GENERAL SURVEY

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GENERAL APPEARANCE

- Apparent State of Health (ill, fit)
- Level of Consciousness

Level of Consciousness (Arousal): Techniques and Patient Response

Level	Technique	Patient Response
Alertness	Speak to the patient in a normal tone of voice.	The alert patient opens the eyes, looks at you, and responds fully and appropriately to stimuli (arousal intact).
Lethargy	Speak to the patient in a loud voice. For example, call the patient's name or ask "How are you?"	The patient appears drowsy but opens the eyes and looks at you, responds to questions, and then falls asleep.
Obtundation	Shake the patient gently as if awakening a sleeper.	The obtunded patient opens the eyes and looks at you but responds slowly and is somewhat confused. Alertness and interest in the environment are decreased.
Stupor	Apply a painful stimulus. For example, pinch a tendon, rub the sternum, or roll a pencil across a nail bed. (No stronger stimuli needed!)	The stuporous patient arouses from sleep only after painful stimuli. Verbal responses are slow or even absent. The patient lapses into an unresponsive state when the stimulus ceases. There is minimal awareness of self or the environment.
Coma	Apply repeated painful stimuli.	A comatose patient remains unarousable with eyes closed. There is no evident response to inner need or external stimuli.

SIGNS OF DISTRESS

- Cardiac or respiratory distress

  clutching of the chest, palor, diaphoresis,

  Labored breathing, wheezing, or coughing?

- Pain

  wincing, diaphoresis, protectiveness

  of a painful area, grimacing,

  unusual posture favoring one limb or region of the body?

- Anxiety or depression

- Skin Color and Obvious Lesions changes in skin color, scars, plaques, or nevi

   (Pallor, cyanosis, jaundice, rashes, bruises, or mottling of the extremities)

- Dress, Grooming, and Personal Hygiene. How is the patient dressed? Is the clothing suitable for the temperature and weather? Is it clean and appropriate to the setting

   (Excess clothing may reflect the cold intolerance of hypothyroidism, hide skin rash or needle marks, mask anorexia, or signal personal lifestyle preferences)

- shoes (Holes or slippers suggest gout,bunions, edema, or other painful foot conditions. Run-down shoes can contribute to foot and back pain, calluses, falls, and infection)

- wearing unusual jewelry? body piercings? Copper bracelets suggest joint pain. Tattoos and piercings can be associated with alcohol and drug use

- patient's hair, fingernails, and use of make-up. personality, mood, lifestyle, and self-regard. "Grown-out" hair and nail polish suggest the length of a possible illness.

  Bitten fingernails may reflect stress.

- personal hygiene and grooming age, lifestyle, and occupation(Neglected appearance may appear in depression and dementia)

- Facial Expression. at rest, during conversation and social interactions, physical examination. Watch closely for eye contact. Is it natural? . . . sustained and unblinking? . . . averted

- quickly? . . . absent?

Stare   hyperthyroidism,

immobile facies   parkinsonism,flat or sad affect of depression.

Decreased eye contact cultural, anxiety, fear, or sadness.

ODORS OF THE BODY AND BREATH

- fruity odor of diabetes or the scent of alcohol

- **Breath odors** can reveal the presence of alcohol or acetone (diabetes),pulmonary infections, uremia, or liver failure

- Never assume that alcohol on a patient's breath explains changes in mental status

or neurologic findings(SDH, hypoglycemia, postictal)

POSTURE, GAIT, AND MOTOR ACTIVITY

- patient's preferred posture?

- sitting upright :left-sided heart failure

- Leaning forward with arms braced :COPD

- Is the patient restless or quiet Patients in pain often avoid movement.

- Is there any involuntary motor activity? Are some body parts immobile

- Does the patient walk smoothly, with comfort, self-confidence, and balance, or

- is there a limp, fear of falling, loss of balance, or any movement disorder

HEIGHT AND WEIGHT

Is the patient unusually short or tall? Is the build slender, muscular, or stocky?

Is the body symmetric? Note the general body proportions

- **very short stature** Turner syndrome, childhood renal failure, and achondroplastic and hypopituitary dwarfism;
- **long limbs** hypogonadism and Marfan syndrome
- **height loss** osteoporosis and vertebral compression fractures.
- Is the patient emaciated, slender, overweight, or obese?
- Obese,fat distributed evenly, concentrated over the upper torso, around the hips
- **generalized fat distribution:** simple obesity
- **truncal fat with relatively thin limbs:** Cushing syndrome and metabolic syndrome

- Causes of **weight loss** malignancy

  diabetes mellitus,

  hyperthyroidism

  chronic infection

  depression

  diuresis,

  successful dieting

BMI

- Weight in kilograms, height in meters squared

$$\frac{Weight\ (kg)}{Height\ (m^2)}$$

- **Waist Circumference**. If the BMI is ≥35 kg/m2,

- . Risk for diabetes, hypertension, and cardiovascular disease increases

  35 inches women

  40 inches or more in men.

VITAL SIGNS

- blood pressure, heart rate, respiratory rate, and temperature

Methods for Measuring Blood Pressure

Auscultatory office blood pressure

Automated oscillometric office blood pressure

Automated oscillometric office blood pressure

Home blood pressure monitoring

AUSCULTATORY OFFICE BLOOD PRESSURE

aneroid or mercury blood pressure cuff

- Subject to patient anxiety ("white coat hypertension"),
- observer technique, cuff recalibration every 6 months
- Requires measurements over several visits
- Single measurements: sensitivity and specificity of 75% compared to ambulatory monitoring

AUTOMATED OSCILLOMETRIC OFFICE BLOOD PRESSURE

- Requires optimal patient positioning, cuff size and placement, and device calibration
- Takes multiple measurements over short period
- Requires confirmatory measurements to reduce misdiagnosis
- Comparable sensitivity and specificity to manual measurements

HOME BLOOD PRESSURE MONITORING

- Accurate automated device applied by patient, easy to use, less expensive than ambulatory monitoring

- Acceptable alternative if ambulatory monitoring not feasible; more predictive of cardiovascular

risk than office measurements

- Requires patient education for accurate technique,

- repeated measurements (two morning,two evening readings daily for 1 week, nighttime readings not recorded)

- Detects white coat hypertension—present in 20%

- Detects masked hypertension—present in 10%

- Sensitivity 85%, specificity 62% compared to ambulatory monitoring

AMBULATORY BLOOD PRESSURE MONITORING

- Automated; clinical and research "gold standard"
- Provides 24-hour average blood pressures and
- averages of daytime (awake), nighttime(asleep), systolic, and diastolic blood pressures
- Shows whether nocturnal blood pressure dips normal, elevated (cardiovascular disease RF)
- More expensive

Definitions of Hypertension

- Office manual or automated blood pressure based on the average of two readings on two separate occasions: ≥140/90[35,36]
- Home automated blood pressure: <135/85[32]
- Ambulatory automated blood pressure:[37]
  - 24-hour average: ≥ of 130/80
  - Daytime (awake) average: ≥135/85
  - Nighttime (asleep) average: >120/70

WHITE COAT HYPERTENSION

- isolated clinic hypertension

- blood pressure ≥140/90 in medical settings

- Mean awake ambulatory readings <135/85

- reduce the "white coat effect

- Replacing manual office measurements with an automated device several readings

- patient seated alone in a quiet room has been shown to

MASKED HYPERTENSION

- office blood pressure <140/90, but an elevated daytime blood pressure of >135/85 on

- home or ambulatory testing,

- 10% to 30% of the general population,

- have increased risk of cardiovascular disease and end-organ damage

NOCTURNAL HYPERTENSION

- Physiologic blood pressure "dipping" occurs in most patients at night as they shift from wakefulness to sleep. A nocturnal

- fall of <10% of daytime values is associated with poor cardiovascular outcomes

- can only be identified on 24-hour ambulatory blood pressure monitoring.

Selecting the Correct Size Blood Pressure Cuff

It is important for clinicians and patients to use a cuff that fits the patient's arm. Follow the guidelines outlined here for selecting the correct size:

- Width of the inflatable bladder of the cuff should be about 40% of upper arm circumference (about 12 to 14 cm in the average adult).
- Length of the inflatable bladder should be about 80% of upper arm circumference (almost long enough to encircle the arm).
- The standard cuff is 12 × 23 cm, appropriate for arm circumferences up to 28 cm.
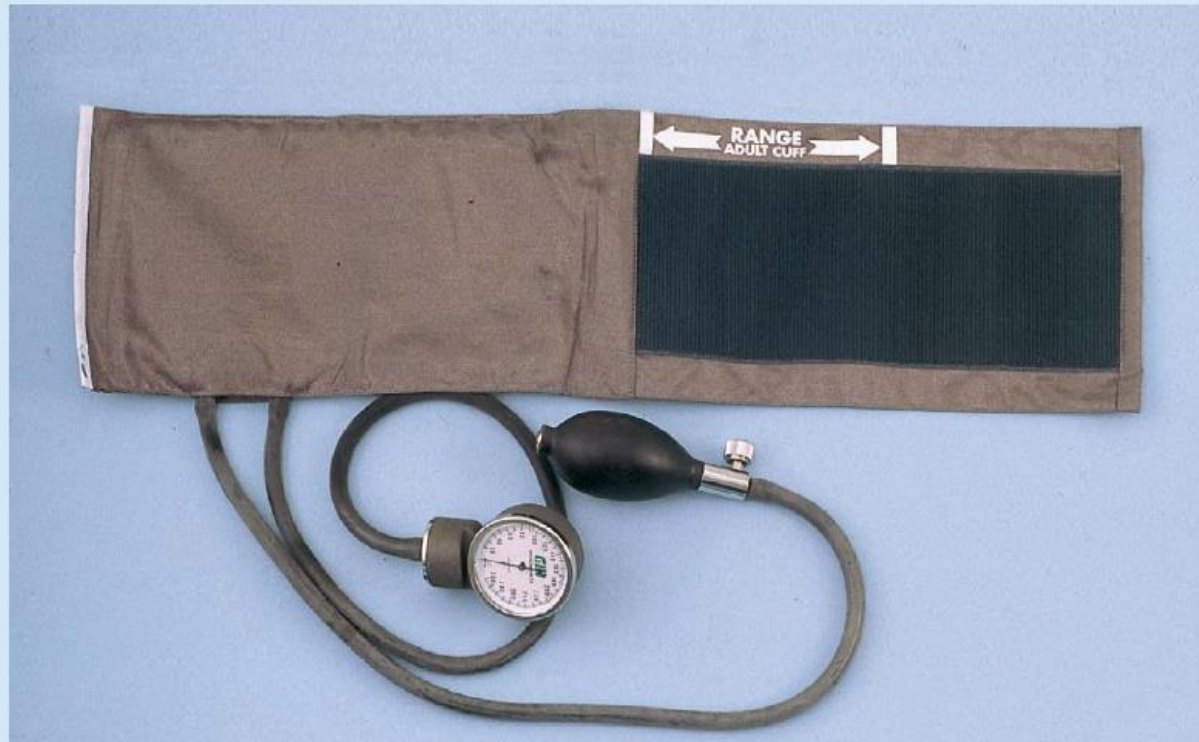
Steps to Ensure Accurate Blood Pressure Measurement

1. The patient should avoid smoking, caffeine, or exercise for 30 minutes prior to measurement.
2. The examining room should be quiet and comfortably warm.
3. The patient should sit quietly for 5 minutes in a chair with feet on the floor, rather than on the examining table.
4. The arm selected should be *free of clothing*, fistulas for dialysis, scars from brachial artery cutdowns, or lymphedema from axillary node dissection or radiation therapy.
5. Palpate the brachial artery to confirm a viable pulse and position the arm so that the brachial artery, at the antecubital crease, is *at heart level*—roughly level with the fourth interspace at its junction with the sternum.
6. If the patient is seated, rest the arm on a table a little above the patient's waist; if standing, try to support the patient's arm at the midchest level.

POSITION THE CUFF AND ARM

- . arm at heart level,

- center the inflatable bladder over the brachial artery.

- The lower border of the cuff should be about 2.5 cm above the antecubital crease.

- Secure the cuff snugly.

- Slightly flex the patient's arm at the elbow

- A loose cuff or a bladder that balloons outside the cuff leads to falsely high readings

HOW HIGH TO RAISE THE CUFF PRESSURE

- Estimate the Systolic Pressure and Add 30 mm Hg.

- first estimate the systolic pressure by palpation of radial artery with the fingers of one hand, rapidly inflate the cuff until the radial pulse disappears.

- prevents discomfort

- avoids the occasional error caused by an auscultatory gap

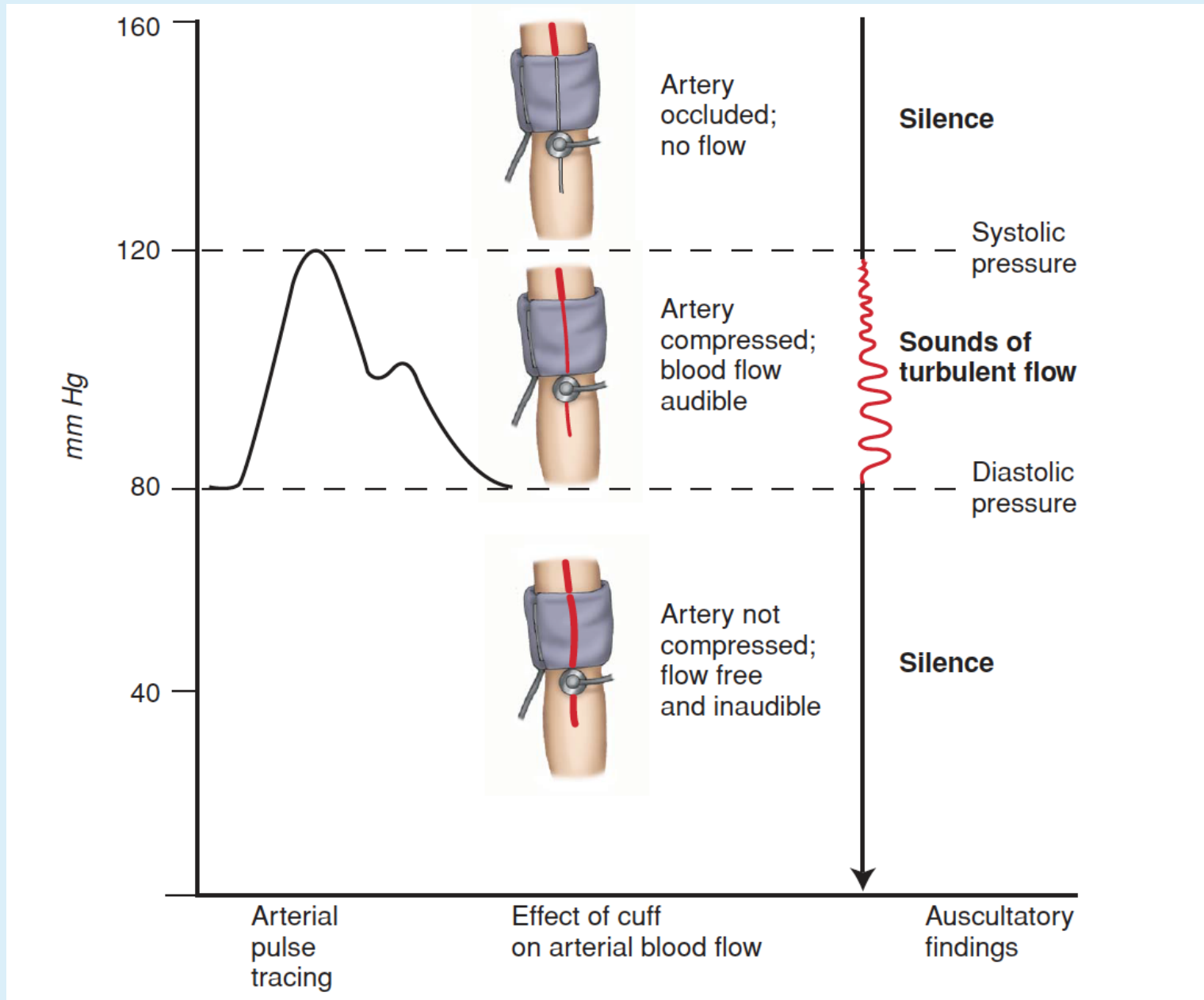- Deflate the cuff promptly and completely and wait for 15 to 30 seconds

AUSCULTATORY GAP
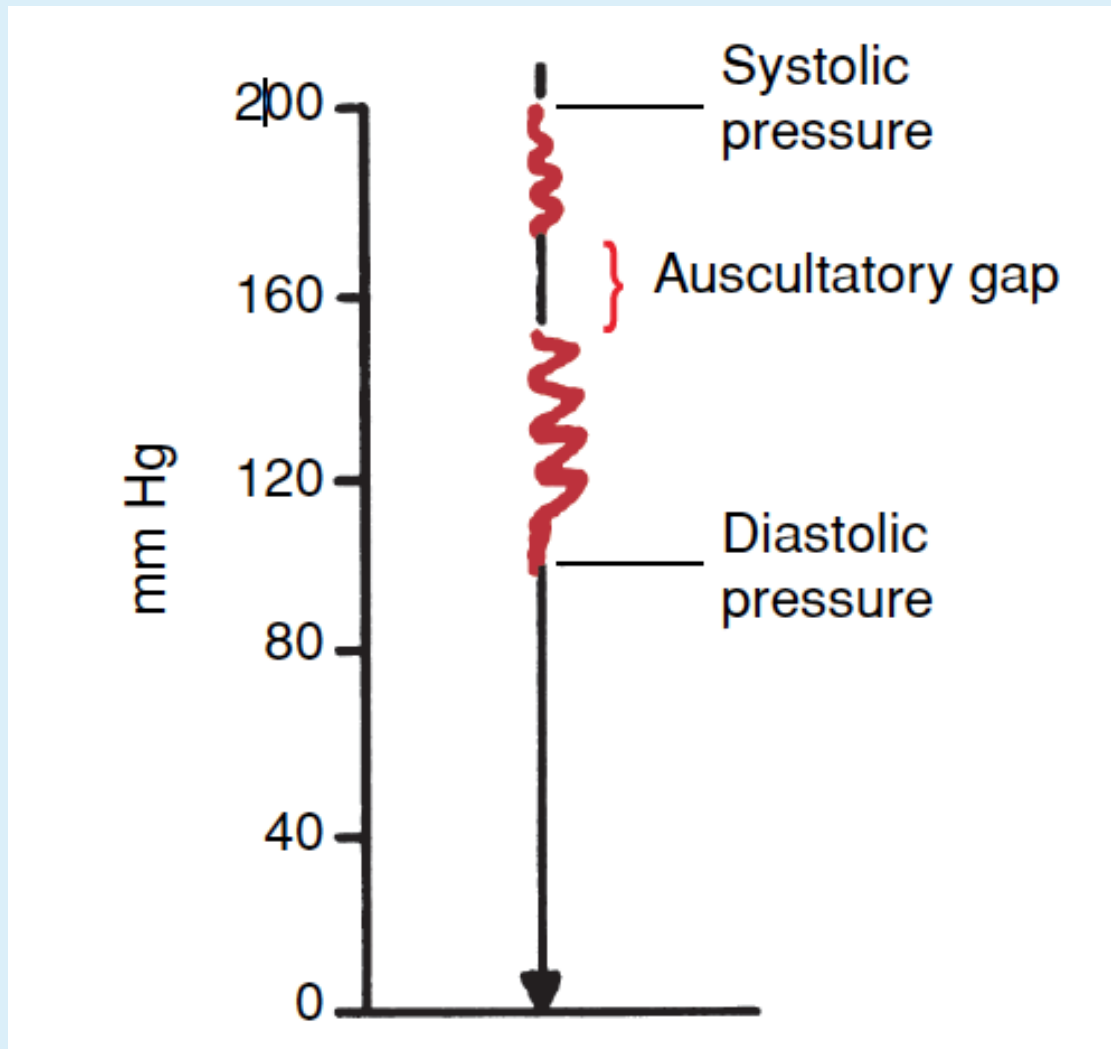
associated with arterial stiffness and atherosclerotic disease

- Position the Stethoscope Bell Over the BrachialArtery

- In some people, the muffling point and the disappearance point are farther apart.
- Occasionally, as in aortic regurgitation, the sounds never disappear.
- If the difference is 10 mm Hg or greater, record both figures (e.g., 154/80/68).

- Wait 2 or more minutes and **repeat**.
- Average your readings. If the first two readings differ by more than 5 mm Hg, take additional readings.
- Measure Blood Pressure in **Both** Arms At Least Once
- 10 to 15 mm Hg occurs: subclavian steal syndrome,

supravalvular aortic stenosis,

aortic dissection

Blood Pressure Classification for Adults (JNC 8, American Society of Hypertension, JNC 7)[35,36,44]

Category	Systolic (mm Hg)	Diastolic (mm Hg)
Normal[36]	<120	<80
Prehypertension[36,44]	120–139	80–89
Stage 1 hypertension[35]		
Ages ≥18 to <60 years; diabetes or renal disease	140–159	90–99
Age ≥60 years[a]	150–159	90–99
Stage 2 hypertension[36,44]	≥160	≥100

[a]The American Society of Hypertension raises this cutoff to age ≥80 years.

HEART RATE AND RHYTHM

RESPIRATORY RATE AND RHYTHM

TEMPERATURE

- Pulmonary artery
- Oral
- rectal temperature
- Axillary temperatures
- Tympanic membrane
- temporal artery

ORAL

- Oral temperatures lower than the core body temperature.
- Lower than rectal temperatures by an average of 0.4 to 0.5C
- higher than axillary temperatures by approximately 1C

- digital readout:10 seconds
- glass thermometers: 3 to 5 minutes

RECTAL TEMPERATURES

- lie on one side with the hip flexed.

- thermometer with a stubby tip,

- lubricate it

- insert it about 3 cm to 4 cm (1.5 inches) pointing to the umbilicus.

- Remove it after 3 minutes

TYMPANIC MEMBRANE

- 2-3 seconds
- temperatures can be more variable than oral or rectal temperatures.

Oral and temporal artery temperatures correlate more closely with the pulmonary artery temperature, but are about 0.5¡C lower.

- Accurate temperature readings require access to the tympanic membrane.
- external auditory canal   free of cerumen

TEMPORAL ARTERY TEMPERATURES.

- forehead, down the cheek, and behind an earlobe

- combined forehead and behind the ear contact is more accurate

ACUTE AND CHRONIC PAIN

- full history of the patient's pain

- Pain score:

  Numeric Rating Scale

  Visual Analog Scale
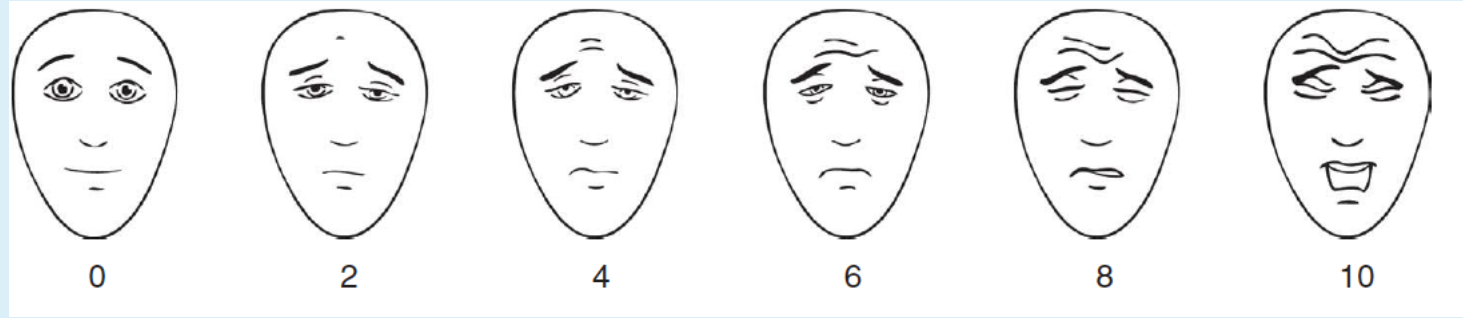
Face 2 hurts just a little bit.
Face 4 hurts a little more.
Face 6 hurts even more.
Face 8 hurts a whole lot.
Face 10 hurts as much as you can imagine,

ANY QUESTIONS

Many thanks