Vital signs

Alaa Hamza

Vital Signs

Vital signs are measures of various physiological status, in order to assess the most basic body functions. When these values are not zero, they indicate that a person is alive.

- Normal ranges of measurements of vital signs change with age and medical condition
- Vital Signs are measurements of the body's most basic functions:

- Body temperature (Temp)
- Pulse / heart rate
- Respiration
- Blood pressure (BP)

Body temperature

It is the degree of heat maintained by the body or it is the balance between heat produced in the tissues and heat lost to the environment.

The normal range of the body temperature is between 36.2 to 37.2 C.

Body temperature is recorded either in degree centigrade (C) or degree Fahrenheit (F)

Types of body temperature

1. Core temperature
   - deep tissues of the body
   - thorax and abdominal cavity.
   - 37C or 98.6 F
2. Surface temperature
   - temperature of the skin, the subcutaneous tissue and fat
   - response to the environmental changes
   - Average between 36.7 C (98 F) and 37 C (98.6F).

Temperature regulation

- Physical control
- Chemical control
- Nervous system control

Factors Affecting Body's heat production

- Metabolic rate (BMR)
- Epinephrine and sympathetic stimulation
- Age
- Gender
- Exercise
- Hormone

Fever (pyrexia)

Is abnormal elevation of body temperature above the normal range. It is common symptom of illness.

- ✓ low-grade fever: is temperature, slightly elevated to approximately 37.3 °C to 38.2 °C.
- ✓ High-grade fever: temperatures above 38.3 °C to 40.5 °C.
- ✓ Hyperpyrexia: is a condition in which body temperature is above 41.6 °C.

Signs and symptoms of fever

- Rapid pulse
- Rapid shallow respiration
- Cold, then hot skin
- Flushed face
- Headache
- Malaise
- Sweating and shaking chill
- Restlessness
- Thirst
- Anorexia
- Nausea and vomiting
- Dehydration
- Constipation
- Oliguria
- Delirium and may be hallucination

Nursing Interventions for patient with Fever

- Monitor vital signs
- Assess skin color and temperature
- Monitor WBCs count and other pertinent laboratory records
- Remove excess clothes when the patient feels warm, but provide extra warmth when the patient feels chilled
- Measure intake and output. 6.Reduced physical activity to limit heat production
- Provide oral hygiene to keep the mucous membranes moist. They can become dry and cracked as a result of excessive fluid loss
- Applied moist cold applications such as cold compresses tepid sponge and ice bag to increase loss through conduction
- Provide cool circulating air by using a fan to increase heat loss through convection.

Hypothermia

It is a core body temperature below the lower limit of normal. The ability of hypothalamus to regulate temperature is greatly impaired when the body temperature falls below 34.5C (94F), and death usually occurs when the temperature falls below 34 C (93.2 F).

Clinical signs of hypothermia

1. Decreased body temperature.
2. Pale, cool, waxy skin.
3. Decrease urine output
4. Lack of muscle coordination.
5. Disorientation.
6. Drowsiness may progressing to coma.

Sites for Assessing Body Temperature

- Orally (common way).
  - thermometer is placed posteriorly into the sublingual pocket
  - 37 C° (3–5 min)

Contraindications of oral thermometer

1. Infants and children
2. Inflammation or surgery of mouth
3. Persistent frequent coughing
4. Mouth breathing patients
5. Unconscious patients
6. Psychiatric patients
7. Patient on oxygen mask
8. Patient with seizure disorder
9. After drinking hot fluids or cold fluids

❑ Axillary

- Temperature is measured at the axilla by placing the thermometer in the central position and adducting the arm close to the chest wall
- safe way
- 36 C° + 0.5 C°
- (10 min)

Contraindications of Axillary

- ➢ Skin disease
- ➢ Axillary operation

❑ Rectal

- is the most accurate method for measuring the core temperature
- 37 C° – 0.5 C° (2 – 3 min).
- accurate reading

Contraindications of rectal thermometer

1. rectal surgery .
2. rectal disorders (hemorrhoids. Rectal fissure..etc.).
3. diarrhea.

❑ Tympanic membrane

- Placed in the external auditory canal
- This method is quick less than minute

Types of Thermometers

1. Electronic thermometer.
2. Glass thermometer.
3. Paper thermometer.
4. Tympanic membrane thermometer.