CLINICAL METHODS - GENERAL EXAMINTATION

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GENERAL EXAMINATION AND VITAL SIGNS

- **Vital Signs**
- Vital signs include the measurement of:
  - temperature,
  - respiratory rate,
  - pulse,
  - blood pressure and,
  - where appropriate, blood oxygen saturation.
- These numbers provide critical information (hence the name "vital") about a patient's state of health.

General Examination and Vital Signs….

- In particular, they:
  - Can identify the existence of an acute medical problem.
  - Are a means of rapidly quantifying the magnitude of an illness and how well the body is coping with the resultant physiologic stress.
- The more deranged the vitals, the sicker the patient.
- Are a marker of chronic disease states (e.g. hypertension is defined as chronically elevated blood pressure).

GENERAL EXAMINATION AND VITAL SIGNS…

- Most patients will have had their vital signs measured by a nurse or health care assistant before you have a chance to see them.
- However, these values are of such great importance that you should get in the habit
  - of repeating them yourself, particularly if you are going to use these values as the basis for management decisions.
- This not only allows you to practice obtaining vital signs but provides an opportunity to verify their accuracy.

GENERAL EXAMINATION AND VITAL SIGNS….

- As noted below, there is significant potential for measurement error, so repeat determinations can provide critical information.
- **Getting Started:**
- The examination room should be quiet, warm and well lit.
- After you have finished interviewing the patient, provide them with a gown (a.k.a. "Johnny") and leave the room (or draw a separating curtain) while they change.

GENERAL EXAMINATION AND VITAL SIGNS….

- Instruct them to remove all of their clothing (except for briefs) and put on the gown so that the opening is in the rear.
- Prior to measuring vital signs, the patient should have had the opportunity to sit for approximately five minutes so that the values are not affected by the exertion required as they walk to the exam room.
- All measurements are made while the patient is seated.

GENERAL EXAMINATION AND VITAL SIGNS….

- **Observation:**
- Before diving in, take a minute or so to look at the patient in their entirety, making your observations, if possible, from an out-of-the way perch.
- Does the patient seem
  - anxious,
  - in pain,
  - upset?
- What about their dress and hygiene?

GENERAL EXAMINATION AND VITAL SIGNS….

- Remember, the exam begins as soon as you lay eyes on the patient.
- Temperature: This is generally obtained using an oral thermometer that provides a digital reading when the sensor is placed under the patient's tongue.
- As most exam rooms do not have thermometers, it is not necessary to repeat this measurement unless, of course, the recorded value seems discordant.

GENERAL EXAMINATION AND VITAL SIGNS....

- Compare with the patient's clinical condition (e.g. they feel hot but reportedly have no fever or vice versa).
- Depending on the bias of a particular institution, temperature is measured in either Celcius or Farenheit.
- The normal temperature range is 35.5-37.5 degrees celcius.
- Rectal temperatures, which most closely reflect internal or core values, are approximately 0.5 degree C higher than those obtained orally.

GENERAL EXAMINATION AND VITAL SIGNS….

- Respiratory Rate:
- Respirations are recorded as breaths per minute.
- They should be counted for at least 30 seconds as the total number of breaths in a 15 second period is rather small and any miscounting can result in rather large errors when multiplied by 4.
- Try to do this as surreptitiously as possible so that the patient does not consciously alter their rate of breathing.

GENERAL EXAMINATION AND VITAL SIGNS....

- This can be done by observing the rise and fall of the patient's hospital gown while you appear to be taking their pulse.
- Normal is between 12 and 20.
- In general, this measurement offers no relevant information for the routine examination.
- However, particularly in the setting of cardio-pulmonary illness, it can be a very reliable marker of disease activity.

GENERAL EXAMINATION AND VITAL SIGNS….

- Pulse:
- This can be measured at any place where there is a large artery (e.g. carotid, femoral, or simply by listening over the heart),
- Though for the sake of convenience it is generally done by palpating the radial impulse.
- You may find it helpful to feel both radial arteries simultaneously, doubling the sensory input and helping to insure the accuracy of your measurements.

GENERAL EXAMINATION AND VITAL SIGNS….

- Place the tips of your index and middle fingers just proximal to the patients wrist on the thumb side, orienting them so that they are both over the length of the vessel.
- Frequently, you can see transmitted pulsations on careful visual inspection of this region, which may help in locating this artery.
- Upper extremity peripheral vascular disease is relatively uncommon so the radial artery should be readily palpable in most patients.

GENERAL EXAMINATION AND VITAL SIGNS….

- Push lightly first then add pressure if there is a lot of subcutaneous fat or you are unable to detect a pulse.
- If you push too hard, you might occlude the vessel and mistake your own pulse for that of the patient.
- During palpation, note the following:
- **Quantity:**
  - Measure the rate of the pulse (recorded in beats per minute).
  - Count for 30 seconds and multiply by 2 (or 15 seconds x 4).

GENERAL EXAMINATION AND VITAL SIGNS….

- If the rate is particularly slow or fast, it is probably best to measure for a full 60 seconds in order to minimize the impact of any error in recording over shorter periods of time.

- Normal is between 60 and 100.
- **Regularity:**
- Is the time between beats constant?
- In the normal setting, the heart rate should appear metronomic.
- Irregular rhythms, however, are quite common.

GENERAL EXAMINATION AND VITAL SIGNS….

- If the pattern is entirely chaotic with no discernable pattern, it is referred to as irregularly irregular and likely represents atrial fibrillation.
- Extra beats can also be added into the normal pattern, in which case the rhythm is described as regularly irregular.
- This may occur, for example, when impulses originating from the ventricle are interposed at regular junctures on the normal rhythm.

GENERAL EXAMINATION AND VITAL SIGNS….

- If the pulse is irregular, it's a good idea to verify the rate by listening over the heart (see cardiac exam section).
- This is because certain rhythm disturbances do not allow adequate ventricular filling with each beat.
- The resultant systole may generate a rather small stroke volume whose impulse is not palpable in the periphery.

GENERAL EXAMINATION AND VITAL SIGNS….

- **Volume:**
- Does the pulse volume (i.e. the subjective sense of fullness) feel normal?
- This reflects changes in stroke volume.
- In the setting of hypovolemia, for example, the pulse volume is relatively low (aka weak or thready).
- There may even be beat to beat variation in the volume, occurring occasionally with systolic heart failure.
- Rhythm Simulator

GENERAL EXAMINATION AND VITAL SIGNS….

- **Blood Pressure:**
- Blood pressure (BP) is typically measured using an anaeroid manometer, with readings reported in millimeters of mercury (mm Hg).
- Most BP readings in hospitals and clinics are initially taken with digital machines,
- It is still relevant to learn how to use manual cuffs, as clinicians will need to check the validity of digital readings on occasion (e.g. when BP unexpectedly high or low).

GENERAL EXAMINATION AND VITAL SIGNS….

- The size of the BP cuff will affect the accuracy of these readings.
- The inflatable bladder, which can be felt through the vinyl covering of the cuff, should reach roughly 80% around the circumference of the arm while its width should cover roughly 40%.
- If it is too small, the readings will be artificially elevated.
- The opposite occurs if the cuff is too large.

GENERAL EXAMINATION AND VITAL SIGNS….

- Clinics should have at least 2 cuff sizes available, normal and large.
- Try to use the one that is most appropriate, recognizing that there will rarely be a perfect fit.