complains of abdominal pain. A transabdominal US is unremarkable. A pelvic exam reveals blood emanating from the cervical os. This patient has a history of poorly controlled blood pressures and heavy cocaine use. Her last OBGYN visit was at 10 weeks gestation.

A 25 yo G2P1 at 38 weeks gestation has been on L&D for the past 24 hours after her “water broke”. Microscopic evaluation of vaginal fluid reveals what appears to be a “ferning pattern”. The patient has no uterine contractions.
Q29 Key

Given the following clinical scenarios, what is the NBSIM/correct diagnosis?

A 32 yo G2P1 at 34 weeks gestation is the only survivor of a severe MVA. She is brought to the ED by local ambulance. She complains of abdominal pain. A transabdominal US is unremarkable. A pelvic exam reveals blood emanating from the cervical os. This patient has a history of poorly controlled blood pressures and heavy cocaine use. Her last OBGYN visit was at 10 weeks gestation—This is abruptio placentae. Note the RFs presented in the Q stem. In general, an urgent C-Section is the NBSIM.

A 25 yo G2P1 at 38 weeks gestation has been on L&D for the past 24 hours after her “water broke”. Microscopic evaluation of vaginal fluid reveals what appears to be a “ferning pattern”. The patient has no uterine contractions—This is a premature prolonged rupture of membranes (PPROM). Consider inducing labor with a uterotonic like oxytocin.
Q29 Key contd.

-Remember that **PROM** is a rupture of membranes before labor has started (confirm with microscopy or the Nitrazine paper test), **Preterm PROM (PPROM)** is the rupture of membranes w/o labor at < 37 weeks. **Prolonged PPROM** (PPPROM) is the PPROM definition applied to a female after the membranes have ruptured for > 24 hrs.

-Consider **chorioamnionitis** as the dx if a patient with prolonged ROM has maternal fever, fetal tachycardia (HR > 160), and foul smelling amniotic fluid. Give Ampicillin + Gentamicin. **If membranes have ruptured for > 18 hrs, give GBS PCN prophylaxis.**

- A similar Q with a fetal HR tracing showing **variable decels** should get you thinking of **cord prolapse->cord compression.**

- If a lady is at < 34 weeks and has membrane rupture, consider giving **steroids to promote fetal lung maturity and Mg for neuroprotection if < 32 weeks.** You should try to avoid performing a ton of speculum exams to avoid pushing infection up the uterus.
-As an addendum, preterm labor (PTL, before 37 weeks) is treated the same way for the most part. Don’t confuse the nitrazine test for ROM with the fibronectin test for PTL (fibronectin is an early warning sign that a baby is on the way, has high NPV).

-The big change with PTL is trying to delay labor if mom is < 34 weeks with a tocolytic (Mg, indomethacin which is a COX inhibitor that reduces prostaglandin synthesis, Terbutaline which is a B2 agonist, and nifedipine which is a Ca channel blocker). Exercise caution w/indomethacin to avoid closing the ductus arteriosus (after 32 wks).

-The same steroid and Mg rules apply.

-Having an UTI or bacterial vaginosis are important RFs to recognize for the development of preterm/premature labor. Twin/Triplet/Multiple pregnancy births along with a prior history of preterm labor are also RFs. Having a bicornuate uterus (failed fusion of the paramesonephric duct) is also an important RF.
Q30

Given the following info cluster, what is the most likely diagnosis?

-Hypoplastic fetal lungs.

-Amniotic fluid index of 2 cm

-Facial, skin, and limb defects.
Q30 Key

Given the following info cluster, what is the most likely diagnosis?

- Hypoplastic fetal lungs (usual cause of death)
- Amniotic fluid index of 2 cm (< 5 cm = oligohydramnios)
- Facial, skin, and limb defects

This is Potter Syndrome which arises secondary to bilateral renal agenesis ultimately leading to oligohydramnios and the many characteristic findings. Another HY cause of oligohydramnios are posterior urethral valves. An amnioinfusion may help.

On the flip side, consider polyhydramnios given a hx of anencephaly (no swallowing center), maternal DM (hyperglycemia induced polyuria in the fetus), duodenal atresia (double bubble sign), and esophageal atresia (an NGT is curled up in the upper thoracic cavity).
Given the following info cluster, what is the most likely diagnosis?

-Mom’s size > dates. Quad screen reveals high AFP and B-HCG

-An astute scientist observed splitting of the embryo on day 10 after fertilization occurred.

-2 babies are born. One is anemic and small for gestational age. The other baby is polycythemic, is volume overloaded, and has signs of heart failure.
Given the following info cluster, what is the most likely diagnosis?

- Mom’s size > dates. Quad screen reveals high AFP and B-HCG

- An astute scientist observed splitting of the embryo on day 10 after fertilization occurred.

- 2 babies are born. One is anemic and small for gestational age. The other baby is polycythemic, is volume overloaded, and has signs of heart failure.

This is **twin-twin transfusion syndrome**. The “embryo split” on day 10 strongly increases the risk of having a **monochorionic, monoamniotic twin pregnancy (abnormal blood vessel connections)**. The **anemic kid often does better than his polycythemetic twin**. Remember the kind of **monozygotic twinning** that occurs depending on the day the embryo splits—>**ordered as chorion, amnion (di, di->days 0-4), (mono, di-> days 5-8), (mono, mono-> days 9-12)**. After **day 13**, there is an increased risk of delivering **conjoined twins**.
Q32

Given the following info cluster, what is the most likely diagnosis?

-22 yo F presents with lower abdominal pain and vaginal bleeding. Her LMP was 7 weeks ago.

-She has a PMH of pelvic inflammatory disease. She smokes a pack of cigarettes on a daily basis.
Q32 Key

Given the following info cluster, what is the most likely diagnosis?

-22 yo F presents with lower abdominal pain and vaginal bleeding. Her LMP was 7 weeks ago.

-She has a PMH of pelvic inflammatory disease. She smokes a pack of cigarettes on a daily basis.

This is an ectopic pregnancy (most likely implanted in the ampulla of the fallopian tube). The HY RFs to be aware of on your exam include a prior history of “tubal ligation”, a prior hx of an ectopic pregnancy, PID, smoking (messes with motility of stuff in the oviduct), etc. If the patient is unstable, proceed to immediate surgery.

In stable patients with a B-HCG < 5k, methotrexate (DHFR inhibitor) may be used. The patient’s creatinine/LFTs should be relatively normal if this option is to be explored.

A useful diagnostic approach to an ectopic pregnancy is presented on the next 2 slides.
Initial Dx and Mgt of An Ectopic Pregnancy

Female patient of reproductive age presents with at least one of the following: positive urine or qualitative beta-hCG serum level, lower abdominal pain, vaginal bleeding

Perform history and physical examination (use risk factors from Table 1 and clinical examination signs from Table 3 to assess the patient’s risk of ectopic pregnancy).

Patient is stable.

Patient is in any risk group (see Table 3)

Transvaginal pelvic ultrasonography (see Figure 2)

Measure beta-hCG level.

Beta-hCG level 1,500 mIU per mL (1,500 IU per L) or greater

Monitor patient for signs and symptoms of pain or miscarriage and consider surgical consultation or diagnostic uterine curettage.

Beta-hCG level less than 1,500 mIU per mL

Repeat beta-hCG measurement after 48 hours.

Beta-hCG level 1,500 mIU per mL or greater

Beta-hCG level less than 1,500 mIU per mL and decreasing

Beta-hCG level less than 1,500 mIU per mL and increasing

Patient presents with signs of shock.

Immediate surgical consultation
Further Dx and Management of an Ectopic Pregnancy

Transvaginal pelvic ultrasonography

- Ectopic pregnancy
  - Initiate management of ectopic pregnancy.

- Indeterminate ultrasonography
  - Measure beta-hCG quantitative serum level.

- Normal intrauterine pregnancy
  - Risk of miscarriage; reevaluate in two to three days.
    - Beta-hCG less than 1,500 mIU per mL
      - Repeat beta-hCG measurement after 48 hours.
    - Beta-hCG 1,500 mIU per mL or greater and the patient is stable
      - Beta-hCG levels do not increase by at least 53 percent.

Beta-hCG 1,500 mIU per mL (1,500 IU per L) or greater

- Consider surgical consultation or diagnostic uterine curettage.
Match the clinical presentation to the most likely diagnosis of spontaneous abortion;

Vaginal bleeding, a closed cervical os, a viable fetus on US

Vaginal bleeding, a closed cervical os, a non-viable fetus on US

Vaginal bleeding, an open/dilated cervical os, an intact gestational sac on US

Vaginal bleeding, an open/dilated cervical os, some products of conception visible on US

Vaginal bleeding, an open/dilated cervical os, no products of conception visible on US
Q33 Key

Match the clinical presentation to the most likely diagnosis of spontaneous abortion;

Vaginal bleeding, a closed cervical os, a viable fetus on US-**threatened abortion**.

Vaginal bleeding, a closed cervical os, a non-viable fetus on US-**missed abortion**.

Vaginal bleeding, an open/dilated cervical os, an intact gestational sac on US-**inevitable abortion**.

Vaginal bleeding, an open/dilated cervical os, some products of conception visible on US-**incomplete abortion**.

Vaginal bleeding, an open/dilated cervical os, no products of conception visible on US-**complete abortion**.
- The usual management of most kinds of spontaneous abortion (inevitable, incomplete, missed, etc) is a **dilation and curettage**. You can also induce labor with a uterotonic agent.

- Pay attention to “**ethical**” scenarios on your NBME. The right answer in a **stable patient** may be to express empathy, provide support, and adhere to the patient’s wishes.

- For a **septic abortion** (abdominal pain which may or may not have vaginal bleeding or “delivered” products of conception), consider **broad spectrum antibiotics in addition to an urgent D&C** to prevent sepsis in the mom.

- Note that spontaneous abortions are often defined as occurring at < 20 weeks. **After 20 weeks they are regarded as stillbirths (or an intrauterine fetal demise)**. Mgt options here include a **dilation and evacuation** (not D&C), labor induction, etc. **DO NOT perform a C-Section** on your test.

As an aside, remember that a **cerclage** can be placed prophylactically in a female with a history of recurrent fetal loss from cervical insufficiency (classic hx is a woman w/a prior LEEP procedure).
Q34-What is the most likely bug?

Chorioretinitis, hydrocephalus, intracranial calcifications, cat litter, give pyrimethamine/sulfadiazine
Slapped cheek rash, arthritis in adults, anemia +/- fetal hydrops
Fetus born with scarred skin, hypoplastic limbs, life threatening PNA in fetus, mom had a generalized rash during pregnancy with vesicles and blisters in different stages of healing
Mom consumed deli meats, stillborn fetus, abscesses in the heart, liver, spleen, give ampicillin
Cataracts, deafness, machine like murmur in the newborn, blueberry muffin rash
Periventricular calcifications in the fetus, sensorineural HL/jaundice/HSM in fetus
Prevent infection by a scheduled C-Section, give AZT intrapartum during delivery
Give acyclovir ppx starting at 36 weeks w/hx of infection, deliver vaginally if there are no “visible” lesions, deliver by C-Section if there are visible lesions
Sloughed skin of the hands and feet, tons of nasal secretions in the neonate, later in life the kid has a prominent forehead, collapsed nasal bridge, Hutchinson's teeth, anterior tibial bowing
Cause of meningitis, pneumonia, sepsis in the first 28 days of life
Q34 Key-What is the most likely bug?

Chorioretinitis, hydrocephalus, intracranial calcifications, cat litter, give pyrimethamine/sulfadiazine-T. Gondii
Slapped cheek rash, arthritis in adults, anemia +/- fetal hydrops-Parvovirus B19
Fetus born with scarred skin, hypoplastic limbs, life threatening PNA in fetus, mom had a generalized rash during pregnancy with vesicles and blisters in different stages of healing-VZV (if mom is exposed during pregnancy and unvaccinated, give VZIG. Don’t give the vaccine in pregnancy. If the neonate is exposed, give VZIG as well. Give mom acyclovir if she is infected during pregnancy)
Mom consumed deli meats, stillborn fetus, abscesses in the heart, liver, spleen, give ampicillin-Listeria
Cataracts, deafness, machine like murmur in the newborn, blueberry muffin rash-rubella (don’t give vaccine in pregnancy!)
Periventricular calcifications in the fetus, sensorineural HL/jaundice/HSM in fetus-CMV (ganciclovir)
Prevent infection by a scheduled C-Section, give AZT intrapartum during delivery-HIV (place mom on HAART therapy that does not include efavirenz, for potential neonatal exposure, give 6 weeks of AZT prophylactically and then do PCR testing at some point in the future)
Give acyclovir ppix starting at 36 weeks w/hx of infection, deliver vaginally if there are no “visible” lesions, deliver by C-Section if there are visible lesions-HSV
Sloughed skin of the hands and feet, tons of nasal secretions in the neonate, later in life the kid has a prominent forehead, collapsed nasal bridge, Hutchinson's teeth, anterior tibial bowing-Syphilis (RPR/VDRL for screening, MHA-TP/FTA-ABS for confirmation, give PCN-> for an allergic mom->desensitize then give PCN)
Cause of meningitis, pneumonia, sepsis in the first 28 days of life-S. Agalactiae/GBS (screen at 35-37 weeks, give PCN to mom’s that are +ve, have preterm labor, have prolonged ROM, have a previous infant with GBS early in life, or have fever during the labor process and they have poor prenatal care)
Q35

67 yo F presents with a 1 year hx of anogenital pruritus, exam reveals large, ivory white patches on the vulva with extension to the perineum. What is the NBSIM?

60 yo F presents with a large adnexal mass that is resected. A pathological specimen reveals psammoma bodies

39 yo F presents with a 1 year hx of severe adnexal pain for several days during her menstrual cycle, diagnostic laparoscopy reveals what appears to be walled off “dark brown” material

A 15 yo F presents to the ED with severe, sudden onset abdominal pain, a large mass was palpated in the abdomen by her OBGYN doctor 2 years earlier, resection today reveals teeth and hair

A 10 yo F is being evaluated for precocious puberty. An US reveals an ovarian mass

A 10 yo F is being evaluated for virilization. An US reveals an ovarian mass. Testosterone levels are 10x the upper limit of normal

Do early menarche, nulliparity, and late menopause confer an increased or decreased risk of ovarian cancer?

Tumor markers for yolk sac tumors/choriocarcinoma/granulosa cell tumors
67 yo F presents with a 1 year hx of anogenital pruritus, exam reveals large, ivory white patches on the vulva with extension to the perineum. What is the NBSIM?-**Get a biopsy. This is Lichen Sclerosus. Give high potency topical steroids like Clobetasol (if this is vulvar cancer, consider radiation)**

60 yo F presents with a large adnexal mass that is resected. A pathological specimen reveals psammoma bodies-**serous cystadenoma/cystadenocarcinoma.**

39 yo F presents with a 1 year hx of severe adnexal pain for several days during her menstrual cycle, diagnostic laparoscopy reveals what appears to be walled off “dark brown” material-**endometrioma.**

A 15 yo F presents to the ED with severe, sudden onset abdominal pain, a large mass was palpated in the abdomen by her OBGYN doctor 2 years earlier, resection today reveals teeth and hair-**dermoid cyst.**

A 10 yo F is being evaluated for precocious puberty. An US reveals an ovarian mass-**granulosa cell tumor.**

A 10 yo F is being evaluated for virilization. An US reveals an ovarian mass. Testosterone levels are 10x the upper limit of normal-(**sertoli-leydig cell tumor/stromal, remember that DHEAS localizes to the adrenal gland**). Do early menarche, nulliparity, and late menopause confer an increased or decreased risk of ovarian cancer-?**Increased (anything that increases the # of ovulatory cycles).**

Tumor markers for yolk sac tumors/choriocarcinoma/granulosa cell tumors-**AFP/B-HCG/Estrogen (also CA125)**

As an aside, ovarian cancers are treated with TAHBSO with peritoneal washings, omentectomy, and other “surgical stuff”. Survival is abysmal. For a dermoid cyst, consider a unilateral salpingo oophorectomy. In general, ovarian malignancies are not “biopsied”. They are removed entirely to prevent peritoneal seeding.
A 43 yo F schedules an appointment with her gynecologist 3 months after her annual checkup. She has felt irritable and moody for the past 9 weeks and often has to change out of her nightgown as a result of severe night sweats. Physical exam is notable for mild pretibial edema. Vitals are notable for mild tachypnea. The patient is in a good relationship with her husband of 20 years. She has regular, 30 day menstrual cycles although she has recorded no flow for the past 2 cycles. What is the next best step in the management of this patient?

a. Measure serum TSH levels
b. Check FSH and estrogen levels to rule out menopause
c. Endometrial sampling and biopsy to rule out an endometrial malignancy
d. Reassurance as this is normal
e. Measurement of serum B-HCG levels
The best answer here is E. This lady may be pregnant.

As a rule (with very few exceptions), a reproductive age female with amenorrhea deserves a pregnancy test.

Don’t get dinged by questions that may try to make you think of hypothyroidism or menopause first before ruling out pregnancy.

Watch out for these kinds of scenarios on your test.
Normal Male/Female Sexual Development

**Male (XY)**
- SRY gene present
  - Fetal testes
    - Sertoli cells
      - Produce anti-müllerian hormone
        - Regression of müllerian structures (fallopian tubes, uterus, and upper 1/3 vagina)
        - Stimulates development of Wolffian ducts (epididymis, vas deferens, and seminal vesicles)
    - Leydig cells
      - Produce testosterone
        - Converted to dihydrotestosterone
        - Leads to virilization of the external genitalia (scrotal fusion and penile enlargement)

**Female (XX)**
- SRY gene absent
  - Ovaries form (no testes)
    - Müllerian structures develop (fallopian tubes, uterus, and upper 1/3 vagina)
      - Wolffian ducts regress
        - No DHT
        - External genitalia do not virilize (formation of labia, clitoris, and lower 2/3 vagina)
Q37

Match the clinical presentation of primary amenorrhea to the most likely diagnosis;

20 yo F has breasts and a uterus, levels of all hormones are normal.

20 yo F supermodel (or hardcore athlete) has breasts and a uterus (what should be true of her hormone levels?)

20 yo F has breasts and no uterus, testosterone levels are super high.

20 yo F has breasts and no uterus, karyotype reveals a 46 XX phenotype.

20 yo F has no breasts, but has a uterus, she can’t smell

20 yo F is 3’ 5” tall, low posterior hairline, widely spaced nipples, BP of 150/120 in the arms and a BP of 65/40 in the legs, has a uterus, no breasts.

20 yo F with a uterus, no breasts, and visual field deficits.
Q37 Key Part 1

Match the clinical presentation of primary amenorrhea to the most likely diagnosis;

20 yo F has breasts and a uterus, levels of all hormones are normal—**imperforate hymen, or anything weird that blocks the vagina.** She is actually menstruating, but the blood is not making its way out. **Dx is by PE, tx is with surgery.**

20 yo F supermodel (or hardcore athlete) has breasts and a uterus (what should be true of her hormone levels?)—**this is either anorexia nervosa/just working out too much.** In the setting of severe physiologic stress, the GnRH axis is turned off. Therefore, GnRH/LH/FSH/Estrogen levels are all low.
Q37 Key Part 2

Match the clinical presentation of primary amenorrhea to the most likely diagnosis;

20 yo F has breasts and no uterus, testosterone levels are super high-this is testicular feminization syndrome (or Androgen Insensitivity Syndrome)- she has no uterus b/c she is 46 XY. Sertoli cells make MIH so the mullerian duct is nuked (oviducts, uterus, upper third of the vagina). She has breasts b/c the testosterone is aromatized to estrogen in the periphery. Why should she have an orchiectomy after puberty?

20 yo F has breasts and no uterus, karyotype reveals a 46 XX phenotype- Mullerian Agenesis (Mayer Rokitansky Kuster Hauser Syndrome). For whatever reason, the mullerian duct does not develop so there’s no uterus. She has ovaries which produce estrogen (ovaries are not derived from the mullerian ducts) so she has breasts. Whenever you see breasts, estrogens are around. Whenever you see pubic hair, androgens are around.

20 yo F has no breasts, but has a uterus, she can’t smell- Kallmann Syndrome, everything will be low-GnRH down. No breasts b/c the ovaries are making no estrogen. Give pulsatile leuprolide.
Q37 Key Part 3

Match the clinical presentation of primary amenorrhea to the most likely diagnosis;

20 yo F is 3’ 5” tall, low posterior hairline, widely spaced nipples, BP of 150/120 in the arms and a BP of 65/40 in the legs, has a uterus, no breasts—this is Turner’s syndrome. Turner’s is a kind of hypergonadotropic hypogonadism (streak ovaries) so the FSH levels will be high. Karyotype is 45 XO. Common associations include bicuspid aortic valves, coarctation of the aorta (BP differences b/w the arms and legs), horseshoe kidney, amongst other anomalies. With the ovaries basically non-existent, there is no estrogen (or very little), so there is no breast development.

20 yo F with a uterus, no breasts, and visual field deficits—some kind of brain tumor (like a craniopharyngioma, considering the VF deficits). A compressive lesion of the anterior pituitary may hamper LH/FSH production so the ovaries are not stimulated (so there’s no estrogen = no breasts).
The Primary Amenorrhea Algorithm

Primary Amenorrhea (never menstruated) → No 2° SC by 13

2° SC but no menstruation by 16

Has breasts, uterus →

Has breasts, no uterus → MRKH Syndrome

MRKH Syndrome →

46 XX

No breasts, has uterus →

GnRH
FSH/LH
 NES
Anosmia
VF deficits
Kallman

GnRH
FSH/LH
NES
Anosmia
VF deficits
Kallman

GnRH
FSH/LH
NES
Anosmia
VF deficits
Kallman

No menstruation by 16
Amenorrhea

- **Primary amenorrhea** is the absence of menses at age 16 (w/secondary sex xtics) or at age 13 (w/o xtics).

- A patient that reports having no menses for the past 6 mo in the presence of a prior history of regular menstruation has **secondary amenorrhea**.

- Consider **Asherman syndrome** as the dx if a woman has amenorrhea and the Q stem gives you a history of a **dilation and curettage or super bad PID**. In some cases, these “uterine disturbances” create scar tissue that can cause amenorrhea/infertility. **Hysteroscopic lysis of these adhesions + estrogen** typically is a good management step.

- Do not forget to order a **serum B-HCG** in a woman presenting with amenorrhea. In addition, consider taking a look at the **TSH, prolactin levels (give Cabergoline as tx), androgen levels (testosterone and DHEAS)**, etc. These are especially useful in patients with primary amenorrhea.
Amenorrhea contd.

The mechanisms behind these observations would be explained during the session but consider this;

A woman with PCOS will have a **+ve progesterone withdrawal challenge**. A woman with Asherman’s syndrome/some kind of obstructive lesion in the uterus/cervix will have a -ve challenge. This will also be the case with someone having low E2 levels.

A woman with a **-ve estrogen and progesterone challenge** indicates that E2 is low for some reason (hypothalamic, pituitary, or gonadal failure). This is also the case in Asherman’s syndrome.

It is HY to understand these as they pop up quite often on NBMEs.

-As an aside, remember the association of a “**bluish bulge**” in the vagina with an **imperforate hymen**. This is treated with a “**cruciate incision**”. 
Match the clinical presentation to the most likely diagnosis;

23 yo F has had menses before, missed her last 3 periods, urine B-HCG is +ve.

23 yo F has had menses before, missed her last 3 periods, was diagnosed with schizophrenia 3 mo ago.

23 yo F has had menses before, missed her last 3 periods, biopsy reveals lymphoid follicles in the thyroid.

23 yo F has had menses before, missed her last 3 periods, has galactorrhea.

35 yo F has had menses before, BMI of 32, irregular menses for the past 5 years.
Q38 Key (Secondary Amenorrhea)

Match the clinical presentation to the most likely diagnosis;

23 yo F has had menses before, missed her last 3 periods, urine B-HCG is +ve-**yay**, she’s pregnant.

23 yo F has had menses before, missed her last 3 periods, was diagnosed with schizophrenia 3 mo ago-**dopamine antagonists, hyperprolactinemia**.

23 yo F has had menses before, missed her last 3 periods, biopsy reveals lymphoid follicles in the thyroid-**Hashimoto’s, high TRH, hyperprolactinemia**.

23 yo F has had menses before, missed her last 3 periods, has galactorrhea-**prolactinoma (tx with bromocriptine, cabergoline)**.

35 yo F has had menses before, BMI of 32, irregular menses for the past 5 years-**PCOS**.
A 15 yo F presents to the ED for severe abdominal pain and cramping. A physical exam is notable only for suprapubic tenderness to palpation. Further questioning reveals that the patient started having her period 3 months ago and has been having cycles for the past 3 days. There is dried blood at the vaginal introitus. A serum B-HCG is negative and the patient reports that she has never been sexually active. Her labs and vital signs are within normal limits. What is the next best step in the management of this patient?

a. Administration of a cyclooxygenase inhibitor
b. Exploratory laparotomy
c. Broad spectrum antibiotic therapy
d. Sertraline therapy for depressive symptoms
A 15 yo F presents to the ED for severe abdominal pain and cramping. A physical exam is notable only for suprapubic tenderness to palpation. Further questioning reveals that the patient started having her period 3 months ago and has been having cycles for the past 3 days. There is dried blood at the vaginal introitus. A serum B-HCG is negative and the patient reports that she has never been sexually active. Her labs and vital signs are within normal limits. What is the next best step in the management of this patient?

a. Administration of a cyclooxygenase inhibitor
b. Exploratory laparotomy
c. Broad spectrum antibiotic therapy
d. Sertraline therapy for depressive symptoms

This patient most likely has **primary dysmenorrhea** (painful menses) which can be treated with NSAIDS. **Combined OCPs** may be a good second option.
Given the following clinical descriptors, what is the most likely diagnosis?

A 32 yo F presents to her PCP complaining of painful periods, pain with sex, and painful bowel movements. She has been trying to have kids since she got married 2 years ago. A pelvic exam reveals a 6 cm tender mass in the rectouterine pouch (RUP) along with nodularity of the uterosacral ligaments.
Q40 Key-Endometriosis
Given the following clinical descriptors, what is the most likely diagnosis?

A 32 yo F presents to her PCP complaining of painful periods, pain with sex, and painful bowel movements. She has been trying to have kids since she got married 2 years ago. A pelvic exam reveals a 6 cm tender mass in the rectouterine pouch (RUP) along with nodularity of the uterosacral ligaments.

This is endometriosis (deposition of endometrial tissue outside the uterus). There are many theories as to why this occurs but “retrograde menstruation” is a commonly peddled one. Consider this as your dx with mention of the 3D’s->dyschezia, dysmenorrhea, and dyspareunia. The most common location is the ovary (where it can bleed and cause an endometrioma) followed by the RUP. Definitive dx is with laparoscopy. Tx options include combined/progestin OCPs (nuke HPG axis), continuous GnRH (not pulsatile), and surgery if fertility is desired (or TAHBSO if postmenopausal and reproduction is no longer required).
Given the following clinical descriptors, what is the most likely diagnosis?

A 40 yo F complains of increasing pain with menses for the past 11 months. Her periods are extremely heavy. Her last child was delivered 12 years ago with a subsequent tubal ligation. On pelvic exam, her uterus appears enlarged and tender with a globular, soft consistency.
Q41 Key-Adenomyosis

Given the following clinical descriptors, what is the most likely diagnosis?

A 40 yo F complains of increasing pain with menses for the past 11 months. Her periods are extremely heavy. Her last child was delivered 12 years ago with a subsequent tubal ligation. On pelvic exam, her uterus appears enlarged and tender with a globular, soft consistency.

This patient has adenomyosis (the deposition of endometrial glands in the myometrium). In contrast with a leiomyoma that has an asymmetric, firm, and nontender uterine presentation, adenomyosis has a symmetric, soft, and tender uterine presentation. Dx is usually clinical although an MRI may be helpful. It is very HY to know that dx can only be made conclusively by the examination of tissue after surgery. Tx is usually with the levonorgestrel IUD which may curb the menstrual bleeding. Definitive treatment revolves around getting a hysterectomy.
Given the following clinical descriptors, what is the most likely dx?

2 days after the delivery of a 3300 g healthy newborn, a mom is distressed about her ability to care for the baby. She breastfeeds adequately and is tearful during the interview.

3 weeks after the delivery of a 3300 g healthy newborn, a mom is brought to her baby’s pediatrician by her concerned husband. She lies in bed all day and does not care for herself and the baby.

3 weeks after the delivery of a 3300 g healthy newborn, a mom describes voices telling her to sacrifice her baby to supernatural powers. She appears unkempt on a physical exam.
Q42 Key

Given the following clinical descriptors, what is the most likely dx?

2 days after the delivery of a 3300 g healthy newborn, a mom is distressed about her ability to care for the baby. She breastfeeds adequately and is tearful during the interview—**postpartum blues**. **Reassure mom and provide social support.**

3 weeks after the delivery of a 3300 g healthy newborn, a mom is brought to her baby’s pediatrician by her concerned husband. She lies in bed all day and does not care for herself and the baby—**postpartum depression**. **Rx is with an SSRI.**

3 weeks after the delivery of a 3300 g healthy newborn, a mom describes voices telling her to sacrifice her baby to supernatural powers. She appears unkempt on a physical exam—**postpartum psychosis**. **Begin an antipsychotic.**
Q43

Given the following clinical descriptors, what is the most likely cause of postpartum fever?

Mom is unable to take deep breaths 6 hrs after delivering a healthy newborn. She has a mild fever and rales are heard on auscultation.

Mom presents 2 days after a C-Section with a fever of 102. PE is notable for suprapubic tenderness. A urinary catheter was left in place for 36 hrs secondary to urinary retention for an epidural.

Mom presents 3 days after an emergent C-Section with high fevers and severe uterine tenderness. The pregnancy was complicated by prolonged ROM.

Mom presents 7 days after a C-Section with wide swings in body temperature. Antibiotics don’t seem to be helping at all.
Given the following clinical descriptors, what is the most likely cause of postpartum fever?

Mom is unable to take deep breaths 6 hrs after delivering a healthy newborn. She has a mild fever and rales are heard on auscultation—atelectasis (pulmonary toilet).

Mom presents 2 days after a C-Section with a fever of 102. PE is notable for suprapubic tenderness. A urinary catheter was left in place for 36 hrs secondary to urinary retention for an epidural—UTI, give antibiotics (e.g. ciprofloxacin).

Mom presents 3 days after an emergent C-Section with high fevers and severe uterine tenderness. The pregnancy was complicated by prolonged ROM—endometritis (clindamycin and gentamicin).

Mom presents 7 days after a C-Section with wide swings in body temperature. Antibiotics don’t seem to be helping at all—Septic thrombophlebitis. Consider IV heparin.
Contraception->Key Takeaways 1

- The only contraceptive methods that protect against STDs are abstinence/condoms.

- **Combined OCPs** work by inhibiting ovulation (E2 -ve feedback) and increasing the thickness of cervical mucus (progesterone).

- Avoid combined OCPs in individuals with a history of a DVT/PE/Weird genetic diseases like Factor 5 Leiden. You should avoid these agents in individuals with a history of cancers driven by E2 (like breast), people with bad HTN, patients with hepatic adenomas, and smokers > 35 yo. Another unusual contraindication is in a patient who has a h/o migraine with aura/atypical migraine involving neuro deficits.

- Combined OCPs decrease the risk of ovarian/endometrial cancer (fewer cycles).

- If a lady is being treated for TB and becomes pregnant with regular combined OCP use, think of revved up metabolism from rifampin mediated CYP450 induction.
Contraception->Key Takeaways 2

-The HY associations with the progestin only pills have been discussed earlier. Note the MOA that involves thickening cervical mucus. Do not forget the associations with weight gain and reversible osteoporosis. These are good postpartum options.

-A progesterone derivative (Megestrol) is given to stimulate the appetite in cachectic patients.

-The Cu IUD is an excellent contraceptive that works by causing an inflammatory reaction that makes the uterus inhospitable for sperm and eggs. Avoid this option is a woman has a history of heavy menses. An unusual association is the contraindication of this contraceptive method in patients with Wilson’s disease.

-Remember the association of ectopic pregnancies with a history of tubal ligation.
Given the following clinical descriptors, what is the most likely diagnosis?

On PE, a protrusion is seen in the anterior vaginal wall of a 60 yo F. On presentation, her CC was feeling like she “had not completely emptied her bladder”.

On PE, a protrusion is seen in the posterior vaginal wall of a 60 yo F. On presentation, she complained of having to use her fingers to extract stool from the rectal vault.

A 60 yo F complains of urinary leakage with coughing and sneezing. On PE, a Q Tip test is positive. She does not feel incontinent at night.

A 60 yo F presents with complaints of “not being able to get to the restroom in time before she pees”. This started 5 days ago. Urinalysis is notable for pyuria and bacteriuria.
Given the following clinical descriptors, what is the most likely diagnosis?

A 60 yo F cannot suppress the urge to void. She consistently becomes incontinent before she gets to the bathroom. A pelvic exam is unremarkable. Cystometric studies reveal a normal postvoid residual volume.

A 33 yo F presents with a chief complaint of “pelvic fullness”. She loses small amounts of urine intermittently throughout the day. She has a history of a malar rash. Postvoid residual is increased.

A 60 yo F presents with a CC of urine “continuously dripping from her vagina”. She has a history of a total abdominal hysterectomy.
Q44 Key

Given the following clinical descriptors, what is the most likely diagnosis?

On PE, a protrusion is seen in the anterior vaginal wall of a 60 yo F. On presentation, her CC was feeling like she “had not completely emptied her bladder”-This is a cystocele. It occurs secondary to weakness in the anterior vaginal wall.

On PE, a protrusion is seen in the posterior vaginal wall of a 60 yo F. On presentation, she complained of having to use her fingers to extract stool from the rectal vault-This is a rectocele. It occurs secondary to weaknesses in the posterior vaginal wall. Consider an enterocele as the dx if a Q stem mentions a bulge in the pouch of douglas that increases (in size) with the valsalva maneuver.

Kegel exercises and the placement of pessaries are excellent initial management options for these conditions. Anterior/posterior colporrhaphies (wall reinforcement) are excellent surgical options if these measures fail.
Q44 Key contd.

Given the following clinical descriptors, what is the most likely diagnosis?

A 60 yo F complains of urinary leakage with coughing and sneezing. On PE, a Q Tip test is positive. She does not feel incontinent at night—**This is stress incontinence. The pathophysiology involves a differential in pressures between the bladder and the proximal urethra (the proximal urethra essentially falls out of the pelvis). Consider Kegel exercises->urethropexy.**

A 60 yo F presents with complaints of “not being able to get to the restroom in time before she pees”. This started 5 days ago. Urinalysis is notable for pyuria and bacteriuria—**This is urge incontinence secondary to bladder irritation (by some bug). Treat the UTI and the symptoms should disappear.**
Q44 Key contd.

Given the following clinical descriptors, what is the most likely diagnosis?

A 60 yo F cannot suppress the urge to void. She consistently becomes incontinent before she gets to the bathroom. A pelvic exam is unremarkable. Cystometric studies reveal a normal postvoid residual volume—**Urge incontinence.** Administer a muscarinic receptor antagonist like oxybutynin or tolterodine.

A 33 yo F presents with a chief complaint of “pelvic fullness”. She loses small amounts of urine intermittently throughout the day. She has a history of a malar rash. Postvoid residual is increased—**Overflow incontinence.** The neuro exam should be abnormal. Administer a muscarinic agonist. Self catheterization is also a reasonable option.

A 60 yo F presents with a CC of urine “continuously dripping from her vagina”. She has a history of a total abdominal hysterectomy—**This is a fistula from the urinary system to the vagina (could be vesicovaginal, urethrovaginal, ..).** This needs to be fixed surgically.
# Common Vaginal Infections

<table>
<thead>
<tr>
<th>Infectious Agent</th>
<th>Findings</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Candida</em> sp.</td>
<td>“Cottage cheese” appearance; pseudohyphae seen on KOH preparation; history of diabetes, antibiotic treatment, or pregnancy</td>
<td>Topical or oral antifungal</td>
</tr>
<tr>
<td><em>Trichomonas vaginalis</em></td>
<td>Trichomonads can be seen swimming under microscope; pale green, frothy, watery discharge; “strawberry” cervix</td>
<td>Metronidazole</td>
</tr>
<tr>
<td><em>Gardnerella vaginalis</em></td>
<td>Malodorous discharge; fishy smell on KOH preparation; clue cells</td>
<td>Metronidazole</td>
</tr>
<tr>
<td>HPV</td>
<td>Venereal warts, koilocytosis on Pap smear</td>
<td>Many (acid, cryo therapy, laser, podophyllin)</td>
</tr>
<tr>
<td>Herpes virus</td>
<td>Multiple shallow, painful ulcers; recurrence and resolution</td>
<td>Acyclovir, valacyclovir</td>
</tr>
<tr>
<td>Syphilis (stage I)</td>
<td>Painless chancre, spirochete on dark-field microscopy</td>
<td>Penicillin</td>
</tr>
<tr>
<td>Syphilis (stage II)</td>
<td>Condyloma lata, maculopapular rash on palms, serology</td>
<td>Penicillin</td>
</tr>
<tr>
<td><em>Chlamydia trachomatis</em></td>
<td>Most common STD; dysuria, positive culture and antibody tests</td>
<td>Doxycycline or azithromycin*</td>
</tr>
<tr>
<td><em>Neisseria gonorrhoeae</em></td>
<td>Mucopurulent cervicitis; gram-negative bacteria on Gram stain</td>
<td>Ceftriaxone</td>
</tr>
<tr>
<td>Molluscum</td>
<td>Characteristic appearance of lesions, intracellular inclusions</td>
<td>Curette, cryotherapy, or electrocauterization/coagulation</td>
</tr>
<tr>
<td>Pediculosis</td>
<td>“Crabs”; look for itching; lice can be seen on pubic hairs</td>
<td>Permethrin cream (or malathion)</td>
</tr>
</tbody>
</table>
Endometrial Cancer

- Endometrial cancer (often adenocarcinoma) arises in the setting of endometrial hyperplasia. The big RF is exposure to unopposed E2 (PCOS, obesity->from increased amounts of aromatase, prolonged exposure to tamoxifen). There is also an association with HNPCC.

- There are 2 types. Type 1 is the “classic” one associated with increased E2 exposure. Type 2 is not associated with increased E2 exposure and has a horrible prognosis (it’s like ovarian cancer in a sense).

- The classic presentation is abnormal uterine bleeding in a postmenopausal female. Perform an endometrial biopsy. A HY scenario to be aware of is making sure you perform an EMB in a female with a long hx of PCOS even if she is in her 30s (especially if she presents with abnormal uterine bleeding).

- Treatment is with a TAHBSO. Prognosis is excellent if caught early.
Cervical Cancer

-Squamous cell cancer (outer cervix) is the most common kind of cervical cancer. Adenocarcinomas can also occur but are typically in the inner cervix that is not necessarily visible with a speculum exam.

-Most cancers arise in the transformation zone between the ecto and endocervix.

-The biggest RF is a history of exposure to HPV (especially 16 and 18). Other RFs include having multiple sex partners, having a h/o of STDs, and having HIV (immunosuppression). Smoking is also a RF.

-You certainly need to know the screening guidelines for cervical cancer. A woman should be screened every 3 years from 21-29. A similar regimen can be pursued after the age of 30. However, a pap smear + HPV screening can be conducted every 5 years. Screening can be stopped at 65 if multiple pap smears have been normal.
- A patient that undergoes a hysterectomy FOR BENIGN REASONS does not need further screening after the procedure. For NON-BENIGN reasons, a pap smear of the vaginal cuff must be undertaken at routine intervals.

- The NBME loves testing specific screening scenarios on your exam in the context of pap smear results.

- A pap smear revealing ASCUS (atypical squamous cells of undetermined significance) should be followed by HPV testing if the patient is over 25. If HPV+, proceed to a colposcopy. If < 25, an acceptable option is to repeat the pap in a year. If +ve, proceed to colposcopy. Option 1 (for the > 25 yo F) is also acceptable.

- If a pap smear reveals ASC-H (ASC but cannot exclude HSIL), proceed to a colposcopy.
Cervical Cancer contd.

- If a pap smear reveals **AGUS** (Atypical Glandular Cells of Undetermined Significance), your NBSIM is to get a whole bunch of tests—Colposcopy, endocervical curettage, and an endometrial biopsy.

- If a pap smear reveals **LSIL (CIN 1)**, it is typically acceptable to get a colposcopy with biopsy. In some rare cases with super low risk individuals (aka really young), the pap may be repeated in a year since these individuals will more than likely clear the infection.

- For **HSIL (CIN 2 or 3)**, proceed to a colposcopy always. An unusual answer you may see on the NBME is to perform a LEEP procedure to excise the lesion.

- If a pap smear shows **LSIL (CIN 1)** but a colposcopy with biopsy shows something different (e.g. **HSIL with CIN ⅔**), repeat the colposcopy and get an endocervical curettage.
Cervical Cancer contd.

- Consider cervical cancer if a Q stem gives you a patient with the RFs discussed earlier in the setting of post-coital bleeding.

- Cervical cancer can metastasize to structures of the urinary system (like ureters) and cause hydronephrosis leading to renal failure. This is the MCCOD in cervical cancer.

- Remember the complication of cervical insufficiency (painless pregnancy loss) with LEEP and conization procedures.
# Cervical Cancer Screening

<table>
<thead>
<tr>
<th>Ages 21–24</th>
<th>Ages 25–29</th>
<th>Ages 30 and Older</th>
<th>HPV Negative</th>
<th>HPV Positive</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Normal Pap test results</strong></td>
<td><strong>Routine screening:</strong> Pap test every 3 years</td>
<td><strong>Routine screening:</strong> Pap test every 3 years</td>
<td><strong>Preferred—Co-testing</strong> every 5 years</td>
<td><strong>Acceptable—HPV typing</strong></td>
</tr>
<tr>
<td><strong>ASC-US</strong></td>
<td><strong>Preferred—Repeat Pap test in 12 months</strong></td>
<td><strong>Preferred—Reflex HPV test</strong></td>
<td><strong>Repeat co-testing</strong> in 3 years</td>
<td><strong>Colposcopy</strong></td>
</tr>
<tr>
<td><strong>LSIL</strong></td>
<td><strong>Repeat Pap test in 12 months</strong></td>
<td><strong>Colposcopy</strong></td>
<td><strong>Preferred—Repeat Pap test in 12 months</strong></td>
<td><strong>Colposcopy</strong></td>
</tr>
<tr>
<td><strong>ASC-H</strong></td>
<td><strong>Colposcopy</strong></td>
<td><strong>Colposcopy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>HSIL</strong></td>
<td><strong>Colposcopy</strong></td>
<td><strong>Immediate excisional treatment or colposcopy</strong></td>
<td><strong>Immediate excisional treatment or colposcopy</strong></td>
<td></td>
</tr>
<tr>
<td><strong>AGC</strong></td>
<td>AGC has several subcategories. The type of follow-up tests that are recommended depend on the AGC subcategory. Tests performed for follow-up include colposcopy, endocervical sampling, and endometrial sampling.</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
Q45-Hormone Festival

Increases milk production
Increases milk letdown
“Invigorates” uterine contractions
Plays a role in gestational DM
Maintains corpus luteum
Maintains pregnancy for first 10 weeks
Converts endometrium from being proliferative to being secretory
Causes endometrial hyperplasia
Thickens cervical mucus
Causes growth of the ovarian follicle
Causes ovulation
Prevents lactation during pregnancy—progesterone (blunts prolactin effect)
Hormone in highest concentration in the luteal phase of the menstrual cycle—progesterone
Produced by theca cells
Produced by granulosa cells
2 hormones produced by sertoli cells
Hormone produced by leydig cells
Inhibits FSH release from the anterior pituitary
Q45 Key-Hormone Festival

Increases milk production- prolactin
Increases milk letdown- oxytocin
“Invigorates” uterine contractions- oxytocin
Plays a role in gestational DM- human placental lactogen
Maintains corpus luteum- beta-HCG
Maintains pregnancy for first 10 weeks- progesterone from corpus luteum
Converts endometrium from being proliferative to being secretory- progesterone
Causes endometrial hyperplasia- estrogen (estriol in pregnancy)
Thickens cervical mucus- progesterone
Causes growth of the ovarian follicle- FSH
Causes ovulation- LH
Prevents lactation during pregnancy- estrogen/progesterone (blunts prolactin effect)
Hormone in highest concentration in the luteal phase of the menstrual cycle- progesterone
Produced by theca cells- androstenedione
Produced by granulosa cells- estrogen (type depends on age)
2 hormones produced by sertoli cells- Anti-Mullerian Hormone (AMH), Inhibin
Hormone produced by leydig cells- testosterone
Inhibits FSH release from the anterior pituitary- Inhibin
Other Random But HY Factoids

- Infertility is the inability to conceive after 12 mo of trying in couples that are not on some form of birth control (or > 6 mo if the lady is > 35). You should start with semen analysis (or start with the woman if the Q stem says that the man has fathered kids from a different relationship).

- Rh (D) immunoglobulin is given at 28 weeks and at < 72 hrs postpartum. The postpartum dose given is determined by the Kleihauer-Betke test (a test of fetomaternal hemorrhage).
References

https://www.acog.org/Patients/FAQs/Abnormal-Cervical-Cancer-Screening-Test-Results

USMLE Step 2 Secrets

CaseFiles, OBGYN
KEEP CALM AND do well in your exam ALL THE BEST