Week 1

Differential Diagnosis: process involves using clinical reasoning to distinguish between two or more conditions that share similar signs or symptoms

- Begins as a list of common and uncommon diagnoses that are relevant to the patient's chief complaint or specific symptom.
- A thorough list of potential diagnoses based on the patient's presenting symptoms must be developed and narrowed based on subjective, objective, and diagnostic data
- The subjective history and review of systems are the first steps in gathering data to narrow the potential differentials, followed by the physical examination
- During the HPI, a series of directed, open-ended questions are asked to gain information about the complaint using the OLD CARTS mnemonic (**O**nset, **L**ocation, **D**uration, **C**haracter, **A**ggravating factors, **R**elieving factors, **T**iming, and **S**everity).
- Findings from the focused PE are used to narrow down the list of potential diagnoses.
- If the diagnosis cannot be finalized based on data from the subjective history and physical examination, diagnostic testing is utilized to assist in determining the correct diagnosis.
- ALL diagnostic tests have false-positive and false-negative results. There are NO perfect tests.

Diseased individuals who test positive are true positives and non-diseased individuals who test negative are true negatives.

- An individual with a false positive will likely have further testing, which may lead to: exposure to potentially invasive tests, fear about having these tests, increased healthcare costs, being labeled with an inaccurate diagnosis, receiving inappropriate treatment.

Diseased individuals who test negative are false-negatives and non-diseased who test positive are false-positives.

- An individual with a false-negative who has a potentially treatable disease may become sicker or die because the disease is not detected and treatment is delayed.

Positive Predictive Value is the percentage of diseased individuals out of those who test positive. (Proportion of patients with a positive test who have the disease)

- Positive predictive value increases with prevalence; thus, low prevalence value yields a low positive predictive value and implies a high false-positive rate

Negative Predictive Value is the percentage of non-diseased people out of those who tested negative

- Negative predictive value is inversely correlated with prevalence
- Negative predictive value decreases with prevalence, and sensitivity/specificity do not vary.

Predictive values depend on the prevalence of disease in the population.

Pretest probability is the chance the patient has the disease, estimated before the results of the test are known.

- It is based on the probability of the suspected disease given the patient's symptoms or clinical context
- If the pretest probability is high, diagnostic testing may be warranted to clarify or confirm a diagnosis

Specificity: proportion of 'test negative' of total without the disease; the number of true negatives over all negatives.

Sensitivity is the proportion of patients with the disease that have a positive result; it is the number of true positives divided by the total number of patients who have the disease.

Complete Blood Count (CBC)

- Used to obtain data in evaluating a variety of disorders such as anemia, infection, or leukemia
- Measures red blood cells, white blood cells, hemoglobin, hematocrit, and platelets
- Check platelet count for unexplained bruising
- Check CBC with differential for neutrophil shift in suspected infection for fever
- Check RBC, Hgb and Hct for anemia if patient c/o fatigue
- Check WBC for inflammation or possible cancer if patient has unexplained wright loss

Complete Blood Count

Measurement	Normal Range*
Red blood cells	• 4.5-6.0 million/μL
Hemoglobin	• 12-18 grams/100 mL
Hematocrit	• 38%-48%
Reticulocytes	• 0%-1.5%
White blood cells (total)	• 5000-10,000/μL
Neutrophils	• 55%-70%
Eosinophils	• 1%-3%
Basophils	• 0.5%-1%
Lymphocytes	• 20%-35%
Monocytes	• 3%-8%
Platelets	• 150,000-300,000/μL

*The values on hospital lab slips may vary somewhat but will be very similar to the normal ranges given here.

Comprehensive Metabolic Panel (CMP)

- Includes several tests that measure substances in the blood giving information about the balance of fluid and electrolytes as well as the status of the body's metabolism, liver function, and kidney function
- Used to screen, monitor, and diagnose a variety of diseases and conditions such as hydration and electrolyte levels, diabetes, kidney disease, and liver disease
- Also used to monitor the utilization of specific medications such as diuretic therapy or antihypertensive agents
- In patients with edema check kidney function
- Monitor electrolytes for abnormalities in cardiac dysrhythmias

Comprehensive Metabolic Panel

Electrolytes	Sodium (Na^+)	136-145 mEq/L
	Potassium (K^+)	3.5-5.0 mEq/L
	Chloride (Cl^-)	95-105 mEq/L
	Bicarbonate (HCO_3^-)	22-28 mEq/L
Misc.	Calcium, serum (Ca^{2+})	8.4-10.2 mg/dL
	Glucose, serum	Fasting: 70-110 mg/dL 2-h postprandial: < 120 mg/dL
	Cholesterol, serum	Rec:<200 mg/dL
	Total Protein	6.0-7.8 g/dL
	Albumin	3.5-5.5 g/dL
Kidney Tests	Creatinine, serum	0.6-1.2 mg/dL
	Urea nitrogen, serum (BUN)	7-18 mg/dL
Liver Tests	Alanine aminotransferase (ALT), serum	8-20 U/L
	Aspartate aminotrasferase (AST), serum	8-20 U/L
	Bilirubin, serum (adult) Total // Direct	0.1-1.0 mg/dL // 0.0-0.3 mg/dL
	Phosphatase (alkaline), serum	20-70 U/L

Chief complaint	Test	Rationale
Fever	CBC	Check CBC with differential for neutrophil shift in suspected infection
Unexplained bruising	CBC	Check platelet count
Fatigue	both	Check RBC, Hgb and Hct for anemia, CMP for potential liver or kidney abnormalitie
Cardiac dysrhythmias	CMP	Monitor electrolytes for abnormalities
Unexplained weight loss	Both	Check WBC for inflammation or possible cancer, CMP for glucose, liver or kidney abno
Edema	CMP	Check for kidney function

SNAPPS Method

- Oral summary of the patient's status
- Help facilitate the transfer of information among providers to optimize patient care
- Detail key points regarding clinical reasoning and decision making
- Information included in the presentation includes the patient's chief complaint, findings from the history and physical examination, the differential diagnosis, assessment, and treatment plan

- **S**ummarize the history and findings
- **N**arrow the differential diagnosis to two or three possibilities
- **A**nalyze the differential by comparing and contrasting the possibilities
- **P**robe the preceptor by asking questions about alternative approaches or uncertainties
- **P**lan the management of the patient's health issues
- **S**elect an issue from the case for self-directed learning

Week 2

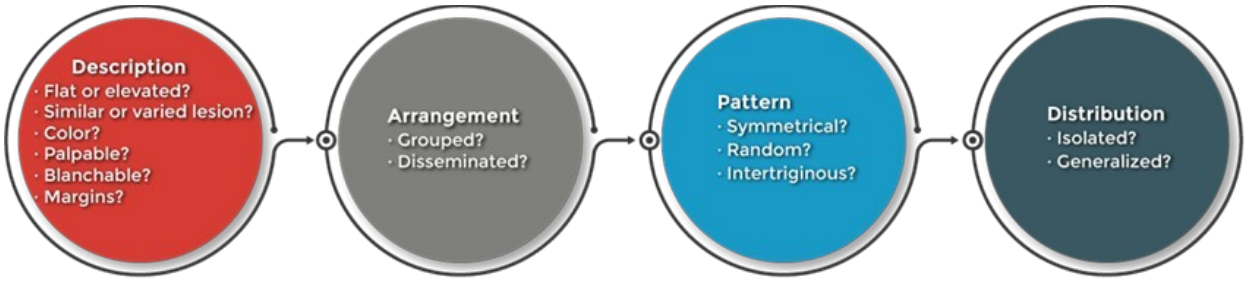
It is important to use specific terminology to describe skin lesions and rashes. Good descriptions include each of the following elements: number, size, color, shape, texture, primary lesion, location, and configuration

- Number–solitary or multiple; estimate of total number
- Size–measured in millimeters or centimeters
- Color–including erythematous if blanching; if non-blanching, vascular-like cherry angiomas and vascular malformations, petechiae, or purpura
- Shape–circular, oval, annular, nummular, or polygonal
- Texture–smooth, fleshy, verrucous, or warty, keratotic; greasy if scaling
- Primary lesion–flat, a macule or patch; raised, a papule or plaque; or fluid filled, a vesicle or bulla (may also be erosions, ulcers, nodules, ecchymoses, petechiae, and palpable purpura)
- Location–including measured distance from other landmarks
- Configuration–grouped, annular, linear

Key Questions

Key questions to ask in the history of all rashes:

- Onset?
- Where is the rash located? Where did it start?
- Does it hurt or itch? What other symptoms?
- Has it spread (if so, what is the pattern)? What is the evolution and timeframe of the rash?
- Have individual lesions changed?
- Exposures and etiologies search: Have you traveled recently? Are you or could you be pregnant? Is there a relationship to exercise, heat, cold, sun, sleeping, eating, etc.? What is your occupation?
- Have you tried to treat the rash/lesion with any treatment, and if so, what was the result?
- Have you ever had this rash/lesion before?
- Does anyone else have a similar rash/lesion (currently or recently)?



Rash	Characteristic 1	Characteristic 2	Where is it Found?
Atopic dermatitis	Dry skin	Scaly, patchy	Elbows, knees
Contact dermatitis	Burning	Pruritis	Areas in contact with irritant
Rosacea	Flushing	Inflammatory papules	Face
Acne vulgaris	Open comedones	Closed comedones	Face; sometimes body
Pityriasis rosea	Raised truncal patch ("herald patch")	Scaly plaques or papules, Christmas-tree shaped	Scattered trunk and limbs
Herpes zoster	Pain	Fluid-filled vesicles that crust over	Segementary rash; does not cross the midline of body
Scabies	Pruritis, worse at night	Small erythematous papules	Waist, webs of fingers, buttocks
Psoriasis	Silvery-white scales	Circumscribed plaques	Elbows, knees, scalp

Intertriginous scabies: Infection caused by Sarcoptes scabiei mite that burrows into the skin and lay eggs. Red rash with intense itching that worsens at night. Highly contagious.

- Treatment:
  - Scabicide lotion or cream
  - Bedding, clothing, and towels need to be treated
  - Wash in hot water and dry in a hot dryer
  - Dry-clean
  - Seal in a plastic bag for at least 72 hours
  - Family members may need retreatment

Pityriasis rosea: Common, self-limiting rash. Usually starts with an erythematous lesion on the trunk that progresses to a generalized trunk rash. Other symptoms: malaise, nausea, joint pain, fever, sore throat, or swollen lymph nodes.