Pain & discomfort is the most common reason people seek any kind of health care including chiropractic care. Therefore it’s useful to have knowledge of the following basic concepts.

Neuro-musculoskeletal pain is the most common reason people seek chiropractic care. Neuro-musculoskeletal pain is usually initiated or aggravated by motion.

The type of pain suggests a possible tissue of origin as follows:
1. Cramping, dull or aching pain suggests muscle
2. Sharp, shooting, burning & lightning-like pain suggest nerve
3. Deep, nagging or dull pain suggests bone
4. Sharp, severe &/or intolerable pain suggests bone fracture
5. Throbbing, diffuse pain suggests vasculature

As a rule, the closer the tissue is to the surface of the body, the better the site of pain corresponds to the site of the tissue irritation. Conversely the further the tissue is from the body surface the less likely the site of pain corresponds to the site of the tissue irritation. For example skin is extremely sensitive to pain, pressure & temperature and is well localized to the site of the tissue irritation. Pain originating in deeper organs is often poorly localized to the site of the tissue irritation.

Visceral pain is often initiated or aggravated by the functional component of the involved organ.
Distension or irritation of the internal lining causes pain of hollow organs.
Distension or irritation of the surface capsule causes pain of solid organs.
In both cases the intensity of the pain depends on the rate of expansion or the degree of irritation. Organ pain is also caused by ischemia.

Inflammation is the protective response of body tissues to irritation or injury whether mechanical or microbial. It’s the body’s attempt to rid itself of the cause of the trauma, and to heal any damage caused by it. Inflammation can be acute or chronic; its cardinal signs are pain, redness, heat & swelling, often accompanied by loss of function.

Rubarb/erythema- The redness of an inflammatory response is due to dilated blood vessels
Calor/heat - The warmth of an inflammatory response is due to dilated blood vessels
Dolor/pain- Biochemical mediators are produced at the site of injury or tissue damage; they help promote transmission of pain impulses from pain receptors to the dorsal horn of the cord.
Tumor/swelling- It’s edema at the site of injury or tissue damage.

Case history is an efficient way to start the evaluation & management process.

Chief complaint (CC)
The (CC) is the reason for seeking care, usually in the patient’s words.

Present problem/illness (PI)
The (PI) is a record of all the detailed characteristics of the chief complaint (OPQRST).

Past Health (medical) history (PH)
The (PH) is a record of previous & concurrent illnesses, medications, injuries, surgeries & transfusions.
Family history (FH)
The (FH) an account of the health and, if applicable, the cause of death of first degree relatives (parents, siblings, spouse & children)

Personal & social history (ADL’s)
An account of activities of daily living such as: occupation, hobbies, recreation, travel, environmental toxins, sleep, nutrition, hydration, alcohol & tobacco use

Review of systems (ROS)
A (ROS) is a patient-completed checklist of symptoms typically associated with particular body systems. Checked items require further investigation.

Complete history
Include all of the components listed above.
Sensitive subjects such as sexual, alcohol and illicit drug history as well as child, spousal & elder neglect &/or abuse histories need to be approached with discretion.

Detailed history
It include the chief complaint, details of the present problem, the past health history, family history & the demands of the patient’s occupation.

Expanded Problem/focused history
It include the chief complaint, details of the present problem & the past health history.

Problem/focused history
A history limited to the complaint & its characteristic details. Performed in situations that are urgent or when an existing patient has a new problem occurs on

Interim history
An update of the patient’s health status since the last time they were in the office. "Have you had any new illnesses, medications, injuries, surgeries or concerns since your last visit?"

Open-ended questions
Leaves the content & extent to the discretion of the patient

Leading questions
A question that suggests the answer or contains information the examiner desires.

Direct questions
They seek specific information.

Concluding Questions
Give the patient the opportunity to relate additional information or reveal other concerns

Active problem list
A list of all significant current or old problems (illnesses, injuries, surgeries) not completely resolved that were reported during case history interview.

Inactive problem list
A list of significant old problems (illnesses, injuries, surgeries) seemingly completely resolved.

Purpose of problem lists
They not only provide a quick summary of the whole patient’s health status but also provide a resource for planning & management. Active problems ideally become inactive & inactive problems may unfortunately become active again.
GENERAL OBSERVATIONS

Antalgic posture is a position assumed to lessen the pain.

GAIT:
Steppage gait is a high stepping movement to avoid stubbing their toe due to loss of dorsiflexion. It may be due to injury to the deep peroneal nerve.

Antalgic gait is a limp attempting to lessen pain

Ataxic gait is an unsteady, staggering gait.

Festinating gait is slow, small shuffling step associated with Parkinson’s disease

Scissors gait – The hips & knees are flexed, thighs & knees rub or cross with every step which forces toe walking. It’s associated with spastic paralysis of cerebral palsy.

FACIES:

Grimacing with pain.

Hyperthyroid facies demonstrates moist/oily skin, prominent eyes and lid retraction, staring or startled expression.

Grave Disease is an autoimmune disorder that mostly functions as a hyperthyroidism (some cases can manifest as hypothyroidism). The same features of hyperthyroidism above may be seen, in addition to retrobulbar hypertrophy resulting in bulging eyes (exophthalmos or proptosis; ex = external or outward and pro = forward). May have non-pitting edema = pretibial myxedema.

Hypothyroidism does not usually demonstrate characteristic facies, but the decreased metabolic rates may result in dry hair and skin, weight gain, cold intolerance, and may have a goiter.

Hashimoto’s Thyroiditis or Disease is an autoimmune disease that functions as a hypothyroidism with similar clinical presentations.

Acromegaly causes an elongated head with a prominent forehead, nose & lower jaw (macrognathia; gnathia = jaw/mandible). It’s due to increased growth hormone (GH).

Myxedema causes a dull, puffy face with obvious periorbital edema. It’s associated with the most advanced form of hypothyroidism. The decrease in metabolic rate causes accumulation of hyaluronic acid and chondroitin sulfate in the dermis; cognitive skills usually decline.

Cushing’s syndrome causes a round “moon face” with red cheeks and an upper thoracic fat pad (buffalo hump). It’s associated with increased adrenal hormone.

Parkinson’s causes a blank, masklike stare with limited blinking.

Hippocrates Facies is seen in the last stages of terminal illnesses. The patient has sunken eyes, cheeks, and temples, sharpened nose, and dry rough skin.
**Down Syndrome** has depressed nasal bridge, epicanthal folds, mongoloid slant of the eyes, low-set ears, and large tongue.

**Hydrocephalus** in infants causes an enlarged head, thinning of the scalp with dilated veins and frontal bossing. The eyes may demonstrate visible sclera above the irises and paresis of the upward gaze, a phenomenon known as “sun-setting” sign (the irises look like the sun descending towards the horizon; the visible sclera would be the sky).

**Bell’s palsy** produces a facial paralysis of the muscles supplied by CN VII). The face will be asymmetrical, the eyelid may not close, the lower lid may droop, and the mouth may not close. Most cases will resolve in about one year.
SKIN MARKINGS:

PRIMARY SKIN LESIONS

MACULE is a flat area of discolored skin less than a centimeter in diameter; an example may be a freckle or cherry angioma. Patches, marks, spots, plaques and nevi describe larger flat areas of skin discoloration; examples may be age spots, vitiligo or port wine stains.

PAPULE is a solid elevation of skin less than one centimeter in diameter; examples may be moles, warts or skin tags. Nodules and tumors describe progressively larger solid masses such as lipomas, cysts and other masses.

S.N. Wheals are edematous swellings like mosquito bites or hives (urticaria) which are technically not solid but often classified as papular lesions.

VESICLE is a small, fluid (serous) filled elevation of the skin; examples may be herpes simplex, chicken pox or herpes zoster. Bullae (blisters) are larger versions of vesicles.

PUSTULE

• A small pus filled elevation of the skin such as pimples; abscesses, furuncles and carbuncles are larger but similar eruptions (like a vesicle, but purulent rather than serous)

SECONDARY SKIN LESIONS

Scales – Flaky skin, keratinized cells e.g. dandruff, seborrhea, psoriasis
Crust – Dried serum, blood or purulent exudates e.g. weeping exzema
Lichenification – Rough, thickened epidermis with accentuated skin markings, e.g. chronic dermatitis
Telangiectasis – Fine, irregular, superficial capillary dilations, e.g. rosacea
Excoriation – Linear, crusted loss of epidermis, e.g. abrasion or scratch
Erosion – Loss of some epidermis, e.g. sun damaged skin
Ulcer - Loss of epidermis extending into the dermis & may include the subcutaneous layer, e.g. bed sores, basal cell carcinoma
Fissure – Linear crack extending into the dermis, e.g. athlete’s foot
Nevus – mole (plural = nevi)

SKIN CANCER:

“ABCDE” GUIDELINES PROMPTING A DERMATOLOGY CONSULT

Unexplained growths with one, some or all of the following characteristics;

• A - asymmetric surface or unequal halves
• B - border is irregular, notched, scalloped or indistinct
• C – color is black, speckled or mixed
• D – diameter of a growth exceeds 6mm (pencil diameter)
• E – evolving (Any change warrants a dermatology consultation)
SKIN CONDITIONS

Rashes that affect the **palms and soles** are uncommon and essentially narrow the differentials to: Rocky Mountain Spotted Fever, gonococcemia, erythema multiforme, and secondary syphilis.

**Scabies** is possibly the MOST pruritic (itching) condition. Note: pruritic = itching and puritic = pus-producing. Pruritis is usually worse at night and after hot showers/baths. Scabies commonly affects the volar surfaces of the wrists, the elbows, the penis, and between the fingers. The scabies burrow into the skin to leave their eggs, leaving red excoriations (scratches of the epidermis) and track marks.

**Vitiligo**: typically focal (rather than regional or universal) areas of depigmentation, much more noticeable in darker pigmented skins; hereditary, but could be due to trauma.

**Petechiae**: red-purple non-blanchable dots, less than .5 cm, seen in hypervascularity

**Café au lait macules**: flat, evenly pigmented spots larger than 5 mm that may be seen in neurofibromatosis, fibrous dysplasia, tuberous sclerosis, pulmonary stenosis.

**Port-wine stain**: Deep red/purple pigmented patch. When occurring on the face in the ophthalmic division of CN V, may be seen with glaucoma and other ocular defects or angiomatous malformation of the meninges (**Sturge-Weber syndrome**). When occurring on the trunk, may be seen with varicosities and hypertrophy of underlying soft tissues (**Klippel-Trenaunay-Weber syndrome**).

**Folliculitis**: inflammation and infection of the hair follicles, seen more so with facial hair caused by frequent shaving. **Keratosis pilaris** is a very common condition that is not the same as folliculitis; it is a condition in which protein (keratin) builds up around the hair follicles (pila) and results in raised pustules, most commonly on the back of the arms and thighs.

**Tinea**: noncandidal fungal infections. Tinea corporis = body; tinea cruris = groin/inner thigh; tinea capitis = scalp; tinea pedis = feet; tinea unguium = nails

**Pityriasis Rosea**: a common, self-limiting rash of unknown cause, probably viral, but not thought to be contagious. A primary oval or round plaque (pink/red and scaly and known as a **herald patch**) will occur 1-3 weeks prior to the secondary rash. Eventually multiple salmon-colored patches will appear in multiples, often in batches. On the back, the patches may be linear and angled out towards the lateral surfaces, called a “Christmas tree” or “fir tree” pattern.

**Psoriasis**: classic presentation is “**silver scales**” on “**salmon-pink skin**”, though many variations are possible. It is a disorder of high epidermal cell turnover, so scaling is a prevalent feature. The back, buttocks, scalp, and extensor surfaces are commonly involved.

**Eczema or eczematous dermatitis**: the most common inflammatory skin condition with multiple presentations, all linked by intercellular edema and epidermal breakdown. Forms include contact dermatitis (pollens, metals) and atopic dermatitis (60% occur first in childhood; associated with asthma later in life).

**Rosacea**: Telangiectasia, erythema, papules, and pustules characteristically in the central face (the patient often looks as if they are blushing or have a mild sunburn); never pruritic.

**Herpes zoster**: varicella-zoster viral infection (identical to the varicella/chickenpox virus). The original chickenpox infection will lie dormant in the dorsal root ganglion and become re-activated in times of immune compromise. Distribution is classically along one dermatome with red vesicles.
**Acrnthesis Nigricans:** A non-specific reaction pattern seen with obesity, some endocrine syndromes (insulin resistance, hyperinsulinism) malignancies, or inherited disorders. Seen as symmetrical brown thickening of the skin or patches of thickened brown skin with a velvety texture, most commonly in the axillae or other flexor regions.

**Basal cell carcinoma:** The most common form of skin cancer, occurring in the sun-exposed areas of the body, and usually first noted as a wound/ ulcer that does not heal—red flag! BCC has many clinical presentations, but may appear as a nodule or new “mole” that takes on a pink-red appearance before ulcerating.

**Squamous cell carcinoma:** The second most common form of skin cancer, SCC also occurs in the sun-exposed areas of the body and may be noted as a wound/ ulcer that does not heal. Difficult to differentiate based on appearance as it has a very similar presentation as BCC—elevated growth that eventually ulcerates or scaly red patches.

**Malignant Melanoma:** A typically more lethal form of skin cancer as it has a high rate of metastasis. Because it involves the migration of melanocytes, pigmentation changes are common. Roughly half of MM develops in pre-existing moles, so consider ABCDE of moles.

**Hair Disorders:**

Alopecia areata: sudden and rapid loss of patches of hair, cause unknown.

**Older adults:**

**Solar lentigo/lentigines:** Known as “age spots”, “liver spots”, or “sun spots”, they are variegated (multiple colors within) macules that occur on the sun-exposed areas.

**Sebhorrheic keratosis:** raised, darkly pigmented, warty-surfaced lesions that look like moles, but tend to occur after age 50 (moles don’t develop beyond adulthood)

**Actinic keratosis:** very similar to sebhorrheic keratosis, but with a malignant potential

**Cherry angiomas:** virtually everyone gets these tiny ruby-red papules that may become brown with age. Angiomas and hemangiomas will blanch/pale with pressure.
VITAL SIGNS

Physical evaluation of the vital signs is an efficient way to eliminate overt infectious, pulmonary or cardiovascular problems initiating, complicating or coexisting with the patient’s chief complaint.

1. TEMPERATURE
Fever - Body temperature above the patient’s normal (96°- 99.6° F)

Pyrexia
It’s most often an infection induced fever above the patient’s normal that does not exceed 105° Fahrenheit

Hyperpyrexia
It’s a fever of a 106° Fahrenheit or greater due to overwhelming heat exposure & dehydration or damage to the hypothalamus (thermostat center).

Turgor
It’s a fold of skin pinched and pulled to a tented position on the arm or abdomen should normally spring back immediately when released.

“Tenting”
It’s a fold of skin pinched and pulled to a tented position on the arm or abdomen that remains tented for 4 seconds indicates a degree of dehydration >10% loss of the infants or child’s body weight

Hypothermia
A body temperature of 95° Fahrenheit or below and becoming especially lethal at 90° Fahrenheit

2. RESPIRATION
Rate - The number of times the thorax expands & elevates in on minute (12-20) as opposed to bradypnea (<12) or tachypnea (>20).

Rhythm - Normally a regular series of breaths as opposed to irregular breathing: Cheyne-Stokes, Biot or ataxic.

Amplitude - Normally shallow & easy as opposed to hypopnea (shallow), hyperpnea (deep), hyperventilation or Kussmaul (rapid & deep).

3. PULSE
Pulse rate
The number of arterial waves (resulting from left ventricular contraction) counted in one minute

Tachycardia
Heart rate >100 bpm

Bradycardia
Heart rate <60 bpm

Pulse rhythm
The regularity of arterial waves (resulting from left ventricular contraction) noted in one minute

Arrhythmia is an irregular heartbeat
**Sinus arrhythmia**
These are heart rates in children that speed up during inspiration due to the pressure change in the chest. They may be palpated at a peripheral pulse or auscultated over the heart.

**Premature ventricular contraction**
Ventricular depolarization occurs earlier than expected resulting in less blood being ejected, which is perceived as a skipped beat. The patient may experience a “flip flop” in the chest.

**Atrial fibrillation**
Disorganized activity in the atria accompanied by a rapid, irregular ventricular response is palpated or auscultated as a fast irregular pulse. It’s usually associated with pre-existing heart disease and necessitates emergency care.

**Ventricular fibrillation**
It’s a rapid, uncoordinated, fluttering contraction of the lower chambers of the heart. They’re palpated or auscultated as a fast irregular beat and are usually associated with heart attacks or scar tissue from previous heart attacks. They require urgent care to survive.

**Pulse amplitude**
The felt distention of an artery resulting from left ventricular contraction
- 0 = absent pulse
- 1 = weak, thread feeble (finger pressure easily obliterates it)
- 2 = expected, normal (finger pressure does not easily obliterates it)
- 3 = full, increased (not included on most scales)
- 4 = bounding (strong finger pressure does not easily obliterates it)
*S.N.* An alternating pulse & a paradoxic pulse do not have consistent amplitude.

**Pulse contour**
This refers to the dome-shape, wave feel of a typical pulse as opposed to pulsus bisferiens, bigeminal pulse & water-hammer pulse

**Pulse compliance**
This refers to soft texture of a typical artery (pliable) as opposed to the calcified, hardened, "pipestem" feel of arteriosclerosis.

**Capillary refill time**
A finger or toenail pinched for several seconds then released should return form blanched to pink within 2 seconds or less; longer times indicate circulatory compromise.

**Bilateral pulse symmetry**
Pulse amplitude should be equal at contralateral pulse sites; decreased amplitude on one side indicates obstruction of the lumen (*atherosclerosis, clot) compression of the lumen (lymph node, tumor) or aneurysm.

**Radial & ipsilateral femoral pulse symmetry**
Relatively diminished femoral amplitude compared to the radial suggests coarctation of the aorta, obstruction of the lumen (*atherosclerosis, clot) compression of the lumen (lymph node, tumor) or aneurysm in vessels distal to the subclavian.

**Atherosclerosis**
It results from fatty material accumulating in the wall of arteries; it may eventually harden to form plaques. It narrows the lumen of the artery.
Bruit
It’s an abnormal pulsed, blowing sound heard with a stethoscope due to turbulent/regurgitant blood flow in an artery. Listening for bruit over the carotid arteries is a screen for carotid artery stenosis (atherosclerosis or clot).

Venous hum
Blood flow returning from the head may vibrate the walls of the veins causing a continuous (systole & diastole), oscillating sound heard above the right clavicle; it’s common in children and usually harmless. Hums are possible, but rare, over the RUQ of the abdomen in cases of increased portal vein circulation.

4. BLOOD PRESSURE
It’s the maximum & minimum force of circulating blood exerted on arteries during ventricular contraction (systole) & relaxation (diastole).

Palpatory systolic blood pressure
It’s the maximum force of circulating blood exerted on artery as determined by inflating a blood pressure cuff past the point the radial pulse is felt to disappear, then slowly deflating the cuff noting the point on the gauge the pulse is felt to return.

Korotkoff sounds
They’re the artificially created, pulsed noises (bruit) of turbulent blood flowing through the narrowed lumen of the artery as the pressure of the sphygmomanometer is slowly released.

Auscultatory systolic blood pressure
It’s the maximum force of circulating blood exerted on artery as determined by inflating a blood pressure cuff past the point the radial pulse was felt to disappear, then applying the bell of the stethoscope over the brachial artery and slowly deflating the cuff noting the point on the gauge where a series of Korotkoff sounds was first heard (phase one).

Mid diastolic blood pressure
The 4th of five changes in the quality of the Korotkoff sounds; it’s the point where the sounds first begin to fade away (usually within 10 mmHg of ceasing).

End diastolic blood pressure
It’s the 5th phase of the Korotkoff sounds; it’s the point where the sounds cease to be heard

Auscultatory Gap
A period of silence in the Korotkoff sounds for unknown reasons; the gap may be fairly wide in people with systolic hypertension or aortic regurgitation.
Taking the palpatory systolic blood pressure provides the examiner with a good estimate of the systolic blood pressure, thus eliminating the possibility of underestimating the systolic pressure with the stethoscope.

Hypertension
It’s high blood pressure. It’s considered systolic hypertension if systolic BP is consistently over 140 mmHg; It’s considered diastolic hypertension if diastolic BP is consistently over 90 mmHg.

Pulse pressure
It’s calculated by subtracting the diastolic from the systolic pressure; a wide pulse pressure may be a best predictor of future cardiovascular disease.
**LYMPHATIC SYSTEM**

**Lymphadenopathy/lymphadenitis** usually means that lymph nodes are swelling in response to an infection; however, they may also swell in response to an autoimmune disease or malignancy.

**Lymphangitis**: tender red streaks extending **proximally** from the infected area (lymph fluid moves in the same direction as venous blood returning to the heart, so the infection would be distal to the lymphangitis).

**Lymphedema**: swelling due to accumulation of lymph fluid in areas without adequate drainage (such as in the upper extremity of a post-mastectomy patient).

**DESCRIPTIONS**: The size, texture & location give clues to the cause of the lymphadenopathy as follows:

Swollen nodes due to **acute infection** usually produce small, mobile & tender nodes. If due to suppurative infections, the nodes may palpate as “**fluctuant**”, a wave-like motion.

Swollen nodes due to **metastatic cancers** usually produce nodes that are of variable size, fixed to underlying tissue, not tender & rock hard (“**shotty**” nodes/nodules)

Swollen nodes due to **chronic infection** may also produce nodes that are “**matted**” together and fixed to underlying tissue

Swollen nodes due to **systemic infections** produce widespread lymphadenopathy

**Virchow’s node/sentinel node/signal node/Troiser’s node**: a palpable supraclavicular lymph node that may signal **malignancy**. If located in the left supraclavicular region, it suggests abdominal malignancy (gastric, pancreatic, liver cancer). If located in the right supraclavicular region, it suggests an intrathoracic malignancy (bronchogenic cancer, lymphoma, esophageal cancer).

**The liver & spleen** should also be palpated for enlargement when lymphadenopathy is detected.
**EXTERNAL EYES**

The baseline functional test is the Snellen or Sloan eye charts – It’s primarily a test of visual acuity at a distance (20 or 10 ft. respectively); indirectly it’s a screening test of the anterior segments of the eye, central vision, the optic nerve and the visual centers in the brain (CN II exam).

**Hyperopia** means the eye has good far sight but poor near sight (hyper = more, use the green #s on the ophthalmoscope to focus for examination of this patient).

**Myopia** means the eye has good near sight but poor far sight (my = less, use the red #s on the ophthalmoscope to focus for examination of this patient).

**Presbyopia** - With age (>40 y/o) the lens loses its elasticity & causes diminished near sight but continued far sight (presby = old).

**Blepharitis** is inflammation of the eyelash follicles & Meibomian glands resulting in red, swollen, crusty lid margins; may be associated with allergies, seborrheic dermatitis & psoriasis. This may make the patient more prone to styes & chalazions (bleph = lid).

**Sty(e) (hordeolum)** is a bacterial infection of a gland in an eyelash follicle causing a well circumscribed, red, swollen, tender pustule. A warm compress may help resolve the sty.

**Chalazion** is a hard, painless papule on the eyelid due to an obstruction of a meibomian (oil) gland. A warm compress may help resolve the chalazion.

**Ectropion** is the loss of orbicularis oculi muscle tone with ageing causing the lower lid to turn outward interfering with proper tear drainage; it may also result from 7th CN palsy (ec or ex = external or outward).

**Entropion** is inversion of the lower lid due to scar tissue formation on the inner surface of the lid; eyelashes then irritate the conjunctiva & cornea (en = internal or inward).

**Dacryocystitis** is inflammation of the tear sac secondary to chronic obstruction or narrowing (dacryostenosis) of the of the nasolacrimal duct. A painful swollen nodule develops between the nose and eye with accompanying tearing & discharge; it usually occurs in infants.

**Pinguecula** – Yellow elastic fibers form a plaque on either side of the cornea resulting from chronic irritation (sunny, dusty, windy conditions) to the bulbar conjunctiva.

**Pterygium** - Sunny, dusty, windy conditions may stimulate growth of the pinguecula forming a vascular membrane that may extend over the cornea (pterygium = wing, like a webbed neck or pterydactyl dinosaur).

**Yellow sclera** – as people age the sclera thins and fatty deposits may show through; jaundice (icterus) causes uniform yellowing of the sclera where it often appears before other tissues turn yellow (natural light reveals it best); antimalarial drugs have produced harmless yellowing in dark-complexioned people.

**Blue sclera** – Osteogenesis imperfecta may cause a thin sclera which allows the choroid to show through giving the sclera a blue color.

**Brown sclera** – patches of melanin are common in people with dark complexions.
Kayser-Fleischer ring – a golden-brown band around the limbus of the cornea associated with Wilson’s disease (a rare inherited disease where copper accumulates in the liver and throughout the body resulting in neurologic symptoms)

Physiologic (congenital) anisocoria – Pupil inequality < 2mm, reactive to all reflexes & no companion symptoms (aniso = different).

Anisocoria – Inequality of pupil size, which may be congenital or associated with head trauma or diseases of the nervous system.

Adie’s tonic pupil – A fixed, dilated pupil with poor response to the pupillary reflexes; most cases are idiopathic. This is always benign.

Argyll Robertson pupil: A CNS defect resulting from syphilis may cause Argyll Robertson pupil in which there is decreased or absent response to the light reflexes yet the pupils respond to accommodation. This is always pathological.

Horner syndrome is due to interruption of sympathetic nerve supply to the eye resulting in ipsilateral anhydrosis (lack of sweating), miosis (constricted pupil) & mild eyelid ptosis. It’s often associated with damage to the cervical sympathetic trunk from mediastinal tumors, bronchogenic carcinoma in the lung apex (Pancoast tumor) or metastatic cancer. It may also demonstrate enophthalmos (sunken eye; en = inward).

**DIFFERENTIATING EYE CONDITIONS**

**Eye Red Flags:**
1. Sudden, marked eye pain
2. Visible flashes followed by partial, peripheral vision loss
3. Developing tunnel vision or central blind spot

**REPORTED EYE DISCOMFORT**

1. **Bacterial conjunctivitis**
   Typical patient profile – Anyone, but kids & the elderly are prone
   Symptom characteristics – red, burning, itching eyes
   Circumstances & course – following contact at daycare, school & institutions; seborrhea or rosacea may predispose; self-limiting but antibiotics may aid
   Aggravating & alleviating activities – bright lights
   Physical exam findings – typical conjunctival injection, slight pain, purulent discharge & the lids may stick together during sleep; pupils & visual acuity are normal
   Diagnostic studies – usually unnecessary

2. **Viral conjunctivitis**
   Typical patient profile – anyone, often kids
   Symptom characteristics – red, burning, itching eyes
   Circumstances & course – previous or coexisting URI; self-limiting
   Aggravating & alleviating activities – bright lights
   Physical exam findings – typical conjunctival injection & slight pain
   Diagnostic studies – usually unnecessary
3. Allergic conjunctivitis
Typical patient profile – anyone
Symptom characteristics – red, burning, itching eyes
Circumstances & course – coexisting allergies
Aggravating & alleviating activities – bright lights
Physical exam findings – typical conjunctival injection & slight pain
Diagnostic studies – usually unnecessary

4. Corneal abrasion
Typical patient profile – anyone
Symptom characteristics – The patient reports an eye injury, marked pain, photophobia; decreased visual acuity is dependent on the extent of damage
Circumstances & course – often self-limiting but antibiotics & patching may aid
Aggravating & alleviating activities – bright lights & blinking
Physical exam findings – perilimbal injection or a circumcorneal flush in one eye
Diagnostic studies – ophthalmology consultation would be prudent

5. Acute Iritis
Typical patient profile – anyone
Symptom characteristics – The patient reports tearing, marked pain, photophobia in one eye
Circumstances & course – secondary to infection or eye injury; conventional treatment is cortisone or antibiotics
Aggravating & alleviating activities – bright lights
Physical exam findings – perilimbal injection, swollen iris & the pupil is contracted and sluggish
Diagnostic studies – ophthalmology consultation would be prudent

6. Acute glaucoma
Typical patient profile – Adult with a narrow corneal angle
Symptom characteristics – marked pain, photophobia, dimmed vision & halos around lights
Circumstances & course –
Aggravating & alleviating activities – bright lights
Physical exam findings – perilimbal injection, dilated pupil, sluggish pupillary responses, increase eyeball tension & disc cupping in that eye
Diagnostic studies - ophthalmology consultation to prevent vision loss

REPORTED OR DETECTED LOSS OF PERIPHERAL VISION
(Tunnel vision)

7. Chronic glaucoma
Typical biographical profile – adults > 40 y/o
Circumstances & course – insidious tunnel vision over the course of many years
Symptom characteristics – slowly progressing tunnel vision in both eyes
Aggravating & alleviating activities –
Physical findings – obvious tunnel vision checking peripheral field of vision; enlarged physiologic cup
Diagnostic studies - ophthalmology consultation to prevent vision loss; tomometry & perimetry tests

8. Retinitis pigmentosa
Typical patient profile – anyone with the genetic defect
Symptom characteristics – night blindness followed by progressive tunnel vision
Circumstances & course – progressive dystrophy beginning during youth
Aggravating & alleviating activities –
Physical exam findings – “bone spicule” retinopathy
Diagnostic studies - perimetry tests; ophthalmology consultation
9. Optic nerve & tract lesions

**Typical patient profile** – anyone

**Symptom characteristics** – visual field deficits dependent on the site of the lesion

**Circumstances & course**– may be insidious & progressive

**Aggravating & alleviating activities** –

**Physical exam findings** – visual field deficits

**Diagnostic studies** - perimetry tests; ophthalmology or neurology consultation warranted

10. Retinal detachment

**Typical patient profile** – Anyone who’s had head or eye trauma; spontaneous detachment can occur with age due to vitreous contraction.

**Symptom characteristics** – flashes of light or a shower of new floaters may signal the onset of a retinal tear; appearance of a dark, fixed shadow in the periphery of vision indicates detachment; progressive darkness like a curtain closing indicates continued detachment

**Circumstances & course**–

**Aggravating & alleviating activities** –

**Physical exam findings** – perimetry tests; funduscopic exam may reveal the retinal tear, a discolored retina or wavy vessels following the contour of the detached retina

**Diagnostic studies** – immediate ophthalmology consultation warranted based on the symptoms

11. Amaurosis Fugax

**Typical patient profile** – Usually an adult over 50 y/o

**Symptom characteristics** – Temporary (seconds, minutes maybe hours) of blurring or dimming of a sector of the visual field or the classic “shade” descending over their vision

**Circumstances & course**–often due to atherosclerosis & usually precedes a vascular event like stroke

**Aggravating & alleviating activities** –

**Physical exam findings** – Possible carotid bruit

**Diagnostic studies** –physical exam including perimetry tests; CBC, sedimentation rate, lipid panel & glucose; ophthalmology consultation warranted

**REPORTED OR DETECTED LOSS OF CENTRAL VISION**

12. Central cataract

**Typical patient profile** – Usually an adult over 55 y/o

**Symptom characteristics** – central blurred vision gradually progressing to a central scotoma

**Circumstances & course**–

**Aggravating & alleviating activities** –

**Physical exam findings** – diminished visual acuity; the degree of density determines if it’s seen with a standard ophthalmoscope or not.

**Diagnostic studies** - ophthalmology consultation warranted

13. Macular degeneration

**Typical patient profile** – adult over 50 y/o

**Symptom characteristics** – slowly progressing central vision loss in one or in both eyes; images may be distorted

**Circumstances & course**–

**Aggravating & alleviating activities** –

**Physical exam findings** – Altered color & configuration of the macula /fovea

**Diagnostic studies** – ophthalmology consultation warranted
Earwax is typically present to some degree in the ear canal. Earwax creates an acidic coat that probably inhibits bacterial and fungal growth; it’s also hydrophobic & prevents water from entering the skin. Fresh wax is honey colored and should naturally be pumped out of the ear by the TMJ. Earwax that ends up on the far side of the canal hill may undergo progressive color changes eventually ending up dark black.

Earwax can lead to decreased hearing if it’s excessive or becomes impacted against the eardrum, in which case removal will restore the hearing.

Tympanosclerosis are white calcium patches on the drum resulting from old perforations, chronic inflammation or previous tubes in the ear. If limited to the eardrum it’s not harmful.

Otosclerosis is ossification of the ossicles. The stapes becomes ankylosed to the oval windows resulting in progressive deafness.

Cholesteatomas are cystic masses composed of epithelial cells & cholesterol in the middle ear. They may appear as a white nodule pressed against the inside of the drum; they can result from congenital defects, or complications of chronic otitis media & perforations. The cyst erodes surrounding bone & ossicles and may cause hearing

Age-related hearing loss (presbycusis) is the number one reason for sensorineural hearing loss.

Noise-induced hearing loss is the second most common cause of sensorineural hearing loss. Noise is perhaps the most common occupational & environmental hazard.

DIFFERENTIATING EAR CONDITIONS

Ear Red Flags:
1. Sudden or rapidly progressive hearing loss
2. Vertigo
3. Unilateral or pulsatile tinnitus
4. Bleeding due to foreign object or pressure change injury

REPORTED EAR DISCOMFORT

1. Otitis externa
   Typical biographical profile- people who irritate the canal with excessive cleaning or swimming or who have seborrhea or eczema of the ear canal
   Symptom characteristics- earache
   Aggravating & alleviating activities-
   Physical findings- red, swollen canal with canal debris or discharge
   Diagnostic studies- usually not necessary

2. Eustachian tube blockage
   Typical patient profile – anyone, but often children under 5 y/o, who’ve had an upper respiratory infection, swollen adenoids or barotrauma
   Symptom characteristics – earache
   Aggravating & alleviating activities –
   Physical exam findings – landmarks are prominent due to drum retraction; no signs of inflammation
   Diagnostic studies - usually not necessary
3. **Suppurative otitis media**
   Typical patient profile – anyone, but often children under 5 y/o, who’ve had an upper respiratory infection
   Symptom characteristics – earache
   Aggravating & alleviating activities –
   Physical exam findings – fever, diminished hearing, red & bulging eardrum with possible purulent discharge; Weber lateralizes to & Rinne´ is negative on the affected side
   Diagnostic studies – possible pneumatic otoscopy & tympanometry

**REPORTED OR DETECTED DIMINISHED OR ABSENT HEARING**

6. **Excessive ear wax**
   Typical biographical profile – Anyone, but adult males predominantly
   Symptom characteristics – hearing loss
   Circumstances & course – insidious or Q-tip use
   Physical findings – dark wax occluding the canal; Weber lateralizes to & Rinne´ is negative on the affected side
   Diagnostic studies – usually not necessary

5. **Serous or mucoid effusions**
   Typical patient profile – anyone, but often children under 5 y/o, who’ve had an upper respiratory infection, swollen adenoids or barotrauma
   Symptom characteristics – diminished hearing
   Aggravating & alleviating activities –
   Physical exam findings – normal, yellow or dark T.M. with possible air bubbles or fluid line; Weber lateralizes to & Rinne´ is negative on the affected side; no signs of inflammation
   Diagnostic studies – possible pneumatic otoscopy & tympanometry

6. **Otosclerosis**
   Typical patient profile – Adult most often with a family history
   Symptom characteristics – progressive hearing loss
   Physical exam findings – no abnormalities of the canal or eardrum; Weber lateralizes to & Rinne´ is negative on the affected side
   Diagnostic studies – audiogram & tympanogram; otolaryngology consultation

7. **Noise Induced hearing loss**
   Typical patient profile – anyone with a history of recreational or occupational noise exposure
   Symptom characteristics – high frequency sounds 3000 to 6000 Hz are the lost first
   Aggravating & alleviating activities –
   Physical exam findings – no canal or middle ear signs; Rinne´ AC>BC but less than 2:1 ratio
   Diagnostic studies – audiology studies more specific

8. **Presbycusis (age-related hearing loss)**
   Typical patient profile – Elderly
   Symptom characteristics – complaints that other are mumbling or that can’t understand what’s being said when there’s background noise; low frequency sounds & whispers are first to go
   Aggravating & alleviating activities –
   Physical exam findings – Rinne´ AC>BC but less than 2:1 ratio
   Diagnostic studies – audiology studies more specific
NOSE

Polyps – Adults who have had allergies &/or chronic sinus infections over the years sometimes develop polyps, which further interfere with nasal drainage. Polyps are grape-like inflammatory swellings of the nasal linings.

Deviated Septum – Trauma to the nose is the most common cause of a deviated septum; many people can recall the incident and remember that breathing difficulties soon followed.

The nasal passage should be inspected with a light or nasal speculum in people who have difficulty breathing through the nose to rule out the above causes.

“Nasal Cycle” is a normal cycle of mild congestion (unilateral blood vessel engorgement) & decongestion alternating between nostrils about every four hours making it easier to breath out of one nostril more than the other.

MOUTH

1. Teeth: The teeth should have a horseshoe shape; crowded teeth suggest to those interested in craniopathy that the cranium may also be misaligned. Malocclusions of the teeth contribute to asymmetrical forces being transmitted into the temporomandibular-cranial-cervical complex.

2. Tongue: Glossitis refers to a red, swollen smooth tongue due to the loss of the papillae. Glossitis may be a primary tongue problem or a symptom of another disorder.

Geographic tongue (migratory glossitis) is a form of glossitis where the papillae are temporarily loss leaving smooth, irregular patches with a white outline. These patches can change locations on a weekly, sometimes daily basis.

Fissured tongue is characterized by groves in the tongue of varying depth & width. It’s a benign, asymptomatic condition starting in childhood but becoming more prominent with age. It’s frequently associated with geographic tongue.

Black hairy tongue results from long-term antibiotic use or failure of the papillae to naturally fall off causing them to elongate; either fungus or bacteria attach to the papillae and may discolor them.

3. Tissues: Herpes simplex type 1 (fever blister, cold sore) – The virus is usually contracted during childhood causing painful blisters around the lips & nose, which clear in 2-3 weeks. The virus, however, remains in the body in a dormant state until a weakened immune system allows for a recurrence of the blisters which rupture, crust and heal again in 1-3 weeks.

Aphthous stomatitis (canker sores) characterized by recurrent, crops of small, painful ulcers on the intraoral mucosa that heal without scarring in 2 weeks.

Leukoplakia is a noncancerous or precancerous oral lesion common to about ½ - ¾ of people using smokeless tobacco daily. They appear as white leathery ridges on the buccal mucosa. They often resolve in about 6 weeks if they quit chewing tobacco.

Gingivitis (gum disease) causes red, swollen, sensitive & bleeding gums. Resident bacteria & saliva form plaque; tartar is hardened plaque and tartar causes gingivitis. Brushing & flossing can prevent or reverse gingivitis.

Oral carcinoma most commonly affects the sides of the tongue, lips & floor of the mouth. Smoking & smokeless tobacco are associated with 70% - 80% of the cases; heavy alcohol use is another
risk factor. It may present as a persistent, painless thickening, lump, ulcer or a red or white patch anywhere in the mouth or throat

**Torus palatinus & mandibularis** are a benign exostosis of either the hard palate or mandible that appear around age 30.

4. Tonsils: **Tonsillitis** is usually a self-limiting, viral or bacterial infection of the pharyngeal tonsils. Typical sign and symptoms are: sore throat, painful swallowing, thick voice, fever, swollen cervical lymph nodes and red, swollen tonsils that may be coated or have white spots on them. The diagnosis is usually based on the clinical presentation.

**Tonsillar debris** (tonsil stones) form when mucous, sulfur-producing bacteria and debris (food particles, post-nasal drip etc.) condense into small particles and collect in the crypts (divots) on the surface of the tonsils.

5. Throat: **Viral pharyngitis** accounts for about 60% of sore throats. Clinical features are: runny nose cough, hoarseness, conjunctivitis or diarrhea.

**Bacterial pharyngitis** accounts for about 40% of sore throats. Clinical features are: rapid onset of throat pain aggravated by swallowing. There is usually fever, tender cervical lymph nodes & inflammation with a purulent, patchy white, yellow or gray exudate.

**Streptococcal pharyngitis** accounts for about 10% of bacterial sore throats. Throat cultures are the best way to identify strep infections.

**Rheumatic fever** occurs in about 1% of those who had strep throat. Antibiotics are more than 90% effective in preventing rheumatic fever. **Post-streptococcal glomerulonephritis** is usually a self-limiting illness and is not prevented with antibiotic treatment.

Unnecessary use of antibiotics has created antibiotic resistant “super bugs” and according to a study published in *The Journal of Pediatrics, July 2004 Vol.145 No.1*: “**Penicillin treatment had no beneficial effect in children with sore throats on the average duration of symptoms. Penicillin may, however, reduce streptococcal sequelae.**”
**LUNGS**

Dyspnea (shortness of breath &/or wheezing) & cough (dry or productive) suggest lung involvement; chest pain may suggest lung involvement especially if respiration aggravates the pain. The pain sensitive part of the lungs is the pleura.

Structural abnormalities should be noted:

- **Hyperkyphosis**-humpedback (gibbus)
- **Pectus excavatum**- congenitally depressed sternum
- **Pectus carinatum**- abnormal prominence of the sternum
- **Barrel chest**- Increased anteroposterior chest diameter due to COPD
- **ICS retraction**- Large airway/inspiratory obstruction
- **ICS bulging**- Expiratory obstruction

Consolidation – Mucous, white cells & red cells fill a portion of the airways and alveoli causing them to become firm and inelastic.

Atelectasis – Collapse of the alveoli secondary to obstruction of a large airway, or compression from air, fluid or a tumor in the pleural space.

Pleural filters – Air or fluid in the pleural space

FREMITUS is voice induced vibration transmitted from the larynx through the tracheobronchial tree that can be palpated on the surface of the chest. **Consolidation** increases fremitus while **pneumothorax & pleural effusion** decrease fremitus

**PERCUSSIVE NOTES:**
- **Resonant**- Normally heard over the lung fields
- **Flat**- Normally heard over larger bones like the sternum and scapulae
- **Dull**- Normally heard over the heart and diaphragm
- **Tympanic**- Normally heard in the abdomen over the gastric air bubble and intestines
- **Hyperresonant**- Only heard over hyperinflated alveoli as in advanced emphysema

Flat or dull percussive notes elicited over a portion of the lung field signifies **consolidation of the alveoli, pleural effusion or a large tumor**

Hyperresonant percussive notes elicited over the lung fields signifies **hyperinflated alveoli** as in advanced emphysema

Tympanic percussive notes being elicited over a portion of the lung fields signifies **spontaneous or traumatic pneumothorax**

**BREATH SOUNDS:**
- **Tracheal, bronchial & bronchovesicular breath sounds** are relatively loud noises created by turbulent airflow in the trachea, bronchi & bronchioles, whose inspiratory & expiratory phases are approximately equal in length. They are normally only heard over the large airways.

- **Vesicular** (alveolar) **breath sounds** are less intense because airflow becomes smooth & laminar in the smallest airways and their expiratory phase is very short. They are normally heard over the majority of the lung fields because the alveoli comprise the majority of the lung field.

Vesicular breath sounds **become bronchial** (louder longer expiration) in nature over areas of pulmonary **consolidation**
Vesicular breath sounds become diminished or absent over areas of pleural effusion & pneumothorax or distal to a large airway obstruction

**VOICE SOUNDS:**

Whispered pectiloquy – Increased intensity & clarity of the whispered word (“ABC”) suggests lung consolidation

Bronchophony - Increased intensity & clarity of the spoken word (“ABC”) suggests lung consolidation

Egophony – The spoken “EEE” becomes a louder, nasal “AAA” suggests lung consolidation

Voice sounds become diminished or absent over areas of pleural effusion & pneumothorax or distal to a large airway obstruction

N.B. Fremitus, breath sounds & voice sounds become more or less intense for the same reasons. If you know how one responds to various lung conditions, you know how all five respond to various conditions.

Crackles (rales/crepitations) are gurgling, popping sounds due to agitation of excess mucous in the airways or the inflation of multiple collapsed alveoli. Crackles are usually heard during early, mid or late inspiration.

Coarse crackles are heard over the large airways (bronchi) with excess mucous as air first enters the tracheobronchial tree. S.N. Rhonchi are loud snore-like crackles heard through all of inspiration &/or expiration due to air passing over thick mucus.

Medium crackles are heard over the medium size airways (bronchioles) with excess mucous midway through inspiration as air reaches them.

Fine crackles are heard over the small airways (terminal airways) with excess mucous at the end of inspiration. These are the quietest often compared to the sound of hair rolled between the fingers.

II. Wheezes are squeaky, musical, whistling sounds usually heard during expiration due to narrowed airways. The narrowing may result from brochospasm &/or excess mucous &/or compression of the airways. Stridor is a high-pitched wheeze heard on inspiration expiration or both; it implies narrowing of a large airway.

III. Friction rubs are grating, rubbing, crackling sounds heard on inspiration & expiration due to inflammation of the pleura. Pleuritic pain would likely accompany the sounds.

**SPUTUM:**

Clear or white sputum is either normal or associated with viral infections

Yellow, green, brown, rust colored blood streaked sputum suggest a bacterial infection.

Rust colored sputum suggests lobar pneumonia

Pink frothy sputum suggest left-sided heart failure
**Common Conditions:**

**Mastitis** - Infection of the breast tissue common in lactating women about the 2\textsuperscript{nd} or 3\textsuperscript{rd} week after delivery. Mastitis does not preclude breast-feeding.

**Fibrocystic breast disease** – Ductal enlargement causes benign, bilateral, single or multiple, tender cyst to form, which become more painful prior to menstruation.

**Fibroadenoma** – A single, benign, asymptomatic, bilateral tumor of terminal ducts

**Malignant breast tumors** – The initial symptom is most often a single, painless, hard, irregular shaped, fixed lump.

The following may also suggest breast cancer:

**Dimpling/puckering** is due to contraction of fibrotic tissue which may result from breast cancer

**Nipple deviation, flattening or retraction** is also due to contraction of fibrotic tissue which may result from breast cancer

**Unilateral venous distension** may be due to increased blood flow to a malignancy

**Peau d' orange skin** is thick with prominent pores; it results from edema secondary to lymphatic blockage which occurs in advanced cancer or inflammatory cancer, which is highly aggressive form of breast cancer.

**Axillary lymph nodes** that are rock hard with no typical explanation may signal breast cancer.

**Spontaneous, unilateral nipple discharge** is highly suspicious of cancer especially when it comes out of a single duct, but all non breastfeeding discharges dictate further tests &/or consultation.

**Bloody discharges** are never normal.
HEART
(see relevant vital sign topics)

Acute heart failure is sudden onset of heart failure

Angina is chest, arm or neck discomfort due to insufficient blood flow to the myocardium during increased demand initiated by physical or emotional exertion.

Myocardial infarct is death to a portion of the myocardium due to insufficient blood flow in a coronary artery

Cardiac arrest is abrupt stoppage of the heart; it may follow ventricular fibrillation

Acute pericarditis is sudden & usually short-lived (< a few weeks) chest pain due to inflammation of the double layered pericardium. This may progress to chronic pericarditis, which may evolve into constrictive pericarditis or cardiac tamponade.

Chronic right-sided heart failure/Cor Pulmonale/congestive heart failure (CHF) is a right heart that’s been over-worked for a long time; often secondary to pulmonary hypertension, which is often due to COPD.

Chronic left-sided heart failure/congestive heart failure (CHF) is a left heart that’s been over-worked for a long time frequently secondary to high blood pressure, coronary artery disease and/or faulty heart valves

Precordium is the portion of the anterior chest wall that overlays the heart

Palpitations are the patient senses a pounding, racing &/or irregular heartbeat in their chest

Apical pulse is a small impulse seen &/or felt in the 5th intercostals space medial to the left midclavicular line due to the apex of the heart striking the chest wall during ventricular contraction.

Point of maximum impulse should be the same as the apical pulse.

Precordial lift/heave is a large impulse seen or felt over the surface of the heart usually due to right (sternal lift) or left (apical heave) ventricular hypertrophy.

Jugular distention is jugular vein swelling greater than 4cm. with the patient’s head elevated 45°; it’s an indication of right-sided heart failure.

Jugular pulses
The visible a & v waves are due to right atrial contraction and filling respectively. Increased amplitude of either wave often indicates tricuspid stenosis or regurgitation.

Tracheal tug (Oliver’s sign) – the doctor has the patient extend their neck while they feel for downward movement of the trachea that’s in sync with systole; it indicates an aneurysm of the aortic arch.

Thrill is felt as a vibration over the precordium due to the turbulence created by a grade 4, 5 or 6 murmur.
Auscultation sites (diaphragm & bell)
Aortic = 2\textsuperscript{nd}, right, parasternal ICS
Pulmonic = 2\textsuperscript{nd}, right, parasternal ICS
Tricuspid = 4\textsuperscript{th}, left, parasternal ICS
Mitral = 5\textsuperscript{th}, left ICS at the midclavicular line (cardiac apex)

Heart Cycle

\[
\begin{align*}
\text{Systole} & \quad \text{Diastole} \\
S_1 & = M_1 + T_1 \quad \text{LUBB} \\
S_2 & = A_2 + P_2 \quad \text{DUP} \\
\end{align*}
\]

S\textsubscript{1} = the sound of mitral & tricuspid valves closing in sync
S\textsubscript{2} = the sound of aortic & pulmonic valves closing in sync

**ADDED HEARTBEATS:**

1. Splits
   - **Split S\textsubscript{1}** = the double beat heard when the mitral & tricuspid close out of sync
   - **Physiologic split S\textsubscript{2}** = the double beat heard when the aortic & pulmonic valves close out of sync only during inspiration
   - **Paradoxical split S\textsubscript{2}** = the double beat heard when the aortic & pulmonic valves close out of sync only during expiration
   - **Fixed split S\textsubscript{2}** = the double beat heard when the aortic & pulmonic valves close out of sync during inspiration & expiration

2. Gallops:
   - S\textsubscript{3} = the added beat of blood vibrating a fibrotic/stiffened ventricular wall in early diastole *(ventricular gallop)*
   - S\textsubscript{4} = the added beat of blood vibrating a fibrotic/stiffened ventricular wall in late diastole *(atrial gallop)*

3. Snaps & Clicks:
   - **Opening snap** = the added beat a calcified/stiffened mitral or tricuspid valve abruptly stopping after opening in early diastole
   - **Ejection click** = the added beat a calcified/stiffened aortic or pulmonic valve abruptly stopping after opening in early to mid systole
PROLONGED, ADDED HEART SOUNDS:
1. Murmurs
Murmurs usually have a blowing or rumbling quality. They’re due to turbulent blood flow within the heart usually created by stenotic or regurgitant valves, but septal defects & increased velocity of flow may also produce murmurs.

Four factors are critical with regard to naming a murmur:
1. **Location** — the auscultation site where the murmur is best heard helps to identify the defective valve
2. **Timing** — hearing the murmur during systole or diastole helps to identify a stenotic or regurgitant valve
3. If a murmur is heard when that valve should be opening then it’s stenotic (not opening all the way)
4. If a murmur is heard when that valve should be closing then it’s regurgitant (not closing all the way)

(Some murmurs are “innocent” in children, teens and young athletes; they are often heard with the bell, at the pulmonic site during the systolic phase of the heart cycle i.e. (a short, soft, systolic blowing noise without radiation). You would also expect the patient to be free of any other obvious cardiac signs or symptoms.

**Still’s Murmur (Innocent Murmur)** - A functional midsystolic murmur heard in children.

**Benign murmurs** are due to structural anomalies not significant enough to cause clinical problems

**Machinery Murmur** - A continuous, rough murmur in the 2nd ICS due to a **patent ductus arteriosus** that should have closed after birth
Austin Flint Murmur - Late diastolic murmur associated with aortic insufficiency; the regurgitant blood is thought to vibrate the mitral valve causing the murmur

2. Pericardial friction rubs:
Inflammation & roughening of the pericardial sac results in a high-pitched, grating, scratching noise heard during systole & diastole. The friction rub is best auscultated with the patient leaning forward in deep expiration.
**ABDOMEN**

As a general rule people experiencing sudden onset of persistent, severe or escalating abdominal pain, who also may be writhing in pain unable to find a position that offer any comfort, usually need emergency hospital or surgical intervention. This type of presentation is known as an **acute "surgical" abdomen**, where the pain is likely due to inflammation, perforation, obstruction, infarction or rupture of intra-abdominal organ.

**Hollow organs** like the stomach, intestines, bladder, ureters & uterus have pain sensors which sound a pain alarm when those organs are stretched, their lining is irritated or blood flow is interrupted. **Intestinal peristalsis** therefore causes waves of discomfort or pain when the lining is irritated or distended.

**Peritoneum** is pain sensitive tissue, therefore when an organ expands the peritoneal covering also expands causing pain. **Solid abdominal organs** therefore usually present with constant, escalating pain. Inflammation of the peritoneum itself would also initiate pain.

**Interrupted blood flow** to any organ initiates constant pain.

**Referred Pains:**

It should be noted that pain resulting from diseased chest or abdominal organs may manifest at a site distant from the distressed organ; for instance, irritation to the underside of the diaphragm may cause shoulder pain.

**Kehr’s sign** – abdominal pain that radiates to the left shoulder = splenic rupture, kidney stone or ectopic pregnancy.

**Apley’s Rule** is another rule-of-thumb which states that the further away from the navel that a patient points to an area pain the more likely it is **organic in nature**.

**Cutaneous hypersensitivity** occurs when light stimulation to an area of skin on the abdomen is more sensitive than any other area. It suggests an underlying infection. If at McBurney’s point it suggests **appendicitis**.

Multiple tests have been developed related to appendicitis such as the following:

- **Aaron’ sign** - pain or discomfort over the heart or stomach when **McBurney’s point** (half way between the navel and the right ASIS) is palpated; it suggests **appendicitis**.

- **Rovsing’s sign** - RLQ pain intensifies when the LLQ is compressed suggesting appendicitis.

- **Blumberg’s sign** - RLQ pain intensifies when the LLQ is compressed then rapidly released suggesting appendicitis.

- **Markle’s (heel jar)** – the patient allows themselves to drop from their toes to their heels jarring the entire body; experiencing abdominal pain suggesting appendicitis.

**Symptoms suggesting gastrointestinal involvement are:** difficulty swallowing, loss of appetite, indigestion, nausea, vomiting, abdominal pain, diarrhea, constipation, yellow or black colored stools, &/or mucus or blood in the stool.

- **S.N. Water brash** - the mouth fills with fluid from the esophagus; it occurs with some cases of GERD.

- **S.N. Jaundice, clay-colored stools & tea-colored urine** may be associated with **hepatitis**.
DIFFERENTIATING GASTROINTESTINAL CONDITIONS

Gastrointestinal Red Flags:
1. Unexpected weight loss or rapid weight gain &/or pitting edema
2. Bloody or coffee ground vomit
3. Black or grey-colored stools; mucous or blood in the stools
4. Pencil thin, ribbon-like stools or persistent constipation
5. An acute "surgical" abdomen – A patient who reports a history of sudden, severe, persistent, escalating or writhing abdominal pain has a presentation that often indicates the need for hospital investigation & emergency surgical intervention. The source of the pain is often due to inflammation, perforation, obstruction, infarction or rupture of intra-abdominal organs. Examples are acute cholecystitis, appendicitis, perforated peptic ulcer, strangulated hernia, superior mesenteric artery thrombosis, and splenic rupture.

Condition that have diarrhea as a significant feature:

1. ACUTE GASTROENTERITIS

Typical Patient Profile – anybody; 90% of the time it’s due to a viral infection, otherwise it could be due to food poisoning, parasites, excess alcohol, psychological causes or morning sickness in pregnant women
Symptom characteristics –mild, ache located around the umbilicus that worsens with peristalsis; nausea, vomiting & diarrhea
Course & duration – shouldn’t last > 4 days; watch for dehydration
Aggravating & alleviating activities – worse eating & better not eating
Physical exam findings – clicks & gurgles in the high normal range
Diagnostic Studies– usually unnecessary; diagnosis via clinical finding

2. Irritable Bowel Syndrome

Typical biographical profile- middle age to elderly
Symptom characteristics –
low fiber diet; overuse of laxatives result in recurrent attacks of abdominal pain, bloating, diarrhea & constipation
Course & duration - Chronic
Aggravating & alleviating activities-
Physical findings - the physical is negative, the history may be revealing
Diagnostic studies- further studies help rule-out other causes
S.N. if the descending colon becomes spastic it may be tender & palpable

3. Crohn’s Disease (possible sporadic inflammation & ulceration throughout the entire GI tract)

Typical biographical profile- male or female 15-35 y/o
Symptom characteristics –episodes of diarrhea & abdominal pain that vary with each patient
Course & duration- Chronic autoimmune response
Aggravating & alleviating activities-
Physical findings- abdominal tenderness; the history may raise suspicion
Diagnostic studies- CBC, upper GI & colonoscopy

4. Ulcerative Colitis (colon inflammation & ulceration of etiology unknown)

Typical biographical profile- male or female young adults
Symptom characteristics – recurrent bouts of URGENT diarrhea (20-30/day) with associated blood, pus or mucous
Course & duration - chronic
Aggravating & alleviating activities- worse during pregnancy
Physical findings- abdominal pain absent to intense
Diagnostic studies- colonoscopy is diagnostic
5. **Clostridium Difficile Colitis**
The overuse of antibiotics has created a super bug that’s spread by contact with an infected person or their stool. Then prescribed antibiotics alter the intestinal flora allowing C. difficile to flourish and produce a toxin which causes the watery diarrhea.

**Typical Patient Profile**— anybody that has been exposed to the bacteria; often spread by hospital workers who have contacted the infected stools

**Symptom characteristics**— frequent, foul smelling diarrhea with associated blood, pus or mucous & abdominal cramps

**Course & duration**— resistant to antibiotics can be fatal

**Aggravating & Alleviating activities**-

**Physical exam findings**— Abdominal tenderness

**Diagnostic Studies**— stool culture with a toxin assay for C. difficile & endoscopic studies

6. **Cholera**

**Typical Patient Profile**— Anybody living or visiting regions where there is poor sanitation & water purification or other means of contacting feces of an infected person

**Symptom characteristics**— mild or no symptoms, however 1 in 20 have profuse diarrhea with pus, vomiting & leg cramps

**Course & duration**— Severe case can be fatal within 24 hours

**Aggravating & Alleviating activities**-

**Physical exam findings**— signs of dehydration & shock (drop in BP)

**Diagnostic Studies**— stool culture or cholera dipstick test is now available

7. **Colon Cancer**

**Typical biographical profile**— male over 50

**Symptom characteristics**— insidious onset progressing to colicky abdominal pain, constipation; stools may be “pencil thin or ribbon-like” & occasionally diarrhea with mucous or blood

**Course & duration**— manageable in the early stage, fatal in late stage

**Aggravating & alleviating activities**— bowel movement may worsen pain

**Physical findings**— possible palpable abdominal mass

**Diagnostic studies**— fecal occult blood test; sigmoidoscopy & colonoscopy

Conclusions that have **upper abdominal pain** as a significant feature

8. **GASTROESOPHAGEAL REFUX DISEASE (GERD)**

*Hiatal hernias may be a factor contributing to the incompetent esophageal sphincter*

**Typical Patient Profile**— adult, male or female

**Symptom characteristics**— frequent, bouts of substernal “heartburn” about an hour after eating

**Course & duration**— slow intermittent progression over a few years period

Lump in the throat sensation eventually develops when swallowing

**Aggravating & Alleviating activities**— worse lying down especially at night; antacids help

**Physical findings**— no significant finding

**Diagnostic Studies**— imaging may reveal a hiatal hernia; endoscopic exam

9. **Hepatitis** (*Many people have no symptoms or mistake symptoms for a bout of stomach flu*)

**Typical biographical profile**— children via oral-fecal transmission, but unsafe sex & shared needles are typical of adults

**Symptom characteristics**— loss of appetite, generalized, intermittent abdominal pain, followed by bouts of vomiting; urine is dark & stools are grey-colored

**Course & duration**— can be self-limiting or progress to liver scarring

**Aggravating & alleviating activities**—

**Physical findings**— may be some URQ pain

**Diagnostic studies**— AST, ALT & alkaline phosphatase enzyme levels may indicate liver damage
10. CHOLECYSTITIS

a. Chronic Cholecystitis (three related & overlapping stages)
   Typical Patient Profile – Native Americans or female, fat, flatulent & forty or more y/o
   Symptom characteristics – extended period of recurrent, vague feelings of indigestion, bloating & flatulence not relieved with antacids
   Aggravating & Alleviating activities – worse when eating fatty or fried foods & better when avoiding them
   Course & duration – progresses to the next two stages
   Physical exam findings – RUQ tenderness & guarding to percussion, fist percussion, palpation & a positive Murphy’s sign; possible jaundice
   Diagnostic Studies – cholecystography or ultrasound confirm clinical diagnosis

b. Cholelithiasis - cholesterol stones develop which may block the outflow of bile which in turn initiates an acute attack.

c. Acute cholecystitis occurs only after chronic cholecystitis has been present for some time and it rarely arises unless the outflow of bile from the gallbladder is obstructed by a stone (90%).
   Symptom intensity, quality, distribution & duration – sudden, severe right upper quadrant pain with radiation around the midtorso to the right scapular region. The pain lasts 2-4 hours; positive Murphy’s signs.

11. DUODENAL ULCERS

Typical Patient Profile – adults, women over 50 are liable especially if they have a helicobacter pylori infection, use NSAIDs, cigarettes, caffeine or alcohol
   Symptom characteristics – chronic or recurrent, mild to severe, burning, gnawing or aching epigastric pain, usually 2-3 hours after eating, or having citrus juice, coffee or aspirin
   Aggravating & Alleviating activities - food helps temporarily then worse a couple ours later; antacids help
   S.N. Food makes a gastric ulcer worse immediately
   Course & duration – manageable
   Physical exam findings – epigastric tenderness
   Diagnostic Studies – barium radiographs or endoscopy are diagnostic
   Differentials - cholecystitis, reflux esophagitis, gastric cancer

12. PANCREATITIS

Typical biographical profile – often secondary to gall stones or alcohol abuse
   Symptom characteristics – sudden, severe, constant upper abdominal pain with associated fever, nausea & vomiting
   Aggravating & alleviating activities - alcohol & eating aggravate; bending forward & fetal position may help
   Course & duration – last for hours or days often recurs
   Physical findings – tenderness & guarding on palpation; ecchymosis/bruising of the umbilicus & flanks (Cullen & Grey Turner signs) 2-3 days after onset
   Diagnostic studies – CBC, amylase & other liver & gall bladder enzymes
   S.N. similar pains plus jaundice occur in the late stages of pancreatic cancer

13. Gastric Cancer

Typical biographical profile – adults over 50y/o, men are twice as susceptible & more so if their foods are preserved by smoking, salting or pickling they eat or if they eat a lot of bacon, ham or processed food.
   Symptom characteristics - indigestion that doesn’t respond to ulcer or reflux treatments; vomiting if it’s a prepyloric growth; unexpected weight loss
   Course & duration – insidious until symptoms emerge; fatal if not caught early
   Aggravating & alleviating activities -
   Physical findings – abdominal mass, Virchow’s node & pernicious anemia are late signs
Diagnostic studies - Labs may help, occult blood is sometimes presenting the stools

Conditions that have lower abdominal pain as a significant feature

14. DIVERTICULITIS
Typical biographical profile - male or female over 40
Symptom characteristics - recurring episodes of sudden, severe LLQ pain with associated diarrhea & rectal bleeding
Aggravating & alleviating activities - settles rapidly with bed rest
Course & duration - last about 1-3 days
Physical findings - LLQ tenderness & guarding
Diagnostic studies - contrast studies

ACUTE APPENDICITIS
The clinical picture and course is quite variable and may be confused with other abdominal conditions. Suspicion is further heightened by a history of previous episodes and a low-grade fever. Hospital referral is advised due to the possibility of perforation followed by general peritonitis and risk of death.

15. ACUTE APPENDICITIS
Typical Patient Profile – any age or gender
Symptom characteristics – Persistent right-sided acute abdominal pain and tenderness is the most consistent clinical feature (100%); mild fever, nausea & vomiting may occur
Aggravating & Alleviating activities – worse with movement, coughing & sneezing
Course & duration - peritonitis occurs when there is leakage from the digestive tract; in addition to the above findings peristalsis would stop & bowel sounds would be absent; this is potentially fatal
Physical exam findings – hyperesthesia & guarding at McBurney’s point with light palpation & a positive Markle, Rovsing’s, Blumberg’s, psoas or obturator signs
Diagnostic Studies – clinical findings & elevated WBC count.

16. INTESTINAL OBSTRUCTIONS
The main causes of high intestinal obstructions are strangulated hernias and adhesions. The main causes of low intestinal obstructions are carcinoma, diverticulitis and fecal impaction especially in the elderly.

Intensity, duration & course - Sudden onset of marked, waves of colicky abdominal pain.
Associated symptoms – Abdominal pain and vomiting are features of small gut obstruction.
Obstruction of the colon causes less severe pain, but marked abdominal distention & absence of flatus or bowel movements.
Aggravating & Alleviating activities –
Typical Patient Profile – Those over 50 y/o are at greater risk.
Physical exam findings – Visible peristalsis and frequent high pitched, tinkling sounds may accompany the waves of intense pain in the early stages (1st 24 hours), then peristaltic sounds & activity may cease.
Diagnostic Studies – clinical findings & special studies (imaging)

17. ECTOPIC PREGNANCY
Typical Patient Profile – Woman of child-bearing age
Symptom characteristics – missed or spotty periods for the last couple of months
Aggravating & Alleviating activities –
Physical exam findings – Tenderness on pelvic exam
Diagnostic Studies – positive pregnancy test
18. INDIRECT INGUINAL HERNIA (intestines protrude through the inguinal canal)
Symptom intensity, quality, distribution & duration—report of pain & swelling in the area of the internal inguinal ring
Initial onset, circumstances & course
Associated symptoms—
Aggravating & Alleviating activities—worse coughing, sneezing or straining
Typical Patient Profile—any age male, being overweight &/or a history of frequent coughing, sneezing or straining; prevalent in infants if the path for descending testicles fails to close down
Physical exam findings—a cough induced palpable mass against the doctor’s finger inserted in the external inguinal ring; pain & a visible mass eventually ensue
Diagnostic Studies—diagnosis via clinical findings

19. DIRECT INGUINAL HERNIA (intestines protrude through the abdominal wall)
Symptom intensity, quality, distribution & duration—report of minimal pain & swelling medial to external inguinal ring
Initial onset, circumstances & course slow & silent until it becomes painful or apparent
Associated symptoms—limitation of activities that increase abdominal pressure; may result in intestinal obstruction or strangulation
Aggravating & Alleviating activities—coughing, sneezing or straining
Typical Patient Profile—middle age & older males; overweight &/or history of frequent coughing, sneezing or straining pregnancies also predispose
Physical exam findings—a cough induced palpable mass against the side of the doctor’s finger inserted in the external inguinal ring; eventual visible mass
Diagnostic Studies—diagnosis via clinical findings

20. FEMORAL HERNIAS
Symptom intensity, quality, distribution & duration—report of pain &/or swelling in the area
Initial onset, circumstances & course slow & silent until it becomes painful or apparent
Associated symptoms—limitation of activities that increase abdominal pressure; especially prone to strangulation
Aggravating & Alleviating activities—worse coughing, sneezing or straining
Typical Patient Profile—female, overweight & previous pregnancies predispose
Physical exam findings—a cough induced palpable or visible mass below the midpoint of the inguinal ligament, where the femoral vessels leave the abdomen
Diagnostic Studies—

S.N. OBTURATOR HERNIA is a rare type of hernia that tends to happen in multiparous or older women who have lost a lot of weight. Compression of the obturator nerve by the hernia may elicit the Howship-Romberg sign (pain down the medial thigh to the knee that is relieved by thigh flexion & aggravated by abduction, extension & rotation)

The examiner stands by the patient’s side with their hand placed near the inguinal ligament so the tip of the long finger is over the external inguinal ring, the superior positioned index finger is over the internal inguinal ring and the ring finger is over the femoral triangle. The patient is asked to turn their head and cough, a hernia may be seen &/or felt as a distinct bulge at one of the locations.
Conditions that have focal swelling as a significant feature

**ABDOMINAL HERNIAS** - Protrusion of an internal organ (intestines, stomach, bladder...) through an abnormal or weakened area in the abdominal wall.

21. **INCISIONAL HERNIA**
*Symptom intensity, quality, distribution & duration* – usually painless swelling at the site of a surgical scar
*Initial onset, circumstances & course*
*Associated symptoms* – may result in intestinal obstruction or strangulation
*Aggravating & Alleviating activities* – coughing, sneezing or straining
*Typical Patient Profile* – overweight, pregnancies; frequent coughing, sneezing or straining
*Physical exam findings* – visible & palpable mass most apparent with increased abdominal pressure
*Diagnostic Studies* – diagnosis via clinical findings

22. **UMBILICAL HERNIA**
*Symptom intensity, quality, distribution & duration* – a painless swelling of the belly button (adult onset- the swelling typically occurs around the belly button)
*Initial onset, circumstances & course* - congenital
*Associated symptoms* – none
*Aggravating & Alleviating activities* – worse crying, coughing, sneezing or straining
*Typical Patient Profile* – prevalent in infants; usually spontaneously closes by age four
*Physical exam findings* – visible & palpable mass most apparent with increased abdominal pressure
*Diagnostic Studies* – diagnosis via clinical findings

23. **HIATAL (DIAPHRAGMATIC) HERNIA WITH ACID REFLUX** (many are asymptomatic if the lower esophageal sphincter is competent;)
*Symptom intensity, quality, distribution & duration* – the ensuing pain results from acid reflux (heartburn) from the stomach 1-4 hours after eating
*Initial onset, circumstances & course* - intermittent episodes over many years
*Associated symptoms* – night-time substernal & epigastric pain; belching,
*Aggravating & Alleviating activities* – worse reclining, & heavy meals; better antacids small, frequent, bland meals & no eating 2 hours before bedtime may help
*Typical Patient Profile* – common to middle aged women and older adults; associated with obesity, pregnancy, ascites, tight fitting belts and clothing
*Physical exam findings* – possible above the diaphragm
*Diagnostic Studies* – clinical history & contrast imaging

Symptoms suggesting genitourinary involvement are: painful urination; increased, decreased or absent frequency; cloudy, reddish-brown or red urine; discharge, hesitancy or diminished force; pubic lesions or parasites; erectile dysfunction, infertility or other sexual concerns.

Symptoms suggesting gynecologic involvement are: Pain before, during or after menstruation; heavy, light or absent menstrual flow; vaginal discomfort or discharge; pubic lesions or parasites; painful intercourse, infertility or other sexual concerns.
DIFFERENTIATING GENITOURINARY CONDITIONS

Genitourinary Red Flags:
1. Painful urination or sexual intercourse
2. Urethral or vaginal discharges
3. Hematuria or brown urine
4. Persistent increase, decrease or lack of urination
5. Hesitancy or diminished force of urine
6. Genital lesions

REPORTED POLYURIA, DYSURIA &/OR HEMATURIA

1. Cystitis (UTI)
Typical biographical profile- women
Symptom location, quality & distribution— polyuria, nocturia, dysuria & possible hematuria.
Onset, circumstances & course- often secondary to urethral contamination with E coli
Associated symptoms- backache, chills and fever
Aggravating & alleviating activities-
Physical findings- pain over the pubis
Diagnostic studies- history raises suspicion, urinalysis & other labs if necessary

2. Acute Pyelonephritis
Typical biographical profile- kids under 5y/o, sexually active people & elderly women
Symptom location, quality & distribution- fever, polyuria, nocturia, dysuria & flank pain
Onset, circumstances & course- ascent following cystitis
Associated symptoms-
Aggravating & alleviating activities-
Physical findings- flank is tender on palpation; costovertebral angle tenderness & positive Murphy’s punch
Diagnostic studies- UA, bacterial cultures, pyelograms & cystoscopy

3. Acute Glomerulonephritis
Typical biographical profile- boys are prone
Symptom location, quality & distribution- general malaise, oliguria & painless hematuria may occur
Onset, circumstances & course- 1-4 weeks after strep throat
Associated symptoms-
Aggravating & alleviating activities-
Physical findings- periorbital edema & hypertension
Diagnostic studies- proteinuria, elevated BUN & creatinine

4. Renal Calculi (kidney stones)
Typical biographical profile- adults
Symptom location, quality & distribution- sudden, severe flank pain (women have said it’s worse than child birth) that follows the course of the ureter
Onset, circumstances & course- most stones pass within 48 hours
Associated symptoms- nausea, vomiting, profuse sweating & hematuria
Aggravating & alleviating activities-
Physical findings- none
Diagnostic studies- history, UA & helical CAT scan
5. Prostatic Hypertrophy
Typical biographical profile- 50% of men over 50 have some symptoms
Symptom location, quality & distribution- nocturia, polyuria, urgency, hesitancy, diminished force & dribbling after stopping urination
Onset, circumstances & course- insidious
Aggravating & alleviating activities-
Physical findings- a digital rectal exam may reveal one or both posterior lobes to be swollen, tender or nodular
Diagnostic studies- labs help differentiate; UA, cystoscopy & PSA
S.N. Prostatic cancer has the same symptoms and it may be possible to palpate a hard nodule on the prostate; PSA is often elevated
S.N. Prostatitis has similar symptoms plus fever, myalgia, arthralgia, perineal & low back pain

6. Chlamydia - nongonoccocal urethritis the most common STD also known as the “silent disease” because 3/4th of women & ½ of men are asymptomatic
Typical biographical profile- sexually active people
Symptom location, quality & distribution- ♂ possible dysuria, mucoid discharge ♀ possible dysuria, vaginal discharge; spread to the fallopian tube may produce abdominal or back pain
Onset, circumstances & course-1-3 weeks post infection, may persist & spread without antibiotics
Aggravating & alleviating activities-
Physical findings- probably none
Diagnostic studies- history raises suspicion, lab studies are conclusive

7. Gonorrhea
Typical biographical profile- sexually active people
Symptom location, quality & distribution- ♂ possible dysuria, yellow discharge; some men & most women have no symptoms
Onset, circumstances & course- 5-30 days post infection symptoms may appear
Aggravating & alleviating activities-
Physical findings-
Diagnostic studies- history raises suspicion, lab studies are conclusive

N.B. Pelvic Inflammatory Disease (PID)
An infection of the uterus &/or fallopian tubes secondary to chlamydia or gonorrhea. Every year one million women experience an acute episode & 100,000 become infertile, because it wasn’t obvious until it was too late. Symptoms are often subtle but may include lower abdominal pain, foul smelling vaginal discharge, irregular menstrual bleeding, painful urination & sexual intercourse.

REPORTED VAGINAL DISCHARGE

8. Bacterial Vaginitis 40-50% of the cases
Typical biographical profile- pregnant woman
Symptom location, quality & distribution- 50% are asymptomatic
Onset, circumstances & course- a grayish-white or yellowish-white discharge without inflammation may be present often associated with pregnancy
Associated symptoms-
Aggravating & alleviating activities-
Physical findings- history & discharge
Diagnostic studies-
9. **Yeast Vaginitis** (candidiasis) 20-25% of the cases
   Typical biographical profile- women
   Symptom location, quality & distribution- vaginal itching possibly accompanied by an odorless, thick, cottage cheese-like discharge preceding menses
   Onset, circumstances & course- often associated with a course of antibiotics which disrupts the natural bacteria-fungus balance
   Associated symptoms-
   Aggravating & alleviating activities- recurrent episodes suggest underlying immunodeficiency or diabetes
   Physical findings- history, inflamed vulva & discharge
   Diagnostic studies- microscopic view or culture of a scraping specimen is conclusive

10. **Trichomoniasis** (vaginitis) 15-20% of the cases
    Typical biographical profile- women
    Symptom location, quality & distribution- a copious, frothy, greenish-yellow discharge that causes pain & irritation following menses
    Onset, circumstances & course- A STD
    Associated symptoms-
    Aggravating & alleviating activities-
    Physical findings- history, red (strawberry) cervix & discharge
    Diagnostic studies-

11. **Endometriosis**
    Typical biographical profile- women in the child bearing years
    Symptom location, quality & distribution- extremely variable depending on the site of endometrial implants; ranging from no symptoms to vaginal, rectal, lower belly or back pains, constantly or only during bowel movements, sex or ovulation.
    Heavy menstrual flow or bleeding or spotting between periods may occur.
    Onset, circumstances & course- stops after menopause
    Associated symptoms- possible infertility
    Aggravating & alleviating activities- depends on sites of endometrial implants
    Physical findings- may be evidence revealed during a vaginal-rectal exam
    Diagnostic studies- see if S&S are responsive to birth control pills, ultrasound, CT & MR may help rule out other causes, but laparoscopy is the only conclusive procedure

12. **Pelvic Inflammatory Disease (PID)**
    Typical biographical profile- women with a history of chlamydia or gonorrhea
    Symptoms - often subtle but may include lower abdominal pain, foul smelling vaginal discharge, irregular menstrual bleeding, painful urination & sexual intercourse.
    Associated symptoms-
    Aggravating & alleviating activities-
    Physical findings- none
    Diagnostic studies- laparoscopy is conclusive
13. Genital Herpes
Typical Patient Profile – sexually active people
Symptom intensity, quality, location & distribution– painful vesicle appear, break, crust & heal over the course of several days; recurrent outbreaks are highly variable & random forever
Initial onset, circumstances & course –7 days post contact with the virus
Associated symptoms – possible dysuria & inguinal adenopathy
Aggravating & alleviating activities –
Physical exam findings – history & vesicles
Diagnostic Studies– lab cultures, blood & microscopy antibody tests

14. Genital Warts (condylomata acuminate / human papilloma virus)
Typical biographical profile- sexually active people
Symptom location, quality & distribution- persistent, soft, single or clustered papules around sites of sexual contact
Onset, circumstances & course- they start small but will enlarge without treatment; some of the 70 responsible viruses have been associated with cervical cancer.
Associated symptoms-
Aggravating & alleviating activities-
Physical findings- genital or pelvic exam may reveal lesion
Diagnostic studies- ♀ acetic acid application & colposcopy (a magnification scope) may be needed to see the warts, a pap smear may reveal cancerous changes to the cervix associated with the HPV

15. Cervical Cancer
Typical biographical profile- women (HPV may have played a role)
Symptom location, quality & distribution- abnormal vaginal bleeding or unexplained change in the menstrual cycle; pain or bleeding during sex
Onset, circumstances & course- secondary to a HPV infection
Physical findings- none
Diagnostic studies- pap smear

16. Syphilitic Chancre
Typical biographical profile- sexually active people
Symptom location, quality & distribution- it's a single, (occasionally multiple) painless, ulcerated sore at the site of the infection that gradually disappears
Onset, circumstances & course- 10 days – 3 months post infection if it ever does appear
Associated symptoms- inguinal adenopathy
Aggravating & alleviating activities-
Physical findings- The chancre
Diagnostic studies- Dark-field microscopy for the spirochetes & identifying the antibodies in the blood (VDRL & RPR tes

17. Testicular cancer - most treatable & curable in early stages
Typical biographical profile- white, males15 -34 y/o
Symptom location, quality & distribution- Painless testicular lump, enlargement or discomfort
Onset, circumstances & course- insidious; no known cause
Associated symptoms- possible dull ache in the lower abdomen, back or groin
Aggravating & alleviating activities
Physical findings- Painless testicular lump, enlargement or discomfort; the lump doesn’t transilluminate
Diagnostic studies- blood test for tumor markers, ultrasound of the scrotum, testicle removal & biopsy