PAEDIATRICS QUESTIONS AND ANSWERS

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Paediatrics & Paediatrics I

Questions and Answers

--- Paediatrics ---

Question 1

LIRA SCHOOL OF COMPREHENSIVE NURSING AND MIDWIFERY - NO.31

- Define sickle cell crisis.

- Mention 5 types of sickle cell crisis.

- Describe the management of 10yrs old boy admitted with sickle cell disease until discharge.

ANSWER: Examination Script

A sickle cell crisis (also known as a vaso-occlusive crisis or painful crisis) is an acute, painful episode that occurs in individuals with sickle cell disease. It happens when sickle-shaped red blood cells (which are normally round and flexible) become rigid, sticky, and block small blood vessels (vaso-occlusion). This blockage restricts blood flow and oxygen delivery to tissues and organs, leading to severe pain and potential organ damage. Crises can be triggered by various factors like infection, dehydration, cold weather, stress, or high altitude.

1. Vaso-occlusive Crisis (VOC) / Painful Crisis: The most common type. Caused by sickle-shaped red blood cells blocking blood flow in small vessels, leading to ischemia (lack of oxygen) and severe pain in bones, joints, chest, abdomen, or back. Can last for hours to days.

2. Aplastic Crisis: A temporary shutdown of red blood cell production in the bone marrow, often triggered by an infection (commonly parvovirus B19). Leads to a rapid drop in hemoglobin levels (severe anemia) without an increase in reticulocytes (young red blood cells).

3. Splenic Sequestration Crisis: Occurs mainly in young children when a large number of sickle cells get trapped in the spleen, causing it to enlarge rapidly. This leads to a sudden, severe drop in hemoglobin and blood volume, potentially causing hypovolemic shock. It is a life-threatening emergency.

4. Hemolytic Crisis: An accelerated rate of red blood cell destruction (hemolysis), leading to a drop in hemoglobin, increased jaundice (yellowing of skin/eyes due to bilirubin buildup), and sometimes dark urine. Can be triggered by infections or certain drugs.

5. Acute Chest Syndrome (ACS): A serious lung-related complication, often triggered by infection or vaso-occlusion in the lungs. Characterized by chest pain, fever, cough, rapid breathing, and new infiltrate (shadow) on a chest X-ray. It is a leading cause of death in adults with sickle cell disease.

6. Priapism: A persistent, painful erection of the penis caused by sickled red blood cells trapping blood in the erectile tissue. Requires prompt medical attention to prevent long-term damage.

7. Stroke (Cerebrovascular Accident): Sickled cells can block blood vessels in the brain, leading to a stroke. More common in children with sickle cell disease.

History Taking: Details of current pain (onset, location, severity using an age-appropriate pain scale), recent illnesses, fluid intake, activity level, home medications, previous crises, and known triggers.

Physical Examination: Vital signs (temperature, pulse, respiration, blood pressure, oxygen saturation), assessment of hydration status, examination of painful areas, check for signs of infection, pallor, jaundice, spleen size (if palpable), respiratory assessment (for ACS).

Baseline Investigations: - Full Blood Count (FBC) with reticulocyte count: To assess hemoglobin level, white cell count (for infection), platelet count, and bone marrow response. Blood group and cross-match: If transfusion might be needed. Inflammatory markers: C-Reactive Protein (CRP) if infection is suspected. Urine analysis: To check for infection or dehydration. Chest X-ray: If respiratory symptoms or fever, to rule out Acute Chest Syndrome. Blood cultures: If febrile or signs of sepsis.

1. Pain Management (Priority): - Assess pain regularly using an appropriate scale (e.g., FACES scale, numeric scale). Administer analgesics promptly and adequately. Start with non-opioids (e.g., paracetamol, ibuprofen if no contraindication). If pain is moderate to severe, opioids (e.g., morphine, pethidine) are often necessary. Administer via IV, IM, or oral route as prescribed, often on a regular schedule rather than just "as needed" initially during severe crisis. Patient-Controlled Analgesia (PCA) can be used in older children. Monitor for side effects of opioids (e.g., drowsiness, constipation, nausea) and manage them. Non-pharmacological methods: Warm compresses/packs to painful areas (avoid cold as it can worsen sickling), distraction techniques (games, reading, music), comfortable positioning.

2. Hydration: - Encourage liberal oral fluid intake if tolerated. Administer Intravenous (IV) fluids if unable to drink enough, vomiting, or severely ill. Maintenance fluids (e.g., Dextrose-Saline) are often given at 1 to 1.5 times the usual maintenance rate to ensure good hydration and reduce blood viscosity. Avoid overhydration. Monitor fluid balance (intake/output chart).

3. Oxygen Therapy: Administer oxygen via nasal prongs or mask if oxygen saturation (SpO2) is low (e.g., <94-95%) or if there are signs of respiratory distress or Acute Chest Syndrome.

4. Treatment of Precipitating Factors/Infections: If an infection is suspected or confirmed (e.g., fever, high WBC count), administer empirical broad-spectrum antibiotics as prescribed until culture results are available, then adjust as needed.

5. Monitoring for Complications: - Acute Chest Syndrome: Monitor respiratory rate, effort, oxygen saturation, listen for abnormal breath sounds, observe for chest pain. Stroke: Monitor neurological status (level of consciousness, limb weakness, speech changes). Splenic Sequestration: Monitor for sudden pallor, abdominal distension, rapid drop in Hb, signs of shock (in younger children primarily). Aplastic Crisis: Monitor Hb and reticulocyte count. Priapism: Ask about and assess if relevant.

6. Blood Transfusion: May be indicated for severe anemia (e.g., Hb <5-6 g/dL or a significant drop from baseline), aplastic crisis, splenic sequestration, Acute Chest Syndrome, or pre-operatively. Simple top-up transfusion or exchange transfusion might be considered depending on the situation.

7. Folic Acid Supplementation: Patients with sickle cell disease have increased red blood cell turnover and require folic acid for new red blood cell production. Ensure continued supplementation.

8. Comfort Measures: Ensure a comfortable environment, quiet rest periods, age-appropriate activities for distraction.

9. Psychological Support: Provide emotional support to the child and family. Explain procedures and progress. Involve child life specialists if available.

10. Education (for child and family): Reinforce knowledge about sickle cell disease, triggers for crises, importance of hydration, regular clinic visits, and when to seek medical attention.

11. Prophylactic Penicillin (if applicable): Ensure the child is on prophylactic penicillin if they are under 5 years old or have had a splenectomy, to prevent severe pneumococcal infections.

12. Hydroxyurea (if on this therapy): Continue if the child is already on hydroxyurea therapy, unless contraindicated by acute illness.

Criteria for Discharge: Pain well-controlled with oral analgesia, afebrile, adequate oral intake, stable hemoglobin, any identified trigger treated, child and family comfortable with home management plan.

Discharge Medications: Ensure clear instructions for oral pain relief, continuation of folic acid, and any other prescribed medications.

Education on Preventing Future Crises: Reinforce advice on maintaining good hydration, avoiding known triggers (cold, stress, overexertion), prompt treatment of infections, and regular medical follow-up.

When to Return/Seek Urgent Care: Clear instructions on warning signs (e.g., fever, severe pain not relieved by home medication, breathing difficulty, sudden pallor, neurological changes).

Follow-up Appointment: Schedule a follow-up appointment at the sickle cell clinic.

Question 2

MBALE SCHOOL OF NURSING AND MIDWIFERY - NO.32

- Define nephritic syndrome.

- Outline signs and symptoms of nephritic syndrome.

- How would you manage a patient admitted with nephritic syndrome in pediatric ward?

ANSWER: Examination Script

Nephritic syndrome is a collection of signs and symptoms that occur as a result of inflammation of the glomeruli (glomerulonephritis) in the kidneys. This inflammation damages the glomerular capillaries, leading to their increased permeability to red blood cells and protein, and a decrease in the kidney's ability to filter waste products from the blood. It is distinct from nephrotic syndrome, although some conditions can have features of both.

1. Hematuria (Blood in Urine): This is a hallmark sign. Urine may appear cola-colored, tea-colored, reddish-brown, or frankly bloody (gross hematuria). Microscopic hematuria (blood cells visible only under a microscope) is also common. Caused by damage to glomerular capillaries allowing red blood cells to leak into the urine.

2. Edema (Swelling): Mild to moderate swelling, often starting around the eyes (periorbital edema, especially in the morning) and in the lower extremities (ankles, legs). Caused by salt and water retention due to reduced kidney function and some protein loss.

3. Hypertension (High Blood Pressure): Elevated blood pressure is common due to fluid retention and impaired kidney regulation of blood pressure.

4. Oliguria (Reduced Urine Output): Decreased urine volume due to reduced glomerular filtration rate (GFR).

5. Proteinuria (Protein in Urine): Presence of protein in the urine, but usually less severe than in nephrotic syndrome (typically <3.5 grams/day in adults, or a lower threshold in children). Urine may appear foamy.

6. Azotemia (Elevated Blood Urea Nitrogen - BUN and Creatinine): Impaired kidney function leads to the accumulation of nitrogenous waste products in the blood.

7. General Symptoms: - Malaise and fatigue (feeling unwell and tired). Headache (often related to hypertension). Anorexia (loss of appetite), nausea, and sometimes vomiting. Abdominal or flank pain (less common).

8. Signs of Underlying Cause: Symptoms may also relate to the specific cause of nephritic syndrome (e.g., recent sore throat or skin infection in post-streptococcal glomerulonephritis, rash in Henoch-Sch nlein purpura).

History: Recent infections (streptococcal throat/skin infection), family history of kidney disease, previous episodes.

Physical Examination: Vital signs (especially BP), weight, assess for edema (location, severity), signs of fluid overload (e.g., crackles in lungs), skin rash.

Investigations: - Urinalysis: For hematuria, proteinuria, red blood cell casts. Blood Tests: FBC, Urea, Electrolytes & Creatinine (UEC/RFTs), C3/C4 complement levels (often low in post-infectious GN), Antistreptolysin O titre (ASOT) if post-streptococcal GN suspected. Throat/Skin Swab: If recent infection suspected. Renal Ultrasound: To assess kidney size and rule out other structural abnormalities. Kidney Biopsy: May be needed if the cause is unclear, severe, or not improving, to guide specific treatment.

1. Monitoring: - Strict Fluid Balance Charting: Accurate recording of all intake (oral, IV) and output (urine, vomitus). Daily Weights: To monitor fluid status. Regular Blood Pressure Monitoring: Frequently, especially if hypertensive. Monitor for signs of complications: Worsening edema, respiratory distress (fluid overload), neurological changes (hypertensive encephalopathy).

2. Fluid Management: Fluid restriction may be necessary if edema or oliguria is significant, based on urine output and insensible losses.

3. Dietary Management: - Salt (Sodium) Restriction: To help control edema and hypertension. Potassium Restriction: If hyperkalemia (high potassium) is present due to renal impairment. Protein Restriction: May be considered in severe renal impairment, but usually adequate protein for growth is encouraged in children once stable. Ensure adequate calorie intake for growth and recovery.

4. Management of Hypertension: - Antihypertensive medications as prescribed (e.g., diuretics like furosemide, calcium channel blockers like nifedipine, ACE inhibitors if proteinuria is significant and renal function allows though caution in acute phase). Monitor BP response closely.

5. Treatment of Underlying Cause: - Post-Streptococcal Glomerulonephritis (PSGN): Antibiotics (e.g., penicillin) to eradicate any residual streptococcal infection (though this doesn't usually alter the course of established PSGN, it prevents spread). Other causes: Specific treatment based on the diagnosed condition (e.g., immunosuppressants for certain types of autoimmune glomerulonephritis).

6. Management of Edema: Diuretics (e.g., furosemide) may be prescribed if edema is severe or causing respiratory distress. Salt and fluid restriction.

7. Bed Rest: During the acute phase with significant edema or hypertension, bed rest may be encouraged, with gradual return to activity as condition improves.

8. Prevention of Infections: Maintain good hygiene. Monitor for signs of new infections.

9. Psychological Support: Provide support and education to the child (age-appropriately) and family. Address anxiety and concerns.

10. Dialysis (Rarely): In cases of severe acute kidney injury with complications like severe fluid overload, hyperkalemia, or uremia, dialysis may be required temporarily.

Education: Teach family about the condition, dietary restrictions (if any), medication administration, signs of recurrence or complications to watch for.

Follow-up: Schedule regular follow-up appointments for monitoring blood pressure, urine, and kidney function. Long-term follow-up is often necessary.

Activity: Advise on gradual return to normal activities, including school.

Question 3

INTERNATIONAL INSTITUTE OF HEALTH SCIENCE JINJA - NO.33

- What is congenital toxoplasmosis?

- Outline signs and symptom of a patient admitted with suspected congenital toxoplasmosis.

- Describe the management criteria of such patient admitted in pediatric ward till discharge.

ANSWER: Examination Script

Congenital toxoplasmosis is an infection that occurs in an infant (fetus or newborn) when the parasite Toxoplasma gondii is transmitted from an infected mother to her unborn child during pregnancy (transplacental transmission). This usually happens if the mother acquires a primary (new) Toxoplasma infection during pregnancy or, much less commonly, if a latent (dormant) maternal infection reactivates due to severe immunosuppression. The consequences for the infant can range from asymptomatic infection to severe, life-threatening disease affecting the brain, eyes, and other organs.

Classic Triad (rarely all present together): - Chorioretinitis: Inflammation of the choroid and retina of the eye, which can lead to vision impairment or blindness. Often bilateral. Hydrocephalus: Accumulation of cerebrospinal fluid (CSF) in the brain, leading to an enlarged head and increased intracranial pressure. Intracranial Calcifications: Scattered deposits of calcium in the brain tissue, visible on imaging studies.

Neurological Manifestations: - Seizures (convulsions). Microcephaly (abnormally small head) or macrocephaly (abnormally large head, often due to hydrocephalus). Developmental delay, intellectual disability. Motor abnormalities (e.g., abnormal muscle tone, cerebral palsy-like symptoms). Hearing loss (sensorineural). Abnormal CSF findings (e.g., increased protein, pleocytosis).

Ocular (Eye) Manifestations (besides chorioretinitis): - Strabismus (crossed eyes). Nystagmus (involuntary eye movements). Cataracts, glaucoma (less common). Vision loss of varying degrees.

Systemic (Generalized) Manifestations in Newborns (often indicates severe infection): - Fever or hypothermia. Jaundice (yellowing of skin and eyes). Hepatosplenomegaly (enlarged liver and spleen). Rash (maculopapular). Lymphadenopathy (swollen lymph nodes). Anemia (low red blood cell count). Thrombocytopenia (low platelet count), which can cause bleeding or bruising. Pneumonitis (inflammation of the lungs). Myocarditis (inflammation of the heart muscle - rare).

Late-Onset Manifestations (can appear months or years later if asymptomatic at birth): - Learning disabilities, intellectual disability. Vision problems (new or worsening chorioretinitis). Hearing loss. Seizures.

Serological Tests: Detecting Toxoplasma-specific IgM, IgA, and IgG antibodies in the infant's blood. Comparing infant's antibody profile to the mother's can help confirm congenital infection. Persistence of IgG beyond 12 months is indicative.

PCR (Polymerase Chain Reaction): To detect T. gondii DNA in CSF, blood, or urine.

Imaging: - Cranial Ultrasound, CT scan, or MRI: To look for hydrocephalus, intracranial calcifications, or other brain abnormalities.

Ophthalmological Examination: By an ophthalmologist to detect chorioretinitis or other eye problems.

Auditory (Hearing) Evaluation: To assess for hearing loss.

Lumbar Puncture: To analyze CSF for signs of infection (protein, cells, PCR for Toxoplasma DNA).

1. Antiparasitic Medication: The standard treatment for symptomatic infants and often for asymptomatic infants with confirmed infection to reduce risk of later complications. Usually continued for 12 months. Pyrimethamine: An antimalarial drug that also acts against Toxoplasma. Sulfadiazine: An antibiotic (sulfa drug). Folinic Acid (Leucovorin): Given concurrently with pyrimethamine to prevent bone marrow suppression (a side effect of pyrimethamine). Alternative regimens: May include clindamycin or azithromycin in certain situations or if allergies/intolerance to standard drugs.

2. Corticosteroids (e.g., Prednisolone): May be added to the antiparasitic regimen if there is active chorioretinitis threatening vision or if CSF protein is very high, to reduce inflammation. Used with caution and under specialist guidance.

3. Management of Complications: - Hydrocephalus: May require neurosurgical intervention (e.g., ventriculoperitoneal shunt placement). Seizures: Anticonvulsant medication. Vision Impairment: Management by ophthalmologist, possibly including visual aids or special education. Hearing Loss: Hearing aids, speech therapy, special education.

4. Monitoring During Treatment: - Regular Blood Counts: Monitor for bone marrow suppression (anemia, neutropenia, thrombocytopenia) due to pyrimethamine. Adjust folinic acid as needed. Ophthalmological Follow-up: Regular eye exams to monitor chorioretinitis and visual acuity. Neurological and Developmental Assessments: Monitor for developmental milestones, neurological signs, and seizures. Hearing Tests: Periodic audiological assessments. Liver Function Tests: If certain alternative drugs are used.

5. Nutritional Support: Ensure adequate nutrition for growth and development, especially if there are feeding difficulties.

6. Supportive Nursing Care: Maintain comfort, monitor vital signs, administer medications correctly, support family, educate parents about the condition and treatment.

7. Prevention of Further Transmission (from mother if applicable): While the infant is already infected, understanding maternal status is important for future pregnancies.

Clinical Stability: Infant is medically stable, feeding well, no acute complications requiring inpatient care.

Treatment Plan Established: Oral medication regimen initiated and tolerated. Parents are competent in administering medications and understand the schedule.

Parental Education: Comprehensive education provided to parents regarding the disease, long-term treatment (typically 1 year), importance of adherence, potential side effects of medications, signs of complications to watch for, and the need for regular, long-term follow-up.

Follow-up Appointments Scheduled: Appointments made with pediatrician, ophthalmologist, neurologist, audiologist, and any other relevant specialists.

Support Systems: Ensure family has access to necessary support (social work, community health nurse if available).

Long-Term Surveillance: Emphasize that even if treated, long-term monitoring for visual, auditory, neurological, and developmental problems is crucial, as new issues can arise later in childhood.

Question 4

IUIU SCHOOL OF NURSING AND NURSING-MBALE - NO.34

- What are lifestyle diseases?

- Explain four types of diseases.

- Describe the natural history and spectrum of disease.

ANSWER: Examination Script

Lifestyle diseases (also known as diseases of longevity or diseases of civilization) are ailments that are primarily caused or exacerbated by the day-to-day habits, behaviors, and environmental factors associated with an individual's way of life. These diseases are often chronic (long-lasting) and non-communicable (not passed from person to person directly). Key contributing lifestyle factors include unhealthy diets (high in processed foods, fats, sugar, salt), physical inactivity, tobacco use, excessive alcohol consumption, chronic stress, and inadequate sleep.

1. Infectious (Communicable) Diseases: Caused by pathogenic microorganisms, such as bacteria, viruses, fungi, or parasites, that can be spread, directly or indirectly, from one person or organism to another, or from the environment.Examples: Influenza (flu), tuberculosis (TB), malaria, HIV/AIDS, measles, cholera, COVID-19.Management: Often involves antimicrobial drugs, vaccines for prevention, public health measures to control spread (e.g., hygiene, quarantine).

2. Non-Communicable Diseases (NCDs) / Chronic Diseases: Diseases that are not primarily caused by an acute infection, typically have a long duration, and progress slowly. Many lifestyle diseases fall into this category. Often result from a combination of genetic, physiological, environmental, and behavioral factors.Examples: Cardiovascular diseases (heart attack, stroke), cancer, chronic respiratory diseases (COPD, asthma), diabetes, Alzheimer's disease, arthritis.Management: Focuses on long-term management, lifestyle modifications, medication to control symptoms and slow progression, and prevention of complications.

3. Genetic (Hereditary) Diseases: Caused by abnormalities in an individual's genetic material (genes or chromosomes) that are inherited from parents or occur as new mutations.Examples: Sickle cell anemia, cystic fibrosis, Down syndrome, Huntington's disease, muscular dystrophy.Management: Often involves managing symptoms, preventing complications, genetic counseling. Gene therapy is an emerging area of research.

4. Deficiency Diseases: Caused by a lack or insufficiency of essential nutrients (vitamins, minerals, proteins, etc.) in the diet, or by the body's inability to absorb or utilize these nutrients.Examples: Scurvy (vitamin C deficiency), rickets (vitamin D deficiency), pellagra (niacin deficiency), iron-deficiency anemia, kwashiorkor (protein deficiency).Management: Involves dietary supplementation with the missing nutrient(s) and nutritional education.

(Another type often mentioned) 5. Injury-Related Conditions / Traumatic Diseases: Caused by physical trauma or injury from external forces.Examples: Fractures, burns, head injuries, wounds from accidents, violence, or falls.Management: Varies greatly depending on the injury, often involving first aid, surgical repair, rehabilitation.

1. Stage of Susceptibility (Pre-pathogenesis Phase): This is the period before the disease process begins. The individual is at risk of developing the disease due to various factors (risk factors) like genetic predisposition, environmental exposures, or lifestyle choices. No disease is present yet.Primary prevention efforts (e.g., vaccination, health education, promoting healthy lifestyles) are aimed at this stage to reduce susceptibility or prevent exposure.

2. Stage of Subclinical Disease (Pathogenesis Phase - Presymptomatic): The disease process has started (pathological changes are occurring in the body due to exposure to a causative agent or risk factor), but the individual does not yet experience any signs or symptoms. The disease is "silent" but detectable through screening tests.Secondary prevention efforts (e.g., screening tests like mammograms for breast cancer, Pap smears for cervical cancer, blood pressure checks) are aimed at this stage to detect the disease early and intervene to slow or halt its progression.

3. Stage of Clinical Disease (Pathogenesis Phase - Symptomatic): Sufficient pathological changes have occurred for the disease to manifest with recognizable signs and symptoms. The individual is now aware they are sick and usually seeks medical care. The disease can range from mild to severe.Tertiary prevention efforts (e.g., medical treatment, rehabilitation) are primarily aimed at this stage to reduce the impact of the disease, prevent complications, and improve quality of life.

4. Stage of Resolution, Disability, or Death (Outcome Stage): This is the final outcome of the disease process. Possible outcomes include: Resolution/Recovery: The patient returns to their previous state of health, either completely or with some residual effects. Disability/Impairment: The disease leaves the patient with some level of long-term functional limitation or disability. Chronicity: The disease becomes a long-term, chronic condition requiring ongoing management. Death: The disease leads to mortality.Tertiary prevention continues in this stage to limit disability and promote rehabilitation.

Concept: The spectrum of disease refers to the idea that a single disease agent or condition can produce a wide range of clinical manifestations and severities in different individuals. Not everyone exposed to a pathogen or risk factor will develop the same form or severity of illness.

Range of Manifestations: The spectrum can range from: Asymptomatic (Subclinical) Infection/Condition: The individual is infected or has the condition but shows no noticeable signs or symptoms. They may still be able to transmit an infectious agent. Mild Illness: Minor, often self-limiting signs and symptoms. Moderate Illness: More significant signs and symptoms that may require medical attention but are not usually life-threatening. Severe Illness: Serious, debilitating signs and symptoms, often requiring hospitalization and intensive treatment, with a risk of complications or death. Fatal Outcome: The disease leads to death.

"Iceberg Concept" of Disease: This concept illustrates the spectrum. The "tip of the iceberg" represents clinically apparent cases (diagnosed and symptomatic). Below the waterline are the much larger numbers of subclinical infections, undiagnosed cases, or carriers who may not seek medical attention but can still contribute to disease transmission or develop overt disease later.

Factors Influencing the Spectrum: Include host factors (age, genetics, immune status, nutritional status, pre-existing conditions), agent factors (virulence, dose of pathogen), and environmental factors.

Importance: Understanding the spectrum of disease is crucial for public health planning, disease surveillance (as many cases may go undetected), and designing effective control and prevention strategies.

Question 5

BUGONGI SCHOOL OF NURSING AND MIDWIFERY - NO.35

Baby BOSCO 3years old has been brought to young child clinic.

- Assess the nutritional status of baby BOSCO.

- Describe the management of a 3year old baby diagnosed of severe acute malnutrition from admission to discharge.

ANSWER: Examination Script

1. Anthropometric Measurements: These are physical measurements of the body. Weight: Measure accurately using a calibrated scale (e.g., Salter scale, digital scale). Compare to standard weight-for-age charts or Z-scores (WHO growth standards). Height/Length: Measure accurately. For a 3-year-old, standing height is usually measured. Compare to standard height-for-age charts or Z-scores. Weight-for-Height (WFH) or Body Mass Index (BMI)-for-Age: These are key indicators of acute malnutrition (wasting). WFH Z-score WFH Z-score BMI-for-age Z-score Mid-Upper Arm Circumference (MUAC): Measured using a special tape. MUAC MUAC 11.5 cm to Head Circumference: Less indicative of acute nutritional status but important for overall growth and development monitoring. Skinfold Thickness (e.g., triceps): Measures subcutaneous fat, but less commonly used in routine clinic settings for acute malnutrition diagnosis.

2. Biochemical Tests (Laboratory Tests - if indicated and available): - Hemoglobin (Hb): To check for anemia, which often coexists with malnutrition. Serum Albumin or Prealbumin: Can indicate protein status, though albumin is also affected by inflammation. Electrolytes: To check for imbalances, especially if there's diarrhea or dehydration. Blood Glucose: To rule out hypoglycemia, common in SAM. Tests for Co-existing Infections: E.g., HIV test (with consent), malaria test, stool for parasites, TB screening if indicated by symptoms.

3. Clinical Examination and Signs: Look for physical signs of malnutrition and related complications. Presence of Bilateral Pitting Edema: Check feet, ankles, legs, and sometimes hands and face. Any degree of nutritional edema automatically classifies the child as having SAM (kwashiorkor or marasmic-kwashiorkor). General Appearance: Lethargy, apathy, irritability, muscle wasting (visible loss of muscle mass, especially in buttocks and thighs), loss of subcutaneous fat (making skin appear loose or wrinkled). Hair Changes: Thin, sparse, brittle, easily pluckable, loss of color (flag sign - alternating bands of light and dark hair) in severe protein deficiency. Skin Changes: Dry, flaky skin; "flaky paint" dermatosis (patches of dark, peeling skin, often over pressure areas) in kwashiorkor; skin lesions or infections. Eye Signs: Pale conjunctiva (anemia), signs of Vitamin A deficiency (Bitot's spots, xerophthalmia). Mouth Signs: Angular stomatitis (cracks at corners of mouth), glossitis (inflamed tongue), pale mucous membranes. Signs of Dehydration: Sunken eyes, dry mouth, loss of skin elasticity, lethargy. Signs of Infection: Fever, cough, rapid breathing, diarrhea, ear discharge. Appetite Test: For children with SAM without medical complications, an appetite test using Ready-to-Use Therapeutic Food (RUTF) can help determine if they can be managed as outpatients.

4. Dietary History and Feeding Practices: Inquire from the caregiver. Breastfeeding History: Duration of exclusive and continued breastfeeding. Complementary Feeding: Age of introduction, types of foods given, frequency, quantity, quality (diversity of diet). Current Diet: What has Baby Bosco been eating recently? Any appetite changes? Food Security at Home: Does the family have enough food? Feeding Practices During Illness: Is food withheld during illness?

5. Social and Environmental History: Family situation, sanitation, access to clean water, immunization status, recent illnesses in the family.

1. Treat/Prevent Hypoglycemia: Check blood sugar on admission. If low (<3 mmol/L or <54 mg/dL) or signs present, give 10% glucose/sucrose solution orally or by NG tube, then start frequent small feeds (e.g., F-75 therapeutic milk every 2-3 hours, day and night).

2. Treat/Prevent Hypothermia: Keep the child warm (axillary temp >36.5 degC). Use blankets, skin-to-skin contact with mother if possible, avoid drafts. Monitor temperature regularly.

3. Treat/Prevent Dehydration: Assess for dehydration carefully (signs can be misleading in SAM). If signs of dehydration (but not shock), give ReSoMal (Rehydration Solution for Malnutrition) orally or by NG tube, slowly. Avoid standard ORS initially due to high sodium content.If in shock (lethargy, cold extremities, weak/fast pulse): Give IV fluids cautiously (e.g., half-strength Darrow's with 5% Dextrose or Ringer's Lactate with 5% Dextrose). Monitor closely for fluid overload.

4. Correct Electrolyte Imbalances: F-75 and ReSoMal are formulated to help correct electrolyte imbalances (especially potassium and magnesium deficiency). Do not give diuretics for edema in SAM.

5. Treat/Prevent Infection: - Give broad-spectrum antibiotics routinely on admission to all children with complicated SAM (e.g., amoxicillin or ampicillin + gentamicin) as signs of infection can be masked. Treat specific infections (e.g., pneumonia, UTI, malaria, skin infections) as identified. Measles vaccine if child is >=6 months and not vaccinated or status unknown (give when stable).

6. Micronutrient Supplementation (Cautiously in Phase 1): - Vitamin A: Give on day 1 (age-appropriate dose). Folic Acid: Daily. Zinc: Supplementation usually starts in rehabilitation phase or once diarrhea improves. DO NOT give Iron in Phase 1 (can worsen infections). Start iron in Rehabilitation Phase.

7. Initiate Cautious Feeding (F-75): Start with F-75 therapeutic milk (low protein, low sodium, low osmolarity). Give small, frequent feeds (e.g., every 2-3 hours, including at night) to minimize stress on the gut and metabolic system. Calculate volume based on weight (e.g., 100-130 ml/kg/day or 80-100 kcal/kg/day). Monitor for tolerance (vomiting, diarrhea, increasing edema).

8. Provide Sensory Stimulation and Emotional Support: Tender loving care, play therapy (age-appropriate) as condition allows. Involve mother/caregiver in care.

Gradual change from F-75 to F-100 or RUTF: Monitor tolerance as feed volume and energy density increase.

1. Introduce Catch-Up Feeds: - Switch to F-100 therapeutic milk or Ready-to-Use Therapeutic Food (RUTF like Plumpy'Nut). These are higher in energy and protein. Offer frequent, large feeds as tolerated (ad libitum for RUTF). Aim for high energy intake (e.g., 150-220 kcal/kg/day) and weight gain (e.g., >5-10 g/kg/day). Continue breastfeeding if child is still breastfed.

2. Continue Micronutrient Supplementation: Add Iron supplementation daily. Continue Vitamin A (if not completed), Folic Acid, and start Zinc. Therapeutic milks and RUTF often contain micronutrients.

3. Encourage Play and Sensory Stimulation: Structured play therapy to promote emotional and developmental catch-up.

4. Prepare for Discharge: - Educate caregiver on continued feeding with energy-dense foods, appropriate complementary feeding for age, hygiene, and recognizing danger signs. Ensure immunizations are up to date. Link to outpatient therapeutic feeding programs (OTP) or supplementary feeding programs (SFP) if available for continued support.

Medical Complications Resolved.

Good Appetite and Tolerating RUTF/F-100 well.

Significant Reduction or Resolution of Edema (if present initially).

Consistent Weight Gain: e.g., achieving target weight for height (e.g., WFH Z-score > -2 or > -1 depending on protocol) or sustained good weight gain for a set period. MUAC > 12.5 cm.

Caregiver is confident and able to continue care at home.

Follow-up plan is in place.

Question 6

IGANGA SCHOOL OF NURSING AND MIDWIFERY NDEJE CAMPUS - NO.36

- Define the term Broncho pulmonary dysplasia .

- Outline 8 causes of Broncho pulmonary dysplasia.

- Describe the management of a one-week old baby who presents with Broncho pulmonary dysplasia until discharge.

ANSWER: Examination Script

Bronchopulmonary Dysplasia (BPD), also known as Chronic Lung Disease of Prematurity, is a chronic lung condition that primarily affects premature infants who have received prolonged mechanical ventilation and oxygen therapy for respiratory distress syndrome (RDS) or other lung problems after birth. It is characterized by inflammation and scarring in the lungs, leading to impaired lung development, reduced number of alveoli (air sacs), and abnormal airway function, resulting in long-term breathing difficulties. The definition has evolved, with newer definitions focusing on the need for supplemental oxygen at specific postmenstrual ages (e.g., 36 weeks).

1. Prematurity / Low Birth Weight: This is the single most important risk factor. Lungs of premature infants are underdeveloped, with fewer alveoli and less surfactant (a substance that keeps air sacs open), making them susceptible to injury. The more premature the infant, the higher the risk.

2. Mechanical Ventilation (Ventilator-Induced Lung Injury): Prolonged use of mechanical ventilators, especially with high pressures (barotrauma) or large volumes (volutrauma), can damage delicate lung tissue and disrupt normal lung development.

3. Oxygen Toxicity (Hyperoxia): High concentrations of supplemental oxygen, while life-saving initially, can lead to the production of harmful free radicals that damage lung cells and cause inflammation over time.

4. Respiratory Distress Syndrome (RDS): Caused by surfactant deficiency in premature infants, RDS often necessitates mechanical ventilation and oxygen therapy, thereby increasing BPD risk.

5. Antenatal and Postnatal Infections/Inflammation: Maternal infections (chorioamnionitis) or postnatal infections (sepsis, pneumonia) in the infant can trigger inflammatory responses in the lungs, contributing to BPD development.

6. Patent Ductus Arteriosus (PDA): A persistent opening between the aorta and pulmonary artery (common in preemies) can lead to increased blood flow to the lungs (pulmonary overcirculation) and fluid buildup (pulmonary edema), potentially worsening lung injury.

7. Fluid Overload: Excessive administration of intravenous fluids can lead to pulmonary edema, making lung function worse and increasing the need for respiratory support.

8. Genetic Predisposition: Some infants may have a genetic susceptibility that makes them more prone to developing BPD when exposed to risk factors.

9. Poor Nutrition: Inadequate nutrition, especially in the early postnatal period, can impair lung growth and repair, increasing BPD risk. Vitamin A deficiency has been implicated.

10. Male Sex: Male premature infants appear to have a slightly higher risk of developing BPD compared to females.

1. Respiratory Support (Gentle Ventilation Strategies): - Goal: Maintain adequate oxygenation (e.g., SpO2 90-95%) and ventilation while minimizing ventilator-induced lung injury. Modes: Use less invasive modes of ventilation when possible (e.g., nasal CPAP, High Flow Nasal Cannula - HFNC) after extubation. If intubated: Use lung-protective strategies like low tidal volumes, appropriate PEEP (Positive End-Expiratory Pressure), permissive hypercapnia (allowing slightly higher CO2 levels if pH is acceptable) to reduce baro/volutrauma. Wean oxygen and ventilator support as tolerated, guided by blood gases and oxygen saturation.

2. Oxygen Therapy: Administer supplemental oxygen as needed to maintain target saturation levels. Use an oxygen blender to deliver precise concentrations. Avoid prolonged exposure to very high oxygen levels.

3. Fluid Management: Careful fluid balance is crucial. Mild fluid restriction may be necessary to prevent pulmonary edema, but avoid dehydration. Monitor daily weights, urine output, and electrolytes.

4. Nutritional Support: - Goal: Provide adequate calories, protein, and micronutrients for lung growth and overall development. Premature infants have high nutritional needs. Route: Enteral feeding (breast milk is preferred, fortified if needed, or preterm formula) via NG/OG tube or oral feeds if able. Parenteral nutrition (IV) if enteral feeds are not tolerated. Supplements: Vitamin A supplementation may be considered as it can reduce BPD risk.

5. Pharmacological Management (Medications): - Diuretics (e.g., Furosemide): May be used cautiously to manage fluid overload and pulmonary edema, but long-term use has side effects. Bronchodilators (e.g., Salbutamol): May provide short-term relief of bronchospasm in some infants, but routine use is not always recommended. Corticosteroids: Postnatal Systemic Steroids (e.g., Dexamethasone): May be considered in select high-risk infants to facilitate extubation and reduce inflammation, but use is controversial due to concerns about neurodevelopmental side effects. Used judiciously. Inhaled Corticosteroids: May be used to reduce airway inflammation, but evidence for long-term benefit in preventing or treating BPD is mixed. Caffeine Citrate: Used to treat apnea of prematurity and facilitate extubation; may also have some lung-protective effects. Antibiotics: Treat any suspected or confirmed infections promptly.

6. Monitoring: - Continuous cardiorespiratory monitoring (heart rate, respiratory rate, oxygen saturation). Regular blood gas analysis (arterial or capillary). Monitor for signs of infection, feeding intolerance, fluid overload. Growth monitoring (weight, length, head circumference). Chest X-rays as indicated to assess lung status.

7. Infection Prevention: Strict hand hygiene, aseptic techniques for procedures, minimize exposure to infections. Palivizumab prophylaxis for Respiratory Syncytial Virus (RSV) may be considered for high-risk infants upon discharge during RSV season.

8. Developmental Care: Minimize stress, provide appropriate positioning, reduce noxious stimuli (noise, light), encourage parental involvement (kangaroo care when stable).

Stable Respiratory Status: Off mechanical ventilation, stable on minimal or no supplemental oxygen, or on a manageable level of home oxygen.

Adequate Growth: Consistent weight gain on oral feeds.

Parent/Caregiver Education and Training: - Medication administration (if any). Use of home oxygen therapy and equipment, if needed. Recognition of respiratory distress and when to seek urgent medical attention. Feeding techniques to optimize intake and prevent aspiration. Infection prevention strategies at home (e.g., avoiding crowds, sick contacts, hand hygiene). CPR training for caregivers.

Home Environment Assessment: Ensure a safe home environment (e.g., smoke-free).

Multidisciplinary Follow-up Plan: Appointments with pediatrician/neonatologist, pulmonologist, developmental specialists, nutritionist, ophthalmologist, audiologist as needed. BPD infants require long-term follow-up for lung function, growth, and neurodevelopment.

Support Services: Connect family with community resources, support groups.

Question 7

FLORENCE NIGHTINGALE SCHOOL OF NURSING AND MIDWIFERY - NO.37

- Describe different types of fractures in children.

- Explain how home accidents can be prevented in your locality.

- Define congenital malformations.

- Explain the most common type s congenital malformations.

ANSWER: Examination Script

1. Greenstick Fracture: An incomplete fracture where the bone bends and cracks on one side but doesn't break completely through, similar to breaking a young, green stick. Common in long bones of children due to their softer, more pliable bones.

2. Torus (Buckle) Fracture: An incomplete fracture where one side of the bone buckles or bulges outwards without breaking the other side. Usually occurs at the metaphysis (the wider part at the end of long bones) due to compression forces. Common in the distal radius (forearm).

3. Bowing Fracture: The bone bends but doesn't show an obvious fracture line on X-ray. Occurs due to longitudinal compression, often in the ulna or fibula when the paired bone (radius or tibia) fractures.

4. Epiphyseal Plate (Physeal/Growth Plate) Fracture: A fracture that involves the growth plate, which is an area of growing cartilage at the ends of long bones in children. These are classified using the Salter-Harris classification system (Types I-V) based on the fracture line's relationship to the physis, epiphysis, and metaphysis. These fractures need careful management as they can affect future bone growth if not treated properly.

5. Complete Fracture: The bone breaks into two or more separate pieces. Types include: Transverse Fracture: Break is straight across the bone. Oblique Fracture: Break is at an angle across the bone. Spiral Fracture: Break spirals around the bone, often due to a twisting injury. This pattern can sometimes raise concern for non-accidental injury in young children. Comminuted Fracture: Bone breaks into three or more pieces (less common in children than adults).

6. Stress Fracture: Tiny cracks in the bone caused by repetitive force or overuse, often seen in young athletes.

7. Pathological Fracture: A fracture that occurs in a bone weakened by an underlying disease (e.g., bone cyst, tumor, osteogenesis imperfecta) with minimal or no trauma.

8. Toddler's Fracture: A non-displaced spiral or oblique fracture of the tibia (shin bone) in young children (typically 9 months to 3 years old) who are learning to walk. Often occurs from a minor fall or twisting injury. Child may limp or refuse to bear weight.

1. Raise Awareness and Education: Conduct community health talks, use local media (radio, posters), and involve community leaders to educate families about common home hazards and prevention strategies. Target parents, caregivers, and older children.

2. Prevent Falls: - Keep floors clear of clutter, toys, and spills. Use non-slip mats in bathrooms and on slippery floors. Install safety gates at the top and bottom of stairs for young children. Ensure stairs have handrails. Secure windows (especially upper-floor windows) with guards or locks to prevent children from falling out. Don't place climbable furniture near windows. Ensure good lighting in all areas, especially stairs and hallways. Supervise young children closely, especially around stairs, balconies, or when they are climbing.

3. Prevent Burns and Scalds: - Keep children away from open fires, stoves, hot liquids, and hot surfaces. Use back burners on stoves and turn pot handles inward. Store matches, lighters, and flammable liquids out of reach of children. Test bathwater temperature before putting a child in. Set water heater temperature to a safe level (e.g., below 49 degC/120 degF if possible). Be cautious with hot drinks around children. Avoid using tablecloths that young children can pull. Educate on fire safety and have a plan for escape in case of fire.

4. Prevent Poisoning: - Store all medicines, cleaning products, pesticides, kerosene, and other chemicals in their original containers, out of reach and sight of children, preferably in locked cupboards. Never store poisonous substances in food or drink containers. Dispose of unused or expired medications safely. Teach children not to eat or drink anything unless given by a trusted adult. Know local poison control numbers.

5. Prevent Drowning (especially for young children): - Supervise children constantly when near any water (bathtubs, buckets, basins, ponds, rivers). Empty water containers immediately after use. Cover wells, water storage tanks, and latrine pits securely. Teach children to swim if facilities are available, but supervision is still key.

6. Prevent Choking and Suffocation: - Keep small objects (coins, buttons, small toy parts, beads) out of reach of young children. Cut food for young children into small, manageable pieces. Supervise them during mealtimes. Ensure safe sleeping environments for infants (e.g., firm mattress, no loose bedding, no plastic bags nearby). Be cautious with plastic bags and cords (e.g., from blinds) which can be strangulation hazards.

7. Prevent Cuts and Punctures: Store sharp objects like knives, scissors, razor blades, and tools safely out of reach. Dispose of broken glass carefully.

8. Electrical Safety: Cover unused electrical sockets. Repair or replace frayed cords or faulty appliances. Keep electrical appliances away from water. Teach children about the dangers of electricity.

9. Promote Safe Storage of Tools and Equipment: Keep agricultural tools, heavy objects, or potentially dangerous equipment stored securely.

10. Community Efforts: Community clean-up campaigns to remove hazards. Advocate for safer playgrounds or recreational areas. Support local safety initiatives.

Congenital malformations are structural or functional abnormalities, including metabolic disorders, that are present at birth. They can be caused by genetic factors, environmental factors (like maternal infections, exposure to certain medications or toxins during pregnancy), nutritional deficiencies, or a combination of these, or sometimes the cause is unknown. These anomalies can affect any part of the body and can range from mild to severe and life-threatening.

1. Congenital Heart Defects (CHDs): These are structural problems with the heart present at birth. They are among the most common types of birth defects. Examples: Ventricular Septal Defect (VSD): A hole in the wall (septum) between the heart's lower chambers (ventricles). Atrial Septal Defect (ASD): A hole in the wall between the heart's upper chambers (atria). Patent Ductus Arteriosus (PDA): Failure of a fetal blood vessel (ductus arteriosus) to close after birth. Tetralogy of Fallot: A complex defect involving four heart abnormalities. Transposition of the Great Arteries: The aorta and pulmonary artery are switched. Coarctation of the Aorta: Narrowing of the aorta.Effects: Can range from asymptomatic to severe, causing cyanosis (bluish skin), poor feeding, rapid breathing, heart failure.

2. Neural Tube Defects (NTDs): Birth defects of the brain, spine, or spinal cord that occur early in pregnancy when the neural tube (which forms the early brain and spinal cord) doesn't close properly. Folic acid supplementation before and during early pregnancy significantly reduces the risk. Examples: Spina Bifida: Incomplete closing of the backbone and membranes around the spinal cord. Can cause paralysis, bowel/bladder problems. (Types include myelomeningocele, meningocele, spina bifida occulta). Anencephaly: Absence of a major portion of the brain, skull, and scalp. Usually fatal. Encephalocele: A sac-like protrusion of the brain and membranes through an opening in the skull.

3. Orofacial Clefts (Cleft Lip and/or Cleft Palate): Openings or splits in the upper lip (cleft lip), the roof of the mouth (cleft palate), or both. Occur when facial structures developing in an unborn baby don't close completely.Effects: Can cause feeding difficulties, speech problems, ear infections, dental problems. Correctable with surgery.

4. Chromosomal Abnormalities: Caused by an abnormal number of chromosomes or structural abnormalities in one or more chromosomes. Example: Down Syndrome (Trisomy 21): Caused by an extra copy of chromosome 21. Characterized by distinct facial features, intellectual disability, and often associated health problems (e.g., heart defects).Other examples: Edwards syndrome (Trisomy 18), Patau syndrome (Trisomy 13).

5. Musculoskeletal Defects / Limb Abnormalities: Abnormalities of the bones, muscles, or joints. Examples: Clubfoot (Talipes Equinovarus): Foot is twisted out of shape or position. Developmental Dysplasia of the Hip (DDH): The hip joint is improperly formed or the ligaments are too loose, allowing the femoral head to slip out of the socket. Polydactyly (extra fingers/toes), Syndactyly (fused fingers/toes). Amelia (absence of limb/s), Phocomelia (malformed limbs).

6. Gastrointestinal Tract Malformations: Structural abnormalities of the digestive system. Examples: Pyloric Stenosis: Narrowing of the opening from the stomach to the small intestine. Esophageal Atresia / Tracheoesophageal Fistula: Esophagus doesn't connect properly to the stomach or has an abnormal connection to the trachea. Hirschsprung's Disease: Missing nerve cells in parts of the colon. Imperforate Anus: Anal opening is missing or blocked. Omphalocele / Gastroschisis: Abdominal wall defects where intestines or other organs protrude outside the body.

7. Genitourinary Malformations: Abnormalities of the kidneys, bladder, ureters, urethra, or genitals. Examples: Hypospadias (urethral opening on underside of penis), epispadias, renal agenesis (missing kidney), polycystic kidney disease, hydronephrosis.

Question 8

MARACHA SCHOOL OF NURSING AND MIDWIFERY - NO.38

- Define home accidents.

- Outline common home accidents.

- Describe the preventive measures for home accidents.

ANSWER: Examination Script

Home accidents are unintentional (accidental) injuries that occur within the home (house or its immediate surroundings like the yard or compound). These events are typically sudden, unexpected, and can result in physical harm, disability, or even death to the occupants. They are a significant public health concern, especially for young children and older adults.

1. Falls: Most common type, affecting all ages but especially children and elderly. Can be from stairs, slippery floors, tripping over objects, falling from furniture/windows/balconies.

2. Burns and Scalds: - Burns: From contact with fire (open flames, stoves, matches, lighters), hot surfaces (irons, heaters), or electricity. Scalds: From hot liquids (boiling water, tea, coffee, soup, hot bathwater) or steam. Very common in young children.

3. Poisoning: Ingestion of, inhalation of, or skin contact with harmful substances. Common agents include: Medicines (accidental overdose or wrong medication, especially in children). Cleaning products (bleach, detergents, disinfectants). Pesticides, insecticides, rodenticides. Kerosene (paraffin) and other fuels. Poisonous plants or berries. Carbon monoxide (from faulty heaters, indoor charcoal stoves).

4. Choking and Suffocation/Strangulation: - Choking: Airway obstruction by food (especially small, round foods in children), small toys, coins, or other objects. Suffocation: Airway blocked externally, e.g., infants sleeping with soft bedding, plastic bags over head. Strangulation: Constriction of the neck, e.g., by cords (blinds, clothing), ropes, or getting trapped in cot bars.

5. Cuts and Punctures: From sharp objects like knives, scissors, broken glass, razor blades, tools, or sharp edges of furniture.

6. Drowning: Can occur in bathtubs, buckets of water, basins, swimming pools, ponds, or even toilets (for very young children).

7. Electrocution: Contact with faulty electrical appliances, frayed wires, or unsafe electrical outlets.

8. Struck by/Against Objects: Being hit by falling objects (e.g., from shelves), or bumping into furniture or sharp corners.

9. Foreign Bodies: Insertion of small objects into ears, nose, or swallowing them.

10. Animal Bites and Stings: From domestic pets (dogs, cats) or insects (bees, wasps, scorpions) found in or around the home.

11. Fire-Related Injuries (beyond burns): Smoke inhalation, injuries sustained while trying to escape a fire.

1. General Supervision: Especially for young children and frail elderly individuals. Never leave young children unattended.

2. Preventing Falls: Keep floors clear, use non-slip mats, install stair gates and handrails, secure windows, ensure good lighting, avoid unstable furniture.

3. Preventing Burns and Scalds: Keep children from kitchen when cooking, use back burners, turn pot handles in, store matches/lighters safely, check bathwater temperature, use socket covers on unused electrical outlets.

4. Preventing Poisoning: Store all chemicals, medicines, and hazardous substances out of reach and sight, preferably locked away. Keep them in original containers.

5. Preventing Drowning: Constant supervision near water, empty buckets/basins after use, cover water storage containers and wells.

6. Preventing Choking/Suffocation: Keep small objects away from young children, cut food appropriately, ensure safe sleep environment for infants (no loose bedding/plastic bags), secure cords.

7. Preventing Cuts: Store sharp items safely. Dispose of broken glass immediately and carefully.

8. Electrical Safety: Use socket covers, check cords for damage, keep appliances away from water, get professional help for electrical repairs.

9. Safe Storage: Store heavy items on lower shelves. Secure tall furniture to walls to prevent tipping.

10. Fire Safety: Install smoke detectors (and carbon monoxide detectors if using fuel-burning appliances). Have a fire escape plan. Be careful with candles and open flames.

11. Education and Awareness: Teach all family members, including older children, about home safety and what to do in an emergency.

12. First Aid Knowledge: Have a well-stocked first aid kit and know basic first aid for common injuries.

--- Paediatrics I ---

Question 9

HOIMA SCHOOL OF NURSING AND MIDWIFERY - NO.90

- State 5 ways of assessing nutritional status of children.

- Outline 10 signs and symptoms of severe acute malnutrition.

- Describe the management of a child with SAM admitted to your ward until discharge.

- List 5 complications of malnutrition.

ANSWER: Examination Script

1. Anthropometric Measurements: These are physical measurements of the child's body size and composition, compared to standard growth charts (e.g., WHO growth standards). Weight-for-age: Indicates if a child is underweight. Height/Length-for-age: Indicates stunting (chronic malnutrition). Weight-for-height/length (WFH/L): Indicates wasting (acute malnutrition). A Z-score Mid-Upper Arm Circumference (MUAC): A quick screening tool for acute malnutrition in children 6-59 months. MUAC Body Mass Index (BMI)-for-age: Used for older children and adolescents to assess underweight, overweight, or obesity. Head Circumference: Important for monitoring brain growth in early childhood.

2. Biochemical (Laboratory) Tests: These involve analyzing blood or urine samples to detect specific nutrient deficiencies or imbalances. Hemoglobin (Hb): To screen for iron-deficiency anemia. Serum Albumin or Prealbumin: To assess protein status (though influenced by infection/inflammation). Serum Ferritin, Transferrin Saturation: More specific tests for iron status. Vitamin and Mineral Levels: E.g., Vitamin A, Vitamin D, zinc, iodine levels can be measured if specific deficiencies are suspected. Blood Glucose: To check for hypoglycemia, especially in SAM.

3. Clinical Examination and Signs: A thorough physical examination to look for visible signs associated with malnutrition or specific nutrient deficiencies. General Appearance: Lethargy, apathy, irritability, visible wasting, edema. Skin Changes: Dryness, flaky paint dermatosis, pallor, bruising, poor wound healing. Hair Changes: Thinness, brittleness, color changes (e.g., flag sign). Eye Signs: Pale conjunctiva, Bitot's spots (Vitamin A deficiency), corneal xerosis. Mouth Signs: Angular stomatitis, glossitis, dental caries, swollen or bleeding gums. Musculoskeletal: Muscle wasting, bone deformities (e.g., rickets), delayed motor development. Edema: Bilateral pitting edema is a sign of SAM (kwashiorkor).

4. Dietary Assessment (History): Collecting information about the child's food intake and feeding practices to assess the adequacy and quality of their diet. 24-Hour Recall: Asking the caregiver to recall everything the child ate and drank in the previous 24 hours. Food Frequency Questionnaire (FFQ): Asks how often specific food groups or items are consumed over a period. Diet History: A more detailed interview about usual eating patterns, food preferences, allergies, cultural influences, and access to food. Observation of Feeding: If possible, especially for infants and young children, to assess breastfeeding techniques or caregiver-child interaction during feeding.

5. Environmental and Social Assessment: Considering factors in the child's environment that can influence nutritional status. Socioeconomic Status of the Family: Poverty, food security. Sanitation and Hygiene Practices: Access to clean water, latrines. Maternal Health and Education: Mother's nutritional status, knowledge of child feeding. Access to Healthcare and Immunization Status.

1. Severe Wasting (Marasmus): Visible severe loss of muscle and fat tissue, making the child look extremely thin ("skin and bones"). Ribs may be prominent, loose skin folds especially on buttocks and thighs. Weight-for-height/length Z-score < -3.

2. Nutritional Edema (Kwashiorkor or Marasmic-Kwashiorkor): Bilateral pitting edema (swelling, usually starting in the feet and legs, and can become generalized). This is an automatic sign of SAM, regardless of weight.

3. Very Low Mid-Upper Arm Circumference (MUAC): MUAC < 11.5 cm in children aged 6-59 months.

4. Apathy and Lethargy: The child may be listless, unresponsive, weak, and show little interest in their surroundings.

5. Irritability / Misery: Children with kwashiorkor are often very irritable, cry easily, and are unhappy.

6. Poor Appetite / Anorexia: Lack of interest in food, or inability to feed well. An appetite test is used to assess this.

7. Skin Changes: - Kwashiorkor: Flaky-paint dermatosis (patches of dark, peeling, or ulcerated skin), hypo- or hyper-pigmentation. Marasmus: Skin is often dry, thin, and wrinkled. Poor wound healing, increased susceptibility to infections.

8. Hair Changes: Hair may become thin, sparse, brittle, lose its curl, and change color (e.g., reddish or light-colored streaks - "flag sign"). Easily pluckable.

9. Signs of Associated Infections: Fever, cough, diarrhea, vomiting, hypothermia. SAM severely weakens the immune system, making children highly susceptible to infections which can be masked.

10. Hypoglycemia (Low Blood Sugar): Common and life-threatening, especially on admission. Child may be lethargic, unconscious, or have seizures.

11. Hypothermia (Low Body Temperature): Inability to maintain normal body temperature. Child feels cold to touch.

12. Dehydration and Electrolyte Imbalances: Often present, especially if there is diarrhea or vomiting, but signs can be difficult to assess accurately due to edema or wasting.

Phase 1: Stabilization (Initial treatment of life-threatening problems - typically first few days) - Treat/Prevent: Hypoglycemia, Hypothermia, Dehydration (using ReSoMal, IV if shocked), Electrolyte Imbalance. Treat/Prevent Infection: Routine broad-spectrum antibiotics. Cautious Micronutrient Supplementation: Vitamin A. (NO IRON in this phase). Initiate Cautious Feeding: Small, frequent feeds of F-75 therapeutic milk. Sensory Stimulation and Emotional Support.

Transition Phase (If applicable) - Gradual shift from F-75 to F-100 or RUTF.

Phase 2: Rehabilitation (Focus on catch-up growth) - Catch-up Feeds: F-100 or RUTF, aiming for high energy intake and weight gain. Full Micronutrient Supplementation: Including Iron. Encourage Play and Stimulation. Prepare for Discharge: Education, follow-up plan.

Discharge Criteria - Medical stability, good appetite, edema resolved, consistent weight gain (achieving target WFH/MUAC), caregiver competency, follow-up arranged.

1. Increased Susceptibility to Infections (Immunodeficiency): Malnutrition weakens the immune system, making children highly vulnerable to severe and recurrent infections (e.g., pneumonia, diarrhea, sepsis, measles, TB). Infections also worsen malnutrition, creating a vicious cycle.

2. Impaired Growth and Development: - Stunting (Chronic Malnutrition): Reduced linear growth (height-for-age), leading to a child being too short for their age. Wasting (Acute Malnutrition): Low weight-for-height, indicating recent and severe weight loss. Cognitive and Developmental Delays: Malnutrition, especially in early life, can irreversibly impair brain development, leading to learning disabilities, lower IQ, and reduced cognitive function. Motor development can also be delayed.

3. Micronutrient Deficiencies and Related Complications: Malnutrition often involves deficiencies of essential vitamins and minerals. Iron Deficiency Anemia: Leads to fatigue, weakness, impaired cognitive function. Vitamin A Deficiency: Can cause eye problems (xerophthalmia, night blindness, blindness) and increased severity of infections. Zinc Deficiency: Impairs immune function, growth, and wound healing; contributes to diarrhea. Iodine Deficiency: Can cause goiter and impair brain development (cretinism). Other deficiencies (e.g., Vitamin D leading to rickets, B vitamins) also cause specific problems.

4. Metabolic Disturbances: - Hypoglycemia (Low Blood Sugar): Common in SAM, can lead to brain damage or death if not treated promptly. Hypothermia (Low Body Temperature): Difficulty maintaining body temperature. Electrolyte Imbalances: Deficiencies or excesses of potassium, sodium, magnesium, phosphorus, which can affect heart, muscle, and nerve function. Fluid Imbalance / Edema: As seen in kwashiorkor.

5. Organ Dysfunction: Prolonged or severe malnutrition can affect the function of various organs. Gastrointestinal System: Atrophy of intestinal lining, malabsorption, increased gut permeability ("leaky gut"), leading to persistent diarrhea. Cardiovascular System: Reduced heart muscle mass, impaired cardiac function, increased risk of heart failure during refeeding if not done carefully. Liver: Fatty liver (steatosis) can occur, especially in kwashiorkor. Kidneys: Impaired ability to concentrate urine and regulate electrolytes.

6. Increased Mortality Risk: Children with severe malnutrition have a significantly higher risk of dying, especially if they develop infections or other complications.

7. Long-term Health Consequences: Malnutrition in early life can have lasting effects, increasing the risk of chronic diseases in adulthood (e.g., hypertension, diabetes, cardiovascular disease - related to fetal programming).

Question 10

UGANDA CHRISTIAN INSTITUTE LIRA - NO.91

- Outline five specific pre-referral actions of a nurse in health Centre 3 to do before referring a one year old child with general danger signs.

- Outline 10 important pieces of advice to share with mother of the above child on discharge from hospital.

ANSWER: Examination Script

1. Manage Airway and Breathing (if compromised): - Assess airway for obstruction, position child to maintain open airway (e.g., head tilt-chin lift, or recovery position if unconscious and breathing). If child has fast or difficult breathing or low oxygen saturation (if pulse oximeter available), administer oxygen via nasal prongs or catheter if available and indicated. If not breathing, initiate basic resuscitation (bag-mask ventilation if available and trained).

2. Treat/Prevent Hypoglycemia: If the child is lethargic, unconscious, or having convulsions (or if unable to feed), give a dose of 10% glucose solution (or sugar-salt solution if glucose not available) orally or by nasogastric (NG) tube. If unable to give enterally and IV access is possible, give IV glucose. This is crucial as hypoglycemia can cause brain damage.

3. Treat/Prevent Hypothermia or Manage Fever: - If child feels cold or temperature is low (If child has high fever (>38.5 degC or if very uncomfortable/history of febrile convulsions), give an age-appropriate dose of paracetamol. Tepid sponging can also be considered.

4. Administer First Dose of Appropriate Antibiotics (if sepsis or severe infection is suspected): If general danger signs are present, a serious bacterial infection is often suspected. According to IMNCI guidelines for severe illness, a first dose of an appropriate injectable broad-spectrum antibiotic (e.g., intramuscular ampicillin and gentamicin, or intramuscular ceftriaxone, depending on local protocols and availability) should be given before referral. This can be life-saving.

5. Manage Convulsions (if actively convulsing or recent history): If the child is convulsing, ensure airway is clear, protect from injury. Administer rectal diazepam according to age/weight guidelines. If IV access available, IV diazepam or lorazepam may be used by trained personnel.

(Additional important action) 6. Facilitate Rapid and Safe Transport: - Counsel the mother/caregiver on the seriousness of the condition and the need for urgent referral. Arrange transport quickly (e.g., ambulance if available, or help family find suitable transport). Write a clear referral note with assessment findings, treatments given, and reason for referral. Advise on keeping the child warm and continuing breastfeeding/feeding if possible during transport.

1. Complete All Prescribed Medications: Stress the importance of giving all medications exactly as prescribed by the doctor for the full duration, even if the child seems better. Explain what each medication is for in simple terms.

2. Ensure Adequate Nutrition and Continued Feeding: - Advise on providing a balanced, nutritious diet appropriate for a one-year-old (e.g., frequent, small, energy-dense meals including family foods, fruits, vegetables, proteins). If still breastfeeding, encourage continued breastfeeding on demand alongside complementary foods. Advise on increasing fluid intake, especially if the child had dehydration or fever.

3. Recognize Danger Signs for Urgent Return to Health Facility: Clearly explain the general danger signs again (inability to drink/breastfeed, vomiting everything, convulsions, lethargy/unconsciousness, fast/difficult breathing) and specific signs related to their recent illness. Emphasize seeking care immediately if any of these occur.

4. Maintain Good Personal and Environmental Hygiene: - Advise on regular handwashing with soap for both mother and child (especially before feeding/eating and after toilet use). Keeping the child and their surroundings clean to prevent infections. Safe disposal of child's feces.

5. Importance of Immunizations: Check the child's immunization card. Advise the mother to ensure all immunizations are up-to-date according to the national schedule to protect against common childhood illnesses. Explain the benefits.

6. Malaria Prevention (if in an endemic area): Advise on consistent use of insecticide-treated bed nets (ITNs) for the child and family. Clearing bushes around the home, and seeking prompt treatment for fever.

7. Deworming: Advise on regular deworming for the child (e.g., every 6 months after 1 year of age, as per local guidelines) to prevent worm infestations that can affect nutrition and health.

8. Vitamin A Supplementation: Advise on receiving Vitamin A supplements every 6 months (as per national schedule) to boost immunity and protect vision.

9. Attend Follow-up Appointments: Stress the importance of bringing the child for all scheduled follow-up visits at the clinic or hospital to monitor recovery and overall health.

10. Provide Love, Care, and Stimulation for Development: Encourage the mother to play with the child, talk to them, and provide a safe and stimulating environment to support their growth and development, especially after a serious illness.

11. Seek Early Treatment for Any New Illness: Advise the mother not to delay seeking care if the child becomes unwell again, even with seemingly minor symptoms.

12. Safe Water and Food Practices: Advise on using safe, clean water for drinking and preparing food. Proper cooking and storage of food.

Question 11

THE HARVEY SCHOOL OF NURSING AND MIDWIFERY - NO.92

- List 10 common neonatal infections.

- Outline 5 predisposing factors of neonatal infections.

- Outline the nursing interventions for a child with infected umbilical cord.

ANSWER: Examination Script

1. Neonatal Sepsis: A serious bloodstream infection. Can be early-onset (within 72 hours of birth, often from maternal organisms like Group B Streptococcus, E. coli) or late-onset (after 72 hours, often from hospital or community environment).

2. Pneumonia: Infection of the lungs. Can be acquired in utero, during birth (from aspiration of infected amniotic fluid or vaginal secretions), or postnatally. Common causes include GBS, E. coli, Klebsiella, Chlamydia trachomatis, RSV.

3. Meningitis: Inflammation of the membranes surrounding the brain and spinal cord. Often occurs with sepsis. Common causative organisms include GBS, E. coli, Listeria monocytogenes.

4. Omphalitis (Umbilical Cord Infection): Infection of the umbilical stump and/or surrounding tissues. Characterized by redness, swelling, pus, foul odor around the umbilicus. Can lead to sepsis if severe.

5. Conjunctivitis (Ophthalmia Neonatorum): Inflammation of the conjunctiva (eye lining). Commonly caused by Neisseria gonorrhoeae or Chlamydia trachomatis acquired during birth, or other bacteria/viruses postnatally.

6. Skin Infections (e.g., Pustulosis, Cellulitis): Bacterial infections of the skin, such as pustules (small pus-filled blisters) or cellulitis (spreading infection of skin and underlying tissues). Staphylococcus aureus is a common cause.

7. Urinary Tract Infection (UTI): Infection of the urinary system. More common in uncircumcised male infants or those with urinary tract abnormalities. E. coli is a frequent cause.

8. Gastroenteritis (Diarrheal Disease): Inflammation of the stomach and intestines leading to diarrhea and vomiting. Can be caused by viruses (e.g., rotavirus), bacteria (e.g., E. coli, Salmonella), or parasites.

9. Congenital Infections (TORCH infections): Acquired from the mother during pregnancy. Toxoplasmosis Other (Syphilis, Varicella-zoster, Parvovirus B19, Zika) Rubella Cytomegalovirus (CMV) Herpes Simplex Virus (HSV)

10. Neonatal Tetanus: Caused by Clostridium tetani, often due to unhygienic umbilical cord care practices (e.g., applying soil or dung to the stump) or unimmunized mothers. Characterized by muscle rigidity and spasms.

11. Oral Thrush (Oral Candidiasis): Fungal infection (Candida albicans) in the mouth, causing white patches.

12. Osteomyelitis and Septic Arthritis: Infection of the bone or joint, respectively, often resulting from bloodstream spread of bacteria.

1. Prematurity and Low Birth Weight: Premature infants have immature immune systems, thin skin, and often require invasive procedures (lines, ventilation), making them highly susceptible to infections. They also receive fewer protective antibodies from the mother.

2. Maternal Infections During Pregnancy or Labor: - Intrauterine infections (e.g., TORCH infections, chorioamnionitis). Maternal genital tract infections (e.g., Group B Streptococcus, E. coli, Gonorrhea, Chlamydia, HSV) can be transmitted to the baby during passage through the birth canal. Maternal fever during labor.

3. Prolonged Rupture of Membranes (PROM): If the amniotic sac ruptures more than 18-24 hours before delivery, there is an increased risk of ascending infection from the maternal genital tract to the fetus (chorioamnionitis).

4. Invasive Procedures and Hospitalization (Nosocomial Infections): Neonates, especially those in Neonatal Intensive Care Units (NICUs), undergo procedures like intubation, mechanical ventilation, insertion of intravenous lines, and urinary catheters, which breach natural defense barriers and increase infection risk from hospital-acquired pathogens.

5. Poor Hygiene and Umbilical Cord Care Practices: - Unhygienic delivery conditions. Improper handwashing by caregivers. Application of unsterile substances (e.g., dung, ash, soil) to the umbilical cord stump can lead to omphalitis and neonatal tetanus. Contaminated feeding equipment or formula (if not exclusively breastfed).

6. Lack of Maternal Immunization: If the mother is not immunized against diseases like tetanus or influenza, she cannot pass protective antibodies to the newborn.

7. Birth Asphyxia or Difficult Delivery: Stressful birth can compromise the neonate's immune defenses. Resuscitation procedures may also increase infection risk.

8. Congenital Anomalies: Certain birth defects, especially those affecting the urinary tract or skin integrity, can predispose to infection.

1. Assessment: - Inspect the umbilical stump and surrounding skin for signs of infection: redness, swelling, warmth, tenderness, pus discharge (yellowish, greenish, or foul-smelling), bleeding. Assess for systemic signs of infection: fever or hypothermia, lethargy, poor feeding, irritability, fast breathing, vomiting. Note any history of unhygienic cord care practices.

2. Local Cord Care and Cleaning: - Clean the infected area gently but thoroughly with an appropriate antiseptic solution (e.g., 70% alcohol, chlorhexidine solution, or as per local guidelines) several times a day. Use sterile gauze or cotton swabs. Remove any pus or debris carefully. Keep the cord stump dry and exposed to air as much as possible. Fold the diaper down below the stump. Avoid covering with tight dressings unless specifically indicated.

3. Administer Prescribed Antibiotics: - If omphalitis is mild (local redness only), topical antibiotics (e.g., mupirocin ointment) may be prescribed. If signs of more severe local infection (e.g., extensive redness, pus) or any systemic signs are present, systemic antibiotics (oral or intravenous, depending on severity) will be needed. Common choices include combinations effective against Staph aureus and Gram-negative bacteria (e.g., flucloxacillin + gentamicin, or as per local sensitivity patterns).

4. Monitor for Spread of Infection and Complications: Closely observe for worsening local signs or development of systemic signs (sepsis, cellulitis spreading up the abdomen, peritonitis, liver abscess, portal vein thrombosis). Report any deterioration immediately.

5. Maintain Hydration and Nutrition: Ensure the baby is feeding well (breast milk is ideal) and adequately hydrated. Monitor for signs of dehydration if there's fever or poor intake.

6. Pain Management: If the area is tender, provide gentle handling. Consider age-appropriate analgesia (e.g., paracetamol) if the baby seems in pain, as prescribed.

7. Temperature Control: Monitor temperature. Manage fever with antipyretics and tepid sponging if needed. Prevent hypothermia.

8. Health Education to Caregiver: - Teach proper cord care: Keep the stump clean and dry. Fold diaper below the stump. Do not apply any traditional substances. Demonstrate how to clean the infected cord and apply topical medication if prescribed. Explain the importance of completing the full course of antibiotics. Teach signs of worsening infection or danger signs requiring immediate return to the health facility. Emphasize handwashing before and after touching the baby or cord.

9. Documentation: Record all assessments, interventions, medications given, and the baby's response.

10. Follow-up: Ensure a follow-up appointment is scheduled to check for resolution of infection and proper healing.

Question 12

SOROTI SCHOOL OF COMPREHENSIVE NURSING AND MIDWIFERY - NO.93

- Briefly outline the 5 steps used in integrated case management of children (IMNCI).

- Mention 6 conditions that you will check before a child leaves IMNCI clinic.

- Explain how to assess for the general danger signs using IMNCI approach.

ANSWER: Examination Script

1. Assess the Child: The healthcare provider systematically asks the caregiver about the child's problems and then performs a physical examination relevant to common childhood illnesses. This includes checking for general danger signs, main symptoms (cough/difficult breathing, diarrhea, fever, ear problem), assessing nutritional status, immunization status, and other problems.

2. Classify the Illness: Based on the signs and symptoms found during assessment, the healthcare provider uses a color-coded classification system (Pink, Yellow, Green) to determine the severity of the illness. Pink (Severe Classification): Indicates urgent pre-referral treatment and referral to a hospital is needed. Yellow (Moderate Classification): Indicates specific medical treatment and advice can be given at the health center (e.g., oral antibiotic, ORS). Green (Mild Classification): Indicates simple home care advice is needed.A child may have more than one classification (e.g., severe pneumonia and some dehydration).

3. Identify Treatment: For each classification, the IMNCI charts provide specific, evidence-based treatment guidelines appropriate for that level of severity. This includes identifying necessary drugs, dosages, fluids, and other interventions.

4. Treat the Child: The healthcare provider administers essential treatments at the clinic (e.g., first dose of oral antibiotic, ORS for dehydration, immunizations if due, pre-referral treatments if referring). They also teach the caregiver how to give oral drugs, how to feed and give fluids during illness, and how to manage local infections at home.

5. Counsel the Caregiver and Provide Follow-up Care: - Counseling: Advise the caregiver on home care, including feeding, fluids, when to return immediately (danger signs), and their own health. Follow-up: Instruct the caregiver when to return for a follow-up visit to check the child's progress, especially for conditions classified as Yellow.

1. COUGH OR DIFFICULTY IN BREATHING: Assess for persistent cough or difficulty breathing, which could indicate respiratory infections like pneumonia or very severe disease.

2. DIARRHOEA: Evaluate the presence of loose or watery stools, which may indicate dehydration or dysentry.

3. FEVER: Check for elevated body temperature, which is a common symptom of infections such as malaria, meningitis.

4. EAR PROBLEM: Look for signs of ear pain, discharge, or hearing difficulties, which could suggest ear infections such as mastoditis.

5. MALNUTRITION: Assess the child's nutritional status, including weight loss, stunted growth, or visible signs of malnutrition like thinning hair or swollen belly.

6. ANAEMIA: Screen for symptoms of anemia, such as palmer pallor, fatigue, weakness, or shortness of breath, which may indicate a deficiency in red blood cells or hemoglobin levels or sickle cell disease.

1. Is the child able to drink or breastfeed? Inquire if the child has had any difficulty feeding or has stopped feeding. A child who cannot drink or breastfeed at all is a very serious sign.Observe: Try to offer the child some clean water or breast milk (if breastfeeding) to see if they can suckle or drink.

2. Does the child vomit everything? Ask if the child vomits after every feed or drink, meaning they are unable to keep anything down. Occasional vomiting is different from vomiting everything.

3. Has the child had convulsions (fits) during this illness? Ask if the child has had any episodes of jerking movements of the limbs, with or without loss of consciousness, since the current illness began.

4. Is the child lethargic or unconscious? Observe the child's level of alertness. Lethargic: The child is drowsy, looks sleepy, does not show interest in surroundings, or is difficult to awaken. They may not look at their mother or watch your face. Unconscious: The child cannot be woken up at all, even with painful stimuli.How to check: Try to get the child's attention. See if they look at you or their mother. Gently try to wake them if they appear asleep.

5. Is the child convulsing now? (Observed during assessment) Look to see if the child is currently having a convulsion (jerking movements, muscle rigidity, loss of consciousness).

Question 13

BWEYALE SCHOOL OF NURSING AND MIDWIFERY - NO.94

- Outline 6 specific signs and symptoms of neonatal tetanus.

- Mention 10 nursing interventions you will implement in a child with neonatal tetanus from admission until discharge giving reason for each.

- List 8 complications of neonatal tetanus.

ANSWER: Examination Script

1. Difficulty Sucking or Feeding: Often the first sign (usually appears between 3-10 days after birth). The baby is unable to open their mouth properly to suckle or feed due to muscle stiffness (trismus or "lockjaw").

2. Excessive Crying / Irritability: The baby may cry continuously and be very irritable before more obvious muscle spasms begin.

3. Muscle Stiffness and Rigidity: Generalized muscle stiffness develops, making the baby feel "stiff as a board."

4. Trismus (Lockjaw): Spasm of the jaw muscles, making it difficult or impossible for the baby to open their mouth.

5. Risus Sardonicus: A characteristic facial expression caused by spasms of the facial muscles, resulting in a fixed "grin" or sneer with raised eyebrows and wrinkled forehead.

6. Generalized Muscle Spasms (Convulsions): Painful, intense muscle spasms affecting the whole body. These can be spontaneous or triggered by stimuli like noise, light, or touch. During a spasm, the baby may arch their back (opisthotonos), clench their fists, and extend their legs. Spasms can interfere with breathing.

7. Opisthotonos: Severe arching of the back with the head and heels bent backward due to strong spasms of the back muscles.

8. Fever (may or may not be present initially).

1. Maintain a Quiet, Dark, and Minimally Stimulating Environment: Reason: To reduce external stimuli (noise, light, touch) that can trigger painful and life-threatening muscle spasms.

2. Administer Prescribed Medications Promptly and Correctly: - Human Tetanus Immunoglobulin (HTIG) or Tetanus Antitoxin (ATS): To neutralize circulating tetanus toxin. HTIG is preferred. Muscle Relaxants/Sedatives (e.g., Diazepam, Phenobarbital): To control muscle spasms and rigidity. Given regularly. Antibiotics (e.g., Penicillin G or Metronidazole): To eradicate Clostridium tetani bacteria and prevent further toxin production.Reason: To target the cause and symptoms of the disease effectively.

3. Ensure Airway Patency and Adequate Ventilation: - Position the baby to maintain an open airway. Have suction equipment ready for gentle suctioning of secretions if needed (minimize stimulation). Monitor respiratory rate, effort, and oxygen saturation. Administer oxygen if hypoxic. Be prepared for potential need for intubation and mechanical ventilation if spasms severely compromise breathing. Keep resuscitation equipment at bedside.Reason: Spasms of respiratory and laryngeal muscles can cause airway obstruction and respiratory failure.