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Vital Signs and Health Assessment

Nursing Foundation

Body temperature, pulse, respiration, blood pressure, oxygen saturation, pain assessment, general physical examination and recording of vital signs.

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10. VITAL SIGNS AND HEALTH ASSESSMENT

1. Definition

Vital signs are measurable physiological indicators used to assess essential body functions and identify changes in health status.

2. Normal Adult Vital Signs

Approximate reference values for resting adults:

Parameter	Typical value
Body temperature	36.5-37.5 C, depending on measurement site
Pulse	60-100 beats/minute
Respiration	12-20 breaths/minute
Blood pressure	Around 120/80 mmHg is a commonly taught reference
SpO2	Commonly 95-100% at sea level
Pain	Assessed using an appropriate pain scale

Normal values vary with age, clinical condition, altitude, medications and measurement methods.

3. Body Temperature

Temperature represents the balance between heat production and heat loss.

Measurement Sites

- Oral.
- Axillary.
- Tympanic.
- Temporal.
- Rectal, when appropriate.

Abnormalities

- Fever or pyrexia.
- Hyperthermia.
- Hypothermia.

Hypothermia generally refers to core temperature below 35 C.

Nursing Responsibilities

Measure using an appropriate device, select a suitable site, assess associated symptoms and document the measurement site.

4. Pulse

Pulse is the palpable pressure wave produced by cardiac contraction.

Pulse Sites

- Temporal.
- Carotid.
- Apical.
- Brachial.
- Radial.
- Femoral.
- Popliteal.
- Posterior tibial.
- Dorsalis pedis.

Characteristics

- Rate.
- Rhythm.
- Volume or amplitude.
- Equality where appropriate.

Tachycardia: Resting adult heart rate above 100/min.

Bradycardia: Resting adult heart rate below 60/min, interpreted in clinical context.

Pulse Procedure

Locate the artery, palpate with fingertips, assess rhythm and count the pulse. Count for a full minute when irregular or clinically indicated.

5. Respiration

Respiration involves ventilation and gas exchange.

Assess:

- Respiratory rate.
- Depth.
- Rhythm.
- Effort.

- Chest movement.
- Abnormal respiratory sounds.

Abnormalities

- Tachypnoea: Increased respiratory rate.
- Bradypnoea: Decreased respiratory rate.
- Apnoea: Absence of breathing.
- Dyspnoea: Subjective breathing difficulty.
- Orthopnoea: Breathlessness when lying flat.

6. Blood Pressure

Blood pressure is the force exerted by circulating blood against arterial walls.

- Systolic pressure: Pressure during ventricular contraction.
- Diastolic pressure: Pressure during ventricular relaxation.

Articles Required

- Validated sphygmomanometer.
- Appropriate-sized cuff.
- Stethoscope for manual measurement.
- Recording sheet.

Measurement Procedure

1. Allow the patient to rest when circumstances permit.
2. Position the patient with back and arm supported.
3. Keep the cuff at heart level.
4. Select the correct cuff size.
5. Measure using the validated device and procedure.
6. Repeat readings when indicated.
7. Document the arm, position and result.

Hypertension should not ordinarily be diagnosed from one isolated routine reading.

7. Oxygen Saturation

SpO2 is an estimate of arterial oxygen saturation obtained using a pulse oximeter.

Factors Affecting Readings

- Patient movement.
- Poor peripheral perfusion.
- Cold extremities.

- Nail coatings.
- Device limitations.
- Skin pigmentation-related measurement bias.

Assess symptoms and other clinical findings rather than relying on SpO2 alone.

8. Pain Assessment

Pain is a personal sensory and emotional experience.

Pain Scales

- Numerical Rating Scale: 0-10.
- Visual Analogue Scale.
- Verbal Descriptor Scale.
- Faces Pain Scale.
- FLACC for appropriate non-verbal paediatric assessments.

9. General Physical Examination

Four Main Techniques

Technique	Meaning
Inspection	Visual observation
Palpation	Examination using touch
Percussion	Tapping to assess underlying structures
Auscultation	Listening to body sounds

For abdominal examination, inspection and auscultation generally precede percussion and palpation.

10. Head-to-Toe Assessment

- General appearance and consciousness.
- Head, eyes, ears, nose and throat.
- Respiratory system.
- Cardiovascular system.
- Abdomen.
- Skin integrity.
- Musculoskeletal system.
- Neurological status.
- Elimination needs.
- Pain and psychological status.

11. Recording and Reporting

Document date, time, measurements, relevant circumstances and interventions. Report significant deviations from baseline or signs of deterioration promptly.

Important Examination Questions

1. Define vital signs and state normal adult values.
2. Describe temperature and pulse measurement.
3. Explain blood pressure measurement.
4. Discuss respiratory assessment.
5. Describe physical examination techniques.
6. Explain pain assessment scales.

Conclusion

Accurate measurement, interpretation and documentation of vital signs are fundamental to early detection of patient deterioration and safe nursing practice.

Quick Revision

- Typical resting adult pulse is 60-100/min and respiratory rate 12-20/min, with interpretation in context.

- Hypothermia generally means a core temperature below 35 C.

- Assess pulse rate, rhythm, volume and equality; count for a full minute when irregular or indicated.

- Respiratory assessment includes rate, depth, rhythm, effort, chest movement and sounds.

- Use a validated blood pressure device, correct cuff size and supported positioning with the cuff at heart level.

- Inspection observes, palpation touches, percussion taps and auscultation listens; report significant deterioration promptly.

Practice questions

Choose one best answer. The answer key and explanations follow the questions.

1. What does orthopnoea mean?

A. Absence of breathing
B. Breathlessness when lying flat
C. Decreased respiratory rate
D. Increased respiratory rate

2. Which physical examination technique uses touch?

A. Inspection
B. Auscultation
C. Percussion
D. Palpation

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3. Where should the blood pressure cuff be positioned relative to the heart?

A. At heart level

B. Well above heart level

C. Below the waist

D. At knee level

4. A patient develops new breathlessness, confusion and a rapid respiratory rate. A pulse oximeter displays 96%. What is the safest nursing response?

A. Ignore the symptoms because the saturation is within a usual range

B. Reassess at the next routine observation round only

C. Remove the oxygen device solely because the displayed value is normal

D. Assess airway, breathing and circulation and urgently escalate the clinical deterioration

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Answer key and explanations

1. B - Breathlessness when lying flat

Orthopnoea is positional breathlessness when lying flat.

2. D - Palpation

Palpation examines structures by touch.

3. A - At heart level

The cuff should be kept at heart level.

4. D - Assess airway, breathing and circulation and urgently escalate the clinical deterioration

A single saturation reading does not exclude deterioration. Symptoms, respiratory effort, perfusion, device limitations and the wider assessment must guide escalation.

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