

Department of Pediatric Surgery

Lesson Plan Cumilla Medical College Department of Pediatric Surgery

Neonatal Intestinal Obstruction & Anorectal Malformation

1. Curriculum Alignment

Item	Description
MBBS Phase	Phase IV
Department	Pediatric Surgery
Subject	Surgery & Allied Subjects
Academic Year	4th Year MBBS
Topic	Neonatal Intestinal Obstruction & Anorectal Malformation

2. General Information

Item	Description
Teacher	Prof. Dr. Abhi Kumar Chakrabarty
Duration	60 Minutes
Session Type	Interactive Lecture
Target Learners	MBBS Phase IV Students
Venue	Lecture Gallery / Smart Classroom

3. Learning Objectives

By the end of the session, students will be able to:

Learning Objective	Bloom's Level	Domain
Identify the major clinical presentations suggestive of neonatal intestinal obstruction and anorectal malformation.	C2 – Understand	Knowledge
Classify common causes of neonatal intestinal obstruction and major types of anorectal malformation.	C2 – Understand	Knowledge
Analyze relevant clinical and basic imaging findings to identify the likely diagnosis.	C4 – Analyze	Skill
Select appropriate initial investigations and distinguish cases requiring urgent pediatric surgical referral.	C3 – Apply	Skill
Formulate the essential principles of initial stabilization and preoperative supportive care.	C3 – Apply	Skill
Demonstrate a patient-centred and safety-oriented approach to neonatal surgical emergencies.	C5 – Evaluate	Attitude

5. Lesson Plan

Time	Teacher Activities	Student Activities	Teaching Method	Learning Resources	Assessment
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5 min	Introduce objectives using a neonatal case with abdominal distension and failure to pass meconium. Emphasize recognition of neonatal surgical emergencies.	Identify the clinical problem and share prior knowledge.	Interactive case trigger	PPT, clinical image	Oral questioning
5 min	Recall neonatal GI anatomy, embryology, normal meconium passage and basic principles of neonatal stabilization.	Respond to recall questions and participate in brainstorming.	Retrieval learning, questioning	Whiteboard, PPT	Verbal assessment
15 min	Discuss causes and clinical approach to neonatal intestinal obstruction; emphasize clinical differentiation, initial investigations and red-flag features.	Construct a differential diagnosis and participate in guided discussion.	Interactive lecture, problem-based discussion	PPT, abdominal X-rays	Facilitator observation
15 min	Discuss anorectal malformation: recognition, clinical classification, associated anomalies, basic imaging approach and referral priorities.	Interpret clinical/imaging examples and identify appropriate next steps.	Image-based learning, case discussion	Clinical photographs/diagrams, imaging examples	Image interpretation

10 min	Present integrated neonatal cases requiring diagnosis, stabilization, investigation and pediatric surgical referral. Emphasize multidisciplinary care.	Work in pairs, analyze cases and justify investigation and management priorities.	Think–Pair–Share, CBME case-based learning	Clinical vignettes, algorithms	Peer discussion + facilitator feedback
5 min	Reinforce key learning outcomes and summarize the diagnostic and referral pathway.	State key learning points and clarify uncertainties.	Interactive summary	Summary slide	Oral recap
5 min	Conduct formative assessment and provide immediate corrective feedback.	Complete assessment and reflect on learning gaps.	MCQ/SAQ + feedback	Assessment slides/platform	Formative assessment

6. Formative Assessment

- MCQs
- SAQs
- Oral questioning
- Image-based assessment
- Clinical case-based assessment
- Immediate facilitator feedback

7. References

1. Bangladesh Medical & Dental Council (BMDC). *Competency-Based MBBS Curriculum* (Latest Edition).
2. Bangladesh Medical Education Accreditation Council (BMEAC). *Standards for Medical Education Accreditation*.
3. World Federation for Medical Education (WFME). *Global Standards for Quality Improvement in Medical Education*.
4. Holcomb GW, Murphy JP, St Peter SD, eds. *Holcomb and Ashcraft's Pediatric Surgery*. Latest Edition.
5. Kliegman RM, et al. *Nelson Textbook of Pediatrics*. Latest Edition.

6. ERNICA. *Consensus Guidelines and Recommendations for Anorectal Malformations and Neonatal Gastrointestinal Surgical Conditions*. Latest available edition.

Competency-Based MBBS Lesson Plan (CBME)

Cumilla Medical College

Aligned with BMDC Competency-Based MBBS Curriculum, BMEAC Standards and WFME Global Standards

1. Curriculum Alignment

Item	Description
MBBS Phase	Phase IV
Department	Pediatric Surgery
Subject	Surgery & Allied Subjects
Academic Year	4th Year MBBS
Topic	Infantile Intestinal Obstruction & Hirschsprung Disease (HD)
Relevant Phase Outcome	Recognize common surgical conditions in infants, formulate appropriate differential diagnoses, initiate essential management, and arrange timely specialist referral.
Relevant Subject Outcome	Identify the clinical presentation, diagnostic approach, initial management and referral requirements of common infantile intestinal obstruction, particularly Hirschsprung disease.
Relevant Competency	Closest curriculum-aligned competency identified: Recognize intestinal obstruction in infants, identify the clinical features suggestive of Hirschsprung disease, select appropriate investigations, initiate supportive management, and arrange timely pediatric surgical referral.
Learning Domains	Knowledge, Skill, Attitude
Bloom's Taxonomy	Understand (C2), Apply (C3), Analyze (C4), Evaluate (C5)
Horizontal Integration	Paediatrics, Neonatology, Radiology & Imaging, Anaesthesiology, Pathology
Vertical Integration	Anatomy, Embryology, Physiology, Pathology, Clinical Medicine
Clinical Importance	Intestinal obstruction in infancy can rapidly lead to dehydration, electrolyte disturbances, bowel ischemia, perforation and sepsis. Early recognition of Hirschsprung disease , appropriate diagnostic evaluation and timely pediatric surgical referral are essential to prevent serious complications.

2. General Information

Item	Description
Teacher	Prof. Dr. Abhi Kumar Chakrabarty
Duration	60 Minutes
Session Type	Interactive Lecture
Target Learners	MBBS Phase IV Students
Venue	Lecture Gallery / Smart Classroom

3. Learning Objectives

By the end of the session, students will be able to:

Learning Objective	Bloom's Level	Domain
Identify the common clinical features of intestinal obstruction in infants.	C2 – Understand	Knowledge
Describe the characteristic clinical presentation of Hirschsprung disease and its important differential diagnoses.	C2 – Understand	Knowledge
Analyze clinical and basic radiological findings to formulate a differential diagnosis of infantile intestinal obstruction.	C4 – Analyze	Skill
Select appropriate investigations for suspected Hirschsprung disease and intestinal obstruction.	C3 – Apply	Skill
Outline the principles of initial stabilization and indications for urgent pediatric surgical referral.	C3 – Apply	Skill
Demonstrate a safe, systematic and patient-centred approach to infants with suspected intestinal obstruction.	C5 – Evaluate	Attitude

4. Lesson Sequence

Session	Time
Introduction	5 min
Recall of Previous Knowledge	5 min
Main Discussion	30 min
Clinical Correlation	10 min
Summary	5 min
Formative Assessment & Feedback	5 min
Total	60 min

5. Lesson Plan

Time	Teacher Activities	Student Activities	Teaching Method	Learning Resources	Assessment
5 min	Introduce a case of an infant with abdominal distension, vomiting and delayed passage of stool. Establish learning objectives.	Identify the clinical problem and discuss possible diagnoses.	Case-triggered interactive lecture	PPT, clinical vignette	Oral questioning
5 min	Recall intestinal anatomy, embryology, normal bowel function and major causes of infantile obstruction.	Participate in brainstorming and retrieval of prior knowledge.	Retrieval learning, questioning	Whiteboard, PPT	Verbal assessment

Time	Teacher Activities	Student Activities	Teaching Method	Learning Resources	Assessment
15 min	Discuss clinical approach to infantile intestinal obstruction, major differential diagnoses, clinical red flags and initial investigations.	Construct differential diagnoses and participate in guided discussion.	Interactive lecture, problem-based learning	PPT, abdominal X-ray/contrast images	Facilitator observation
15 min	Focus on Hirschsprung disease: clinical recognition, diagnostic pathway, imaging, confirmatory testing and complications.	Interpret representative clinical/imaging findings and identify appropriate next steps.	Case-based and image-based learning	Clinical cases, radiological images, diagnostic algorithm	Image interpretation
10 min	Present integrated cases of suspected HD and other causes of obstruction; emphasize stabilization, enterocolitis, referral and multidisciplinary management.	Work in pairs, prioritize investigations and initial management, and justify decisions.	Think–Pair–Share, CBME case discussion	Clinical vignettes, management algorithm	Peer assessment + facilitator feedback
5 min	Summarize the diagnostic approach and reinforce competency outcomes.	State key learning points and clarify doubts.	Interactive summary	Summary slide	Oral recap
5 min	Conduct formative assessment and provide immediate feedback.	Complete assessment and identify personal learning gaps.	MCQ/SAQ + feedback	Assessment slides/platform	Formative assessment

6. Formative Assessment

- MCQs
- SAQs
- Oral questioning
- Clinical case-based assessment
- Radiological image interpretation
- Immediate facilitator feedback

7. Take-Home Messages

1. **Delayed passage of meconium, progressive abdominal distension and constipation/obstructive symptoms should raise suspicion of Hirschsprung disease.**

2. Infantile intestinal obstruction requires **prompt clinical assessment, stabilization and identification of the level and cause of obstruction**.
3. The diagnosis of Hirschsprung disease requires appropriate **confirmatory investigation**, with rectal biopsy remaining central to definitive diagnosis.
4. **Hirschsprung-associated enterocolitis is a potentially life-threatening complication** requiring urgent recognition and management.
5. Early pediatric surgical referral is essential when intestinal obstruction or Hirschsprung disease is suspected.

8. Self-Directed Learning

Recommended Textbook Chapters

- **Holcomb and Ashcraft's Pediatric Surgery** – Hirschsprung Disease and Intestinal Obstruction.
- **Nelson Textbook of Pediatrics** – Gastrointestinal Disorders in Infants and Children.

Recommended Guideline

- **ERNICA Consensus Guidelines** for the management of **Hirschsprung disease**.

Independent Learning Activity

Construct a **one-page diagnostic algorithm** for an infant presenting with **delayed passage of meconium and abdominal distension**, covering differential diagnosis, initial stabilization, appropriate imaging, confirmatory investigation for HD, recognition of enterocolitis, and indications for pediatric surgical referral.

9. References

1. Bangladesh Medical & Dental Council (BMDC). *Competency-Based MBBS Curriculum* (Latest Edition).
2. Bangladesh Medical Education Accreditation Council (BMEAC). *Standards for Medical Education Accreditation*.
3. World Federation for Medical Education (WFME). *Global Standards for Quality Improvement in Medical Education*.
4. Holcomb GW, Murphy JP, St Peter SD, eds. *Holcomb and Ashcraft's Pediatric Surgery*. Latest Edition.
5. Kliegman RM, et al. *Nelson Textbook of Pediatrics*. Latest Edition.
6. ERNICA. *Consensus Guidelines for the Management of Hirschsprung Disease*. Latest available edition.

Competency-Based MBBS Lesson Plan (CBME)

Cumilla Medical College

Aligned with BMDC Competency-Based MBBS Curriculum, BMEAC Standards and WFME Global Standards

1. Curriculum Alignment

Item	Description
MBBS Phase	Phase IV
Department	Pediatric Surgery
Subject	Surgery & Allied Subjects
Academic Year	4th Year MBBS
Topic	Undescended Testis (Cryptorchidism)
Relevant Phase Outcome	Recognize common pediatric surgical conditions, perform appropriate clinical assessment, formulate a differential diagnosis, and arrange timely management or specialist referral.
Relevant Subject Outcome	Identify the clinical features, complications, diagnostic approach, and management principles of undescended testis and appropriately refer affected children for definitive treatment.
Relevant Competency	Closest curriculum-aligned competency identified: Recognize undescended testis on clinical examination, assess its location and associated abnormalities, identify potential complications, and arrange appropriate pediatric surgical/urological management.
Learning Domains	Knowledge, Skill, Attitude
Bloom's Taxonomy	Remember (C1), Understand (C2), Apply (C3), Analyze (C4), Evaluate (C5)
Horizontal Integration	Paediatrics, Neonatology, Urology, Endocrinology, Radiology & Imaging
Vertical Integration	Anatomy, Embryology, Physiology, Pathology, Clinical Medicine
Clinical Importance	Undescended testis is one of the commonest congenital abnormalities of the male genital system. Early recognition and appropriate management are important to reduce the risks of subfertility, testicular malignancy, torsion and associated psychosocial problems.

2. General Information

Item	Description
Teacher	Prof. Dr. Abhi Kumar Chakrabarty
Duration	60 Minutes
Session Type	Interactive Lecture
Target Learners	MBBS Phase IV Students
Venue	Lecture Gallery / Smart Classroom

3. Learning Objectives

By the end of the session, students will be able to:

Learning Objective	Bloom's Level	Domain
Define and classify undescended testis and distinguish it from retractile and ectopic testis.	C2 – Understand	Knowledge
Describe the relevant anatomy, embryological descent and clinical complications of undescended testis.	C2 – Understand	Knowledge
Demonstrate a systematic clinical approach to examining a child with suspected undescended testis.	C3 – Apply	Skill
Differentiate palpable from non-palpable undescended testes and formulate an appropriate diagnostic approach.	C4 – Analyze	Skill
Outline the principles and appropriate timing of definitive management and referral.	C3 – Apply	Knowledge/Skill
Demonstrate awareness of the importance of early diagnosis, counselling and follow-up.	C5 – Evaluate	Attitude

4. Lesson Sequence

Session	Time
Introduction	5 min
Recall of Previous Knowledge	5 min
Main Discussion	30 min
Clinical Correlation	10 min
Summary	5 min
Formative Assessment & Feedback	5 min
Total	60 min

5. Lesson Plan

Time	Teacher Activities	Student Activities	Teaching Method	Learning Resources	Assessment
5 min	Introduce a clinical case of a child with an empty hemiscrotum. Establish learning objectives and clinical relevance.	Identify the problem and suggest possible diagnoses.	Case-triggered interactive lecture	PPT, clinical vignette	Oral questioning
5 min	Recall anatomy of the testes, inguinal canal and embryological descent.	Participate in brainstorming and answer recall questions.	Retrieval learning, questioning	Whiteboard, anatomy diagram	Verbal assessment

Time	Teacher Activities	Student Activities	Teaching Method	Learning Resources	Assessment
15 min	Discuss definition, classification, clinical assessment, palpable/non-palpable testis and differentiation from retractile/ectopic testis.	Participate in discussion and construct a clinical classification.	Interactive lecture, guided discussion	PPT, diagrams, clinical images	Facilitator observation
15 min	Demonstrate the systematic examination approach and discuss indications/limitations of investigations and management options.	Interpret examination findings and determine the appropriate next step.	Demonstration, case-based learning	Examination checklist, clinical cases	Observation + case assessment
10 min	Present cases involving unilateral/bilateral, palpable/non-palpable and associated genital abnormalities; emphasize timely referral and counselling.	Work in pairs, analyze cases and justify management/referral decisions.	Think–Pair–Share, CBME case discussion	Clinical vignettes, management algorithm	Peer assessment + facilitator feedback
5 min	Summarize diagnostic and management principles and reinforce competency outcomes.	State key learning points and clarify doubts.	Interactive summary	Summary slide	Oral recap
5 min	Conduct formative assessment and provide immediate feedback.	Complete assessment and identify learning gaps.	MCQ/SAQ + feedback	Assessment slides/platform	Formative assessment

6. Formative Assessment

- MCQs
- SAQs
- Oral questioning
- Clinical examination-based assessment
- Case-based decision-making
- Immediate facilitator feedback

7. Take-Home Messages

1. **An empty scrotum in a child requires systematic examination to distinguish undescended, retractile and ectopic testes.**
2. Careful **clinical examination is central** to determining whether the testis is palpable or non-palpable.
3. Persistent cryptorchidism is associated with increased risks of **subfertility and testicular malignancy**, among other complications.
4. **Routine imaging is not a substitute for expert clinical assessment**; investigation should be guided by the clinical situation.
5. Timely referral for definitive management is essential to optimize **testicular function and long-term surveillance**.

8. Self-Directed Learning

Recommended Textbook Chapters

- **Holcomb and Ashcraft's Pediatric Surgery** – Disorders of the Testis and Scrotum.
- **Nelson Textbook of Pediatrics** – Disorders of the Male Genital System.

Recommended Guideline

- **European Association of Urology (EAU) / European Society for Paediatric Urology (ESPU) Guidelines: Paediatric Urology – Cryptorchidism.**

Independent Learning Activity

Prepare a **one-page clinical algorithm** for a child presenting with an empty scrotum, covering examination, differentiation of retractile versus undescended testis, palpable versus non-palpable testis, indications for referral/investigation, definitive management and follow-up.

9. References

1. Bangladesh Medical & Dental Council (BMDC). *Competency-Based MBBS Curriculum* (Latest Edition).
2. Bangladesh Medical Education Accreditation Council (BMEAC). *Standards for Medical Education Accreditation*.
3. World Federation for Medical Education (WFME). *Global Standards for Quality Improvement in Medical Education*.
4. Holcomb GW, Murphy JP, St Peter SD, eds. *Holcomb and Ashcraft's Pediatric Surgery*. Latest Edition.
5. Kliegman RM, et al. *Nelson Textbook of Pediatrics*. Latest Edition.
6. European Association of Urology (EAU) / European Society for Paediatric Urology (ESPU). *Guidelines on Paediatric Urology: Cryptorchidism*. Latest Edition.

Competency-Based MBBS Lesson Plan (CBME)

Cumilla Medical College

Aligned with BMDC Competency-Based MBBS Curriculum, BMEAC Standards and WFME Global Standards

1. Curriculum Alignment

Item	Description
MBBS Phase	Phase IV
Department	Pediatric Surgery
Subject	Surgery & Allied Subjects
Academic Year	4th Year MBBS
Topic	Intussusception & Infantile Hypertrophic Pyloric Stenosis (IHPS)
Relevant Phase Outcome	Recognize common pediatric surgical emergencies, assess affected children systematically, initiate appropriate stabilization, and arrange timely definitive management or specialist referral.
Relevant Subject Outcome	Identify the clinical presentation, differential diagnosis, appropriate investigations, initial management and referral requirements of common pediatric gastrointestinal surgical emergencies.
Relevant Competency	Closest curriculum-aligned competency identified: Recognize intussusception and IHPS clinically, select appropriate diagnostic investigations, initiate essential supportive management, and arrange timely pediatric surgical referral/intervention.
Learning Domains	Knowledge, Skill, Attitude
Bloom's Taxonomy	Understand (C2), Apply (C3), Analyze (C4), Evaluate (C5)
Horizontal Integration	Paediatrics, Neonatology, Radiology & Imaging, Emergency Medicine, Anaesthesiology
Vertical Integration	Anatomy, Embryology, Physiology, Pathology, Pharmacology
Clinical Importance	Both intussusception and IHPS are important causes of gastrointestinal obstruction in infancy. Early recognition, appropriate imaging, correction of physiological disturbances and timely definitive treatment are essential to prevent complications such as bowel ischemia, perforation, aspiration and severe dehydration.

2. General Information

Item	Description
Teacher	Prof. Dr. Abhi Kumar Chakrabarty
Duration	60 Minutes
Session Type	Interactive Lecture

Item	Description
Target Learners	MBBS Phase IV Students
Venue	Lecture Gallery / Smart Classroom

3. Learning Objectives

By the end of the session, students will be able to:

Learning Objective	Bloom's Level	Domain
Identify the characteristic clinical presentations of intussusception and IHPS.	C2 – Understand	Knowledge
Differentiate intussusception and IHPS from other common causes of vomiting and intestinal obstruction in infants.	C4 – Analyze	Knowledge
Select appropriate initial investigations, including relevant imaging, for suspected intussusception and IHPS.	C3 – Apply	Skill
Interpret basic clinical and imaging findings to formulate a working diagnosis.	C4 – Analyze	Skill
Outline the principles of initial stabilization and definitive management of both conditions.	C3 – Apply	Skill
Demonstrate awareness of the need for early recognition, timely referral and multidisciplinary management of pediatric surgical emergencies.	C5 – Evaluate	Attitude

4. Lesson Sequence

Session	Time
Introduction	5 min
Recall of Previous Knowledge	5 min
Main Discussion	30 min
Clinical Correlation	10 min
Summary	5 min
Formative Assessment & Feedback	5 min
Total	60 min

5. Lesson Plan

Time	Teacher Activities	Student Activities	Teaching Method	Learning Resources	Assessment
5 min	Introduce two brief clinical cases—an infant with episodic abdominal pain and vomiting, and an infant with progressive non-bilious vomiting.	Identify the likely clinical problems and discuss initial differentials.	Case-triggered interactive lecture	PPT, clinical vignettes	Oral questioning

Time	Teacher Activities	Student Activities	Teaching Method	Learning Resources	Assessment
	Establish learning objectives.				
5 min	Recall relevant gastrointestinal anatomy, infant feeding physiology and common causes of vomiting/intestinal obstruction.	Participate in brainstorming and retrieval of prior knowledge.	Retrieval learning, questioning	Whiteboard, PPT	Verbal assessment
15 min	Discuss clinical recognition, differential diagnosis, investigations and imaging approach for intussusception and IHPS. Emphasize red flags and diagnostic distinctions.	Construct differential diagnoses and participate in guided clinical reasoning.	Interactive lecture, problem-based discussion	PPT, ultrasound/X-ray images	Facilitator observation
15 min	Discuss initial stabilization and definitive management pathways; emphasize the role of ultrasound, non-operative reduction for suitable intussusception, and surgical management when indicated.	Interpret representative clinical/imaging findings and identify appropriate next steps.	Case-based and image-based learning	Ultrasound images, clinical algorithms	Image/case assessment
10 min	Present integrated cases involving dehydration, obstruction and potential complications; emphasize timely pediatric surgical referral and multidisciplinary care.	Work in pairs, prioritize investigations and management, and justify decisions.	Think–Pair–Share, CBME case discussion	Clinical vignettes, management algorithm	Peer assessment + facilitator feedback
5 min	Summarize distinguishing features, diagnostic pathways and management priorities.	State key learning points and clarify doubts.	Interactive summary	Summary slide	Oral recap
5 min	Conduct formative assessment and provide immediate corrective feedback.	Complete assessment and identify individual learning gaps.	MCQ/SAQ + feedback	Assessment slides/platform	Formative assessment

6. Formative Assessment

- MCQs

- SAQs
- Oral questioning
- Clinical case-based assessment
- Ultrasound/image interpretation
- Immediate facilitator feedback

7. Take-Home Messages

1. **Intussusception and IHPS are important causes of gastrointestinal symptoms and obstruction in infancy, but their clinical presentations are distinct.**
2. **Ultrasonography is central to the diagnosis** of both conditions in appropriate clinical settings.
3. Intussusception requires **urgent assessment for bowel compromise** and appropriate reduction or surgical management.
4. IHPS requires recognition of **dehydration and metabolic/electrolyte abnormalities**, followed by definitive treatment after stabilization.
5. Early diagnosis, physiological stabilization and **timely pediatric surgical involvement** are essential to prevent serious complications.

8. Self-Directed Learning

Recommended Textbook Chapters

- **Holcomb and Ashcraft's Pediatric Surgery** – Intussusception and Hypertrophic Pyloric Stenosis.
- **Nelson Textbook of Pediatrics** – Gastrointestinal Disorders in Infants and Children.

Recommended Guideline

- **European Paediatric Surgeons' Association (EUPSA) / relevant pediatric surgical guidance** on the management of intussusception.

Independent Learning Activity

Prepare a **comparative one-page diagnostic algorithm** for an infant presenting with vomiting and/or episodic abdominal pain, showing how to distinguish **intussusception, IHPS, malrotation/volvulus and other causes of intestinal obstruction**, including initial stabilization, appropriate imaging and referral pathways.

9. References

1. Bangladesh Medical & Dental Council (BMDC). *Competency-Based MBBS Curriculum* (Latest Edition).
2. Bangladesh Medical Education Accreditation Council (BMEAC). *Standards for Medical Education Accreditation*.
3. World Federation for Medical Education (WFME). *Global Standards for Quality Improvement in Medical Education*.
4. Holcomb GW, Murphy JP, St Peter SD, eds. *Holcomb and Ashcraft's Pediatric Surgery*. Latest Edition.
5. Kliegman RM, et al. *Nelson Textbook of Pediatrics*. Latest Edition.
6. American College of Radiology (ACR). *Appropriateness Criteria®: Vomiting in Infants and Children*. Latest Edition.
7. European Paediatric Surgeons' Association (EUPSA). Relevant pediatric surgical guidance on intussusception and pediatric gastrointestinal emergencies.

Competency-Based MBBS Lesson Plan (CBME)

Cumilla Medical College

Aligned with BMDC Competency-Based MBBS Curriculum, BMEAC Standards and WFME Global Standards

1. Curriculum Alignment

Item	Description
MBBS Phase	Phase IV
Department	Pediatric Surgery
Subject	Surgery & Allied Subjects
Academic Year	4th Year MBBS
Topic	Acute Scrotum
Relevant Phase Outcome	Recognize common pediatric surgical emergencies, perform appropriate clinical assessment, initiate essential management and arrange timely specialist referral.
Relevant Subject Outcome	Identify the clinical presentation, differential diagnosis, appropriate investigation and initial management of acute scrotal conditions, with particular emphasis on testicular torsion.
Relevant Competency	Closest curriculum-aligned competency identified: Recognize acute scrotal conditions clinically, differentiate surgical emergencies from non-emergent causes, select appropriate investigations, initiate urgent management and arrange timely pediatric surgical/urological referral.
Learning Domains	Knowledge, Skill, Attitude
Bloom's Taxonomy	Understand (C2), Apply (C3), Analyze (C4), Evaluate (C5)
Horizontal Integration	Paediatrics, Emergency Medicine, Urology, Radiology & Imaging, Anaesthesiology
Vertical Integration	Anatomy, Embryology, Physiology, Pathology, Clinical Medicine
Clinical Importance	Acute scrotal pain and swelling in a child is a time-critical presentation because testicular torsion can result in irreversible testicular ischemia and loss if treatment is delayed. Rapid clinical assessment, appropriate use of imaging and urgent surgical referral are therefore essential.

2. General Information

Item	Description
Teacher	Prof. Dr. Abhi Kumar Chakrabarty
Duration	60 Minutes
Session Type	Interactive Lecture
Target Learners	MBBS Phase IV Students
Venue	Lecture Gallery / Smart Classroom

3. Learning Objectives

By the end of the session, students will be able to:

Learning Objective	Bloom's Level	Domain
Identify the common causes and clinical presentations of acute scrotum in children.	C2 – Understand	Knowledge
Differentiate testicular torsion from epididymo-orchitis, torsion of testicular appendage, trauma and other causes of acute scrotal pain.	C4 – Analyze	Knowledge
Perform and describe a systematic clinical assessment of a child presenting with acute scrotum.	C3 – Apply	Skill
Select appropriate investigations, including the role and limitations of Doppler ultrasonography.	C3 – Apply	Skill
Formulate the initial management and referral pathway for suspected testicular torsion.	C3 – Apply	Skill
Demonstrate awareness that suspected testicular torsion is a surgical emergency requiring prompt action.	C5 – Evaluate	Attitude

4. Lesson Sequence

Session	Time
Introduction	5 min
Recall of Previous Knowledge	5 min
Main Discussion	30 min
Clinical Correlation	10 min
Summary	5 min
Formative Assessment & Feedback	5 min
Total	60 min

5. Lesson Plan

Time	Teacher Activities	Student Activities	Teaching Method	Learning Resources	Assessment
5 min	Present a case of sudden unilateral scrotal pain and swelling in an adolescent. Establish objectives and emphasize the emergency nature of the presentation.	Identify the clinical problem and suggest initial differential diagnoses.	Case-triggered interactive lecture	PPT, clinical vignette	Oral questioning
5 min	Recall scrotal anatomy, testicular blood supply,	Participate in brainstorming and	Retrieval learning, questioning	Whiteboard, anatomy diagram	Verbal assessment

Time	Teacher Activities	Student Activities	Teaching Method	Learning Resources	Assessment
15 min	testicular descent and relevant embryology. Discuss causes of acute scrotum, clinical differentiation, focused examination and red-flag features, emphasizing testicular torsion.	answer recall questions. Construct a differential diagnosis and identify features suggesting torsion.	Interactive lecture, guided clinical reasoning	PPT, clinical images	Facilitator observation
15 min	Discuss diagnostic approach, role of colour Doppler ultrasound, limitations of imaging and indications for immediate surgical exploration.	Interpret representative clinical/imaging cases and select appropriate next steps.	Case-based and image-based learning	Doppler images, clinical cases	Image/case assessment
10 min	Present integrated cases involving torsion, epididymo-orchitis and torsion of appendage; emphasize urgency, referral and multidisciplinary care.	Work in pairs, prioritize diagnosis and management, and justify decisions.	Think–Pair–Share, CBME case discussion	Clinical vignettes, management algorithm	Peer assessment + facilitator feedback
5 min	Summarize the differential diagnosis and emergency management pathway.	State key learning points and clarify doubts.	Interactive summary	Summary slide	Oral recap
5 min	Conduct formative assessment and provide immediate corrective feedback.	Complete assessment and identify individual learning gaps.	MCQ/SAQ + Assessment feedback	Assessment slides/platform	Formative assessment

6. Formative Assessment

- MCQs
- SAQs
- Oral questioning
- Clinical case-based assessment
- Colour Doppler image interpretation
- Immediate facilitator feedback

7. Take-Home Messages

1. **Testicular torsion must be considered in every child with sudden-onset unilateral scrotal pain.**

2. Clinical assessment should be **rapid and systematic**, with particular attention to onset, testicular position, tenderness and associated symptoms.
3. **Colour Doppler ultrasonography** is useful when the diagnosis is uncertain, but imaging should not cause avoidable delay when torsion is strongly suspected.
4. Suspected testicular torsion requires **urgent pediatric surgical/urological assessment and definitive management**.
5. Early recognition and treatment are essential for maximizing the chance of **testicular salvage**.

8. Self-Directed Learning

Recommended Textbook Chapters

- **Holcomb and Ashcraft's Pediatric Surgery** – Disorders of the Testis and Scrotum.
- **Nelson Textbook of Pediatrics** – Disorders of the Male Genital System.

Recommended Guideline

- **European Association of Urology (EAU) / European Society for Paediatric Urology (ESPU) Guidelines: Paediatric Urology – Acute Scrotum/Testicular Torsion.**

Independent Learning Activity

Prepare a **one-page comparison table/algorithm** differentiating **testicular torsion, torsion of testicular appendage, epididymo-orchitis and scrotal trauma**, including clinical clues, Doppler findings, urgency and definitive management.

9. References

1. Bangladesh Medical & Dental Council (BMDC). *Competency-Based MBBS Curriculum* (Latest Edition).
2. Bangladesh Medical Education Accreditation Council (BMEAC). *Standards for Medical Education Accreditation*.
3. World Federation for Medical Education (WFME). *Global Standards for Quality Improvement in Medical Education*.
4. Holcomb GW, Murphy JP, St Peter SD, eds. *Holcomb and Ashcraft's Pediatric Surgery*. Latest Edition.
5. Kliegman RM, et al. *Nelson Textbook of Pediatrics*. Latest Edition.
6. European Association of Urology (EAU) / European Society for Paediatric Urology (ESPU). *Guidelines on Paediatric Urology*. Latest Edition.
7. American College of Radiology (ACR). *Appropriateness Criteria®: Acute Onset of Scrotal Pain*. Latest Edition.

Competency-Based MBBS Lesson Plan (CBME)

Cumilla Medical College

Aligned with BMDC Competency-Based MBBS Curriculum, BMEAC Standards and WFME Global Standards

1. Curriculum Alignment

Item	Description
MBBS Phase	Phase IV
Department	Pediatric Surgery
Subject	Surgery & Allied Subjects
Academic Year	4th Year MBBS
Topic	Meckel's Diverticulum
Relevant Phase Outcome	Recognize common pediatric surgical conditions, formulate appropriate differential diagnoses, initiate essential management and arrange timely specialist referral.
Relevant Subject Outcome	Identify the clinical presentation, complications, diagnostic approach and management principles of Meckel's diverticulum in children and adolescents.
Relevant Competency	Closest curriculum-aligned competency identified: Recognize Meckel's diverticulum and its complications, select appropriate investigations, initiate supportive management and arrange timely pediatric surgical referral.
Learning Domains	Knowledge, Skill, Attitude
Bloom's Taxonomy	Understand (C2), Apply (C3), Analyze (C4), Evaluate (C5)
Horizontal Integration	Paediatrics, Gastroenterology, Radiology & Imaging, Emergency Medicine, Pathology
Vertical Integration	Anatomy, Embryology, Physiology, Pathology, Clinical Medicine
Clinical Importance	Meckel's diverticulum is an important congenital gastrointestinal anomaly that may remain asymptomatic or present with bleeding, obstruction, inflammation or perforation. Recognition of its complications is particularly important in children presenting with unexplained gastrointestinal bleeding or acute abdomen.

2. General Information

Item	Description
Teacher	Prof. Dr. Abhi Kumar Chakrabarty
Duration	60 Minutes
Session Type	Interactive Lecture
Target Learners	MBBS Phase IV Students
Venue	Lecture Gallery / Smart Classroom

3. Learning Objectives

By the end of the session, students will be able to:

Learning Objective	Bloom's Level	Domain
Describe the embryological basis, anatomical features and common presentations of Meckel's diverticulum.	C2 – Understand	Knowledge
Identify the major complications of Meckel's diverticulum in children.	C2 – Understand	Knowledge
Analyze clinical findings to differentiate Meckel's diverticulum from common causes of pediatric gastrointestinal bleeding and acute abdomen.	C4 – Analyze	Skill
Select appropriate investigations for suspected Meckel's diverticulum according to the clinical presentation.	C3 – Apply	Skill
Outline the principles of initial management and indications for pediatric surgical intervention.	C3 – Apply	Skill
Demonstrate awareness of timely recognition and referral of complicated Meckel's diverticulum.	C5 – Evaluate	Attitude

4. Lesson Sequence

Session	Time
Introduction	5 min
Recall of Previous Knowledge	5 min
Main Discussion	30 min
Clinical Correlation	10 min
Summary	5 min
Formative Assessment & Feedback	5 min
Total	60 min

5. Lesson Plan

Time	Teacher Activities	Student Activities	Teaching Method	Learning Resources	Assessment
5 min	Introduce a case of a child presenting with painless lower GI bleeding or acute abdominal pain. Establish objectives and clinical relevance.	Identify the clinical problem and suggest initial differential diagnoses.	Case-triggered interactive lecture	PPT, clinical vignette	Oral questioning
5 min	Recall vitellointestinal duct embryology, ileal	Participate in brainstorming and	Retrieval learning, questioning	Whiteboard, anatomy diagram	Verbal assessment

Time	Teacher Activities	Student Activities	Teaching Method	Learning Resources	Assessment
	anatomy and causes of pediatric GI bleeding.	answer recall questions.			
15 min	Discuss presentation, complications, differential diagnosis and diagnostic approach to Meckel's diverticulum.	Construct differential diagnoses and participate in guided clinical reasoning.	Interactive lecture, problem-based discussion	PPT, diagnostic algorithm	Facilitator observation
15 min	Discuss imaging and diagnostic options in different clinical presentations and principles of management of bleeding, obstruction, inflammation and perforation.	Interpret clinical/imaging cases and identify appropriate next steps.	Case-based and image-based learning	Clinical cases, imaging examples	Case assessment
10 min	Present integrated cases involving GI bleeding, intussusception, obstruction and perforation; emphasize indications for urgent surgical referral.	Work in pairs, prioritize investigation and management, and justify decisions.	Think-Pair-Share, CBME case discussion	Clinical vignettes, management algorithm	Peer assessment + facilitator feedback
5 min	Summarize diagnostic and management principles.	State key learning points and clarify doubts.	Interactive summary	Summary slide	Oral recap
5 min	Conduct formative assessment and provide immediate corrective feedback.	Complete assessment and identify learning gaps.	MCQ/SAQ + feedback	Assessment slides/platform	Formative assessment

6. Formative Assessment

- MCQs
- SAQs
- Oral questioning
- Clinical case-based assessment
- Image-based assessment
- Immediate facilitator feedback

7. Take-Home Messages

1. **Meckel's diverticulum is a congenital remnant of the vitellointestinal duct and may remain asymptomatic or cause significant complications.**

2. Important presentations include **gastrointestinal bleeding, intestinal obstruction, diverticulitis and perforation**.
3. Meckel's diverticulum should be considered in children with **unexplained lower gastrointestinal bleeding**.
4. The diagnostic approach depends on the presenting complication and clinical stability.
5. Complicated Meckel's diverticulum requires **early pediatric surgical assessment and appropriate definitive management**.

8. Self-Directed Learning

Recommended Textbook Chapters

- **Holcomb and Ashcraft's Pediatric Surgery** – Meckel's Diverticulum and Related Ileal Disorders.
- **Nelson Textbook of Pediatrics** – Gastrointestinal Disorders in Children.

Recommended Guideline

- **American College of Radiology (ACR) Appropriateness Criteria®** – Gastrointestinal Bleeding / Acute Abdominal Pain in Children.

Independent Learning Activity

Prepare a **one-page diagnostic algorithm** for a child presenting with **lower gastrointestinal bleeding**, incorporating Meckel's diverticulum, common differential diagnoses, appropriate investigations, initial stabilization and indications for pediatric surgical referral.

9. References

1. Bangladesh Medical & Dental Council (BMDC). *Competency-Based MBBS Curriculum* (Latest Edition).
2. Bangladesh Medical Education Accreditation Council (BMEAC). *Standards for Medical Education Accreditation*.
3. World Federation for Medical Education (WFME). *Global Standards for Quality Improvement in Medical Education*.
4. Holcomb GW, Murphy JP, St Peter SD, eds. *Holcomb and Ashcraft's Pediatric Surgery*. Latest Edition.
5. Kliegman RM, et al. *Nelson Textbook of Pediatrics*. Latest Edition.
6. American College of Radiology (ACR). *Appropriateness Criteria®*. Latest Edition.

Competency-Based MBBS Lesson Plan (CBME)

Cumilla Medical College

Aligned with BMDC Competency-Based MBBS Curriculum, BMEAC Standards and WFME Global Standards

1. Curriculum Alignment

Item	Description
MBBS Phase	Phase IV
Department	Pediatric Surgery
Subject	Surgery & Allied Subjects
Academic Year	4th Year MBBS
Topic	Childhood Tumours
Relevant Phase Outcome	Recognize common pediatric surgical conditions, identify potentially serious disease, initiate appropriate evaluation and arrange timely specialist referral.
Relevant Subject Outcome	Recognize common childhood tumours, identify their clinical presentations, understand the appropriate diagnostic approach, and outline principles of management and referral.
Relevant Competency	Closest curriculum-aligned competency identified: Recognize common childhood tumours, formulate an appropriate differential diagnosis, select relevant investigations, and arrange timely referral for definitive multidisciplinary management.
Learning Domains	Knowledge, Skill, Attitude
Bloom's Taxonomy	Understand (C2), Apply (C3), Analyze (C4), Evaluate (C5)
Horizontal Integration	Paediatrics, Oncology, Radiology & Imaging, Pathology, Haematology, Anaesthesiology
Vertical Integration	Anatomy, Embryology, Physiology, Pathology, Pharmacology, Clinical Medicine
Clinical Importance	Childhood tumours may present with relatively nonspecific symptoms such as an abdominal mass, fever, weight loss, neurological symptoms or lymphadenopathy. Early recognition, appropriate imaging and tissue diagnosis, followed by multidisciplinary referral, are essential for improving outcomes.

2. General Information

Item	Description
Teacher	Prof. Dr. Abhi Kumar Chakrabarty
Duration	60 Minutes
Session Type	Interactive Lecture
Target Learners	MBBS Phase IV Students
Venue	Lecture Gallery / Smart Classroom

3. Learning Objectives

By the end of the session, students will be able to:

Learning Objective	Bloom's Level	Domain
Identify the common childhood tumours encountered in clinical practice.	C2 – Understand	Knowledge
Describe the typical clinical presentations and important warning signs of childhood malignancy.	C2 – Understand	Knowledge
Analyze clinical findings to formulate an appropriate differential diagnosis for a suspected childhood tumour.	C4 – Analyze	Skill
Select appropriate initial investigations and imaging modalities for common childhood tumours.	C3 – Apply	Skill
Outline the principles of biopsy, staging, referral and multidisciplinary management.	C3 – Apply	Knowledge/Skill
Demonstrate awareness of the importance of early recognition, safe referral and family-centred communication.	C5 – Evaluate	Attitude

4. Lesson Sequence

Session	Time
Introduction	5 min
Recall of Previous Knowledge	5 min
Main Discussion	30 min
Clinical Correlation	10 min
Summary	5 min
Formative Assessment & Feedback	5 min
Total	60 min

5. Lesson Plan

Time	Teacher Activities	Student Activities	Teaching Method	Learning Resources	Assessment
5 min	Introduce a clinical case of a child with an unexplained abdominal mass/weight loss. Establish learning objectives and clinical relevance.	Identify the clinical problem and suggest possible diagnoses.	Case-triggered interactive lecture	PPT, clinical vignette	Oral questioning
5 min	Recall basic tumour biology, relevant anatomy and common childhood	Participate in brainstorming and retrieval of prior knowledge.	Retrieval learning, questioning	Whiteboard, PPT	Verbal assessment

Time	Teacher Activities	Student Activities	Teaching Method	Learning Resources	Assessment
	presentations of malignancy. Discuss common childhood tumours by age group and anatomical site; emphasize clinical warning signs and differential diagnosis.	Organize tumours according to age/site and participate in guided clinical reasoning.	Interactive lecture, problem-based discussion	PPT, clinical images	Facilitator observation
15 min	Discuss diagnostic pathways, appropriate imaging, biopsy principles and staging using representative clinical cases.	Interpret clinical/imaging findings and select appropriate investigations.	Case-based and image-based learning	Imaging examples, diagnostic algorithms	Case/image assessment
10 min	Present integrated cases involving abdominal, thoracic, CNS and soft-tissue tumours; emphasize referral and multidisciplinary management.	Work in pairs, analyze cases and justify diagnostic/referral decisions.	Think–Pair–Share, CBME case discussion	Clinical vignettes, imaging examples	Peer assessment + facilitator feedback
5 min	Summarize recognition, investigation and referral principles.	State key learning points and clarify doubts.	Interactive summary	Summary slide	Oral recap
5 min	Conduct formative assessment and provide immediate corrective feedback.	Complete assessment and identify learning gaps.	MCQ/SAQ + feedback	Assessment slides/platform	Formative assessment

6. Formative Assessment

- MCQs
- SAQs
- Oral questioning
- Image-based assessment
- Clinical case-based assessment
- Immediate facilitator feedback

7. Take-Home Messages

1. **Persistent or unexplained masses, weight loss, bleeding, neurological symptoms or systemic features in a child require careful evaluation for malignancy.**

2. Childhood tumours have characteristic **age, anatomical and clinical patterns** that help guide the differential diagnosis.
3. Imaging should be selected according to the **clinical presentation and suspected tumour site**.
4. Definitive diagnosis generally requires **appropriate tissue diagnosis**, with imaging contributing to characterization and staging.
5. Suspected childhood malignancy requires **early referral and multidisciplinary management** involving paediatrics, surgery, oncology, radiology and pathology.

8. Self-Directed Learning

Recommended Textbook Chapters

- **Holcomb and Ashcraft's Pediatric Surgery** – Pediatric Surgical Oncology.
- **Nelson Textbook of Pediatrics** – Childhood Cancer.

Recommended Guideline

- **Children's Oncology Group (COG) / International Pediatric Oncology Guidelines** for evaluation and management of childhood cancers.

Independent Learning Activity

Prepare a **one-page age-based and site-based diagnostic framework** for common childhood tumours, including clinical presentation, initial imaging modality, role of biopsy, staging and appropriate specialist referral.

9. References

1. Bangladesh Medical & Dental Council (BMDC). *Competency-Based MBBS Curriculum* (Latest Edition).
2. Bangladesh Medical Education Accreditation Council (BMEAC). *Standards for Medical Education Accreditation*.
3. World Federation for Medical Education (WFME). *Global Standards for Quality Improvement in Medical Education*.
4. Holcomb GW, Murphy JP, St Peter SD, eds. *Holcomb and Ashcraft's Pediatric Surgery*. Latest Edition.
5. Kliegman RM, et al. *Nelson Textbook of Pediatrics*. Latest Edition.
6. Children's Oncology Group (COG). *Clinical Practice and Supportive Care Guidelines*. Latest available edition.

Competency-Based MBBS Lesson Plan (CBME)

Cumilla Medical College

Aligned with BMDC Competency-Based MBBS Curriculum, BMEAC Standards and WFME Global Standards

1. Curriculum Alignment

Item	Description
MBBS Phase	Phase IV
Department	Pediatric Surgery
Subject	Surgery & Allied Subjects
Academic Year	4th Year MBBS
Topic	Rectal Bleeding & Prolapsed Rectum in Children
Relevant Phase Outcome	Recognize common pediatric surgical conditions, perform appropriate clinical assessment, formulate differential diagnoses, initiate essential management and arrange timely specialist referral.
Relevant Subject Outcome	Recognize the common causes, clinical features, diagnostic approach and management principles of rectal bleeding and rectal prolapse in children.
Relevant Competency	Closest curriculum-aligned competency identified: Recognize common causes of pediatric rectal bleeding and rectal prolapse, perform appropriate clinical assessment, select relevant investigations, initiate management and arrange specialist referral when indicated.
Learning Domains	Knowledge, Skill, Attitude
Bloom's Taxonomy	Understand (C2), Apply (C3), Analyze (C4), Evaluate (C5)
Horizontal Integration	Paediatrics, Gastroenterology, Pathology, Radiology & Imaging, Nutrition
Vertical Integration	Anatomy, Physiology, Pathology, Clinical Medicine
Clinical Importance	Rectal bleeding in children ranges from benign conditions to significant gastrointestinal disease, while rectal prolapse may reflect an underlying gastrointestinal, nutritional or systemic disorder. A structured clinical approach is essential to identify the cause, recognize red flags and determine which children require specialist evaluation.

2. General Information

Item	Description
Teacher	Prof. Dr. Abhi Kumar Chakrabarty
Duration	60 Minutes
Session Type	Interactive Lecture

Item	Description
Target Learners	MBBS Phase IV Students
Venue	Lecture Gallery / Smart Classroom

3. Learning Objectives

By the end of the session, students will be able to:

Learning Objective	Bloom's Level	Domain
Identify common causes of rectal bleeding and rectal prolapse in children.	C2 – Understand	Knowledge
Differentiate major causes based on age, history, examination and clinical presentation.	C4 – Analyze	Knowledge
Demonstrate a systematic clinical assessment of a child presenting with rectal bleeding or prolapse.	C3 – Apply	Skill
Select appropriate investigations according to the suspected underlying condition.	C3 – Apply	Skill
Outline initial management and indications for pediatric surgical referral.	C3 – Apply	Knowledge/Skill
Demonstrate a safe, sensitive and child-centred approach to examination and counselling.	C5 – Evaluate	Attitude

4. Lesson Sequence

Session	Time
Introduction	5 min
Recall of Previous Knowledge	5 min
Main Discussion	30 min
Clinical Correlation	10 min
Summary	5 min
Formative Assessment & Feedback	5 min
Total	60 min

5. Lesson Plan

Time	Teacher Activities	Student Activities	Teaching Method	Learning Resources	Assessment
5 min	Introduce a child presenting with painless rectal bleeding and another with protruding rectal tissue. Establish learning objectives.	Identify the clinical problems and suggest initial differential diagnoses.	Case-triggered interactive lecture	PPT, clinical vignettes	Oral questioning

Time	Teacher Activities	Student Activities	Teaching Method	Learning Resources	Assessment
5 min	Recall anorectal anatomy, bowel habits, common pediatric GI disorders and relevant examination principles.	Participate in brainstorming and answer recall questions.	Retrieval learning, questioning	Whiteboard, anatomy diagram	Verbal assessment
15 min	Discuss major causes of rectal bleeding and rectal prolapse according to age and clinical presentation; emphasize red flags.	Construct differential diagnoses and participate in guided clinical reasoning.	Interactive lecture, problem-based discussion	PPT, clinical images	Facilitator observation
15 min	Demonstrate systematic clinical assessment, appropriate investigations and initial management; emphasize recognition of underlying disease and indications for referral.	Analyze clinical cases and select appropriate diagnostic and management pathways.	Case-based learning, demonstration	Clinical cases, diagnostic algorithms	Case assessment
10 min	Present integrated cases involving constipation, infectious/inflammatory disease, juvenile polyp and rectal prolapse; discuss surgical referral indications.	Work in pairs, prioritize investigations and management, and justify decisions.	Think–Pair–Share, CBME case discussion	Clinical vignettes, management algorithm	Peer assessment + facilitator feedback
5 min	Summarize diagnostic approach, management priorities and referral criteria.	State key learning points and clarify doubts.	Interactive summary	Summary slide	Oral recap
5 min	Conduct formative assessment and provide immediate feedback.	Complete assessment and identify learning gaps.	MCQ/SAQ + feedback	Assessment slides/platform	Formative assessment

6. Formative Assessment

- MCQs
- SAQs
- Oral questioning
- Clinical case-based assessment
- Image-based assessment
- Immediate facilitator feedback

7. Take-Home Messages

1. **Rectal bleeding in a child requires assessment based on age, amount, colour, associated symptoms and overall clinical condition.**
2. Common causes vary with age; the differential diagnosis should include **anal, rectal, intestinal and systemic causes.**
3. Rectal prolapse may be a manifestation of an **underlying gastrointestinal, nutritional or systemic disorder** and should not be treated as an isolated finding without evaluation.
4. A careful history and appropriate anorectal examination are central to diagnosis; investigations should be **clinically directed.**
5. Persistent bleeding, significant prolapse, systemic illness or suspected structural disease warrants **appropriate specialist referral.**

8. Self-Directed Learning

Recommended Textbook Chapters

- **Holcomb and Ashcraft's Pediatric Surgery** – Anorectal Disorders and Rectal Prolapse.
- **Nelson Textbook of Pediatrics** – Gastrointestinal Bleeding and Anorectal Disorders.

Recommended Guideline

- **American College of Radiology (ACR) Appropriateness Criteria®** – Gastrointestinal Bleeding in Children.

Independent Learning Activity

Prepare a **one-page age-based diagnostic algorithm** for a child with rectal bleeding, incorporating history, physical examination, differential diagnosis, indications for investigation, initial management and referral. Add a separate pathway for **rectal prolapse** identifying underlying causes and indications for pediatric surgical evaluation.

9. References

1. Bangladesh Medical & Dental Council (BMDC). *Competency-Based MBBS Curriculum* (Latest Edition).
2. Bangladesh Medical Education Accreditation Council (BMEAC). *Standards for Medical Education Accreditation*.
3. World Federation for Medical Education (WFME). *Global Standards for Quality Improvement in Medical Education*.
4. Holcomb GW, Murphy JP, St Peter SD, eds. *Holcomb and Ashcraft's Pediatric Surgery*. Latest Edition.
5. Kliegman RM, et al. *Nelson Textbook of Pediatrics*. Latest Edition.
6. American College of Radiology (ACR). *Appropriateness Criteria®*. Latest Edition.

Competency-Based MBBS Lesson Plan (CBME)

Cumilla Medical College

Aligned with BMDC Competency-Based MBBS Curriculum, BMEAC Standards and WFME Global Standards

1. Curriculum Alignment

Item	Description
MBBS Phase	Phase IV
Department	Pediatric Surgery
Subject	Surgery & Allied Subjects
Academic Year	4th Year MBBS
Topic	Haemangioma and Other Cutaneous Lesions & Neck Swelling in Children
Relevant Phase Outcome	Recognize common pediatric surgical conditions, perform appropriate clinical assessment, formulate differential diagnoses, initiate appropriate management and arrange timely specialist referral.
Relevant Subject Outcome	Identify common vascular and cutaneous lesions and causes of neck swelling in children, perform appropriate clinical assessment, select relevant investigations, and outline principles of management and referral.
Relevant Competency	Closest curriculum-aligned competency identified: Recognize common pediatric cutaneous/vascular lesions and neck swellings, formulate appropriate differential diagnoses, select relevant investigations, and arrange appropriate specialist management.
Learning Domains	Knowledge, Skill, Attitude
Bloom's Taxonomy	Understand (C2), Apply (C3), Analyze (C4), Evaluate (C5)
Horizontal Integration	Paediatrics, Dermatology, Radiology & Imaging, ENT, Oncology
Vertical Integration	Anatomy, Embryology, Physiology, Pathology, Clinical Medicine
Clinical Importance	Most childhood cutaneous lesions and neck swellings are benign, but some may cause airway compromise, functional impairment, infection, bleeding or cosmetic morbidity. A structured clinical assessment is essential to distinguish lesions requiring observation from those requiring imaging, treatment or specialist referral.

2. General Information

Item	Description
Teacher	Prof. Dr. Abhi Kumar Chakrabarty
Duration	60 Minutes
Session Type	Interactive Lecture

Item	Description
Target Learners	MBBS Phase IV Students
Venue	Lecture Gallery / Smart Classroom

3. Learning Objectives

By the end of the session, students will be able to:

Learning Objective	Bloom's Level	Domain
Identify common haemangiomas, vascular/cutaneous lesions and causes of neck swelling in children.	C2 – Understand	Knowledge
Differentiate common vascular, congenital, inflammatory and neoplastic neck lesions using clinical features.	C4 – Analyze	Knowledge
Demonstrate a systematic clinical examination of a child presenting with a cutaneous lesion or neck swelling.	C3 – Apply	Skill
Select appropriate imaging or other investigations based on the clinical characteristics and suspected diagnosis.	C3 – Apply	Skill
Outline the principles of observation, medical treatment, surgical management and referral for clinically significant lesions.	C3 – Apply	Knowledge/Skill
Demonstrate a child-centred approach to assessment, counselling and management of visible lesions.	C5 – Evaluate	Attitude

4. Lesson Sequence

Session	Time
Introduction	5 min
Recall of Previous Knowledge	5 min
Main Discussion	30 min
Clinical Correlation	10 min
Summary	5 min
Formative Assessment & Feedback	5 min
Total	60 min

5. Lesson Plan

Time	Teacher Activities	Student Activities	Teaching Method	Learning Resources	Assessment
5 min	Present clinical images of a child with a vascular skin lesion and another with a neck swelling. Introduce objectives and clinical relevance.	Identify the lesions and suggest initial differential diagnoses.	Case/image-triggered interactive lecture	PPT, clinical images	Oral questioning

Time	Teacher Activities	Student Activities	Teaching Method	Learning Resources	Assessment
5 min	Recall skin, lymphatic and neck anatomy, embryology and basic principles of vascular lesions.	Participate in brainstorming and answer recall questions.	Retrieval learning, questioning	Whiteboard, diagrams	Verbal assessment
15 min	Discuss haemangioma and other common cutaneous/vascular lesions; emphasize clinical classification, natural history, complications and red flags.	Classify lesions and participate in guided clinical reasoning.	Interactive lecture, image-based learning	PPT, clinical photographs	Facilitator observation
15 min	Discuss systematic approach to neck swelling, differential diagnosis, examination, indications for ultrasound/other imaging and referral.	Analyze clinical and imaging examples and identify appropriate next steps.	Case-based learning, demonstration	Ultrasound images, clinical cases	Case/image assessment
10 min	Present integrated cases involving vascular lesions, congenital neck masses, lymphadenopathy and potentially malignant lesions; emphasize airway/feeding compromise and referral.	Work in pairs, formulate differential diagnoses and justify investigation/referral decisions.	Think–Pair–Share, CBME case discussion	Clinical vignettes, diagnostic algorithm	Peer assessment + facilitator feedback
5 min	Summarize diagnostic approach, important red flags and management/referral principles.	State key learning points and clarify doubts.	Interactive summary	Summary slide	Oral recap
5 min	Conduct formative assessment and provide immediate corrective feedback.	Complete assessment and identify learning gaps.	MCQ/SAQ + feedback	Assessment slides/platform	Formative assessment

6. Formative Assessment

- MCQs
- SAQs
- Oral questioning
- Clinical image identification
- Case-based assessment
- Immediate facilitator feedback

7. Take-Home Messages

1. **Accurate clinical examination is central to differentiating haemangiomas, vascular malformations and other cutaneous lesions.**
2. The assessment of a child's neck swelling should consider **age, site, consistency, mobility, duration and associated symptoms.**
3. **Airway, feeding, bleeding, infection or functional compromise** are important red flags requiring urgent assessment.
4. Ultrasound is often an appropriate initial imaging modality for superficial lesions and many pediatric neck swellings; further imaging should be clinically directed.
5. Management ranges from **observation to medical or surgical treatment**, depending on lesion type, complications, anatomical location and functional risk.

8. Self-Directed Learning

Recommended Textbook Chapters

- **Holcomb and Ashcraft's Pediatric Surgery** – Vascular Anomalies and Pediatric Neck Masses.
- **Nelson Textbook of Pediatrics** – Vascular Lesions and Disorders of the Head and Neck.

Recommended Guideline

- **International Society for the Study of Vascular Anomalies (ISSVA)** – Classification and Management of Vascular Anomalies.

Independent Learning Activity

Prepare a **one-page diagnostic approach to a pediatric neck swelling**, comparing congenital lesions, lymphadenopathy, vascular lesions and neoplastic causes, and indicating the appropriate initial examination, investigation and referral pathway.

9. References

1. Bangladesh Medical & Dental Council (BMDC). *Competency-Based MBBS Curriculum* (Latest Edition).
2. Bangladesh Medical Education Accreditation Council (BMEAC). *Standards for Medical Education Accreditation*.
3. World Federation for Medical Education (WFME). *Global Standards for Quality Improvement in Medical Education*.
4. Holcomb GW, Murphy JP, St Peter SD, eds. *Holcomb and Ashcraft's Pediatric Surgery*. Latest Edition.
5. Kliegman RM, et al. *Nelson Textbook of Pediatrics*. Latest Edition.
6. International Society for the Study of Vascular Anomalies (ISSVA). *ISSVA Classification of Vascular Anomalies*. Latest Edition.
7. American College of Radiology (ACR). *Appropriateness Criteria®: Neck Mass/Adenopathy*. Latest Edition.

Competency-Based MBBS Lesson Plan (CBME)

Cumilla Medical College

Aligned with BMDC Competency-Based MBBS Curriculum, BMEAC Standards and WFME Global Standards

1. Curriculum Alignment

Item	Description
MBBS Phase	Phase IV
Department	Pediatric Surgery
Subject	Surgery & Allied Subjects
Academic Year	4th Year MBBS
Topic	Examination of a Child and Neonate (Special Considerations) & Infantile Hypertrophic Pyloric Stenosis (IHPS)
Relevant Phase Outcome	Perform appropriate clinical assessment of children and neonates, recognize common surgical conditions, initiate appropriate management and arrange timely specialist referral.
Relevant Subject Outcome	Demonstrate a systematic approach to examination of children and neonates, recognize age-specific clinical findings, and identify the clinical presentation and diagnostic approach to common pediatric surgical conditions including IHPS.
Relevant Competency	Closest curriculum-aligned competency identified: Perform systematic examination of a child and neonate with appropriate age-specific considerations, recognize IHPS clinically, select appropriate investigations, initiate supportive management and arrange timely pediatric surgical referral.
Learning Domains	Knowledge, Skill, Attitude
Bloom's Taxonomy	Understand (C2), Apply (C3), Analyze (C4), Evaluate (C5)
Horizontal Integration	Paediatrics, Neonatology, Emergency Medicine, Radiology & Imaging, Anaesthesiology
Vertical Integration	Anatomy, Physiology, Embryology, Pathology, Pharmacology, Clinical Medicine
Clinical Importance	Examination of children and neonates requires age-specific techniques, careful observation and recognition of normal developmental findings. IHPS is an important cause of persistent vomiting in early infancy, requiring prompt recognition, correction of physiological abnormalities and definitive treatment.

2. General Information

Item	Description
Teacher	Prof. Dr. Abhi Kumar Chakrabarty
Duration	60 Minutes
Session Type	Interactive Lecture

Item	Description
Target Learners	MBBS Phase IV Students
Venue	Lecture Gallery / Smart Classroom

3. Learning Objectives

By the end of the session, students will be able to:

Learning Objective	Bloom's Level	Domain
Describe the special considerations required when examining neonates and children.	C2 – Understand	Knowledge
Demonstrate a systematic, age-appropriate clinical examination of a child and neonate.	C3 – Apply	Skill
Identify normal age-specific findings and important clinical abnormalities during pediatric examination.	C2 – Understand	Knowledge/Skill
Recognize the characteristic clinical presentation of infantile hypertrophic pyloric stenosis.	C2 – Understand	Knowledge
Select appropriate investigations and outline initial stabilization and definitive management of IHPS.	C3 – Apply	Skill
Demonstrate a child-centred, safe and respectful approach during examination and communication with parents/caregivers.	C5 – Evaluate	Attitude

4. Lesson Sequence

Session	Time
Introduction	5 min
Recall of Previous Knowledge	5 min
Main Discussion	30 min
Clinical Correlation	10 min
Summary	5 min
Formative Assessment & Feedback	5 min
Total	60 min

5. Lesson Plan

Time	Teacher Activities	Student Activities	Teaching Method	Learning Resources	Assessment
5 min	Introduce a neonate/infant case and establish learning objectives. Emphasize differences between adult and pediatric examination.	Observe the case, identify clinical priorities and share prior knowledge.	Case-triggered interactive lecture	PPT, clinical vignette	Oral questioning

Time	Teacher Activities	Student Activities	Teaching Method	Learning Resources	Assessment
5 min	Recall general examination sequence, developmental assessment and relevant neonatal anatomy/physiology.	Participate in brainstorming and answer recall questions.	Retrieval learning, questioning	Whiteboard, PPT	Verbal assessment
15 min	Discuss age-specific examination: observation, vital signs, growth, hydration, systemic examination, developmental considerations, communication and examination safety.	Identify examination steps and discuss age-specific adaptations.	Interactive lecture, demonstration	PPT, examination checklist	Facilitator observation
15 min	Introduce IHPS through a clinical case; emphasize characteristic presentation, focused abdominal examination, appropriate imaging and differential diagnosis.	Analyze the case, identify diagnostic clues and select appropriate investigation.	Case-based and image-based learning	Clinical case, ultrasound images	Case/image assessment
10 min	Discuss initial stabilization, correction of dehydration/electrolyte abnormalities and definitive management of IHPS; emphasize timely surgical referral.	Work in pairs, formulate initial management and referral priorities.	Think–Pair–Share, CBME case discussion	Management algorithm, clinical vignettes	Peer assessment + facilitator feedback
5 min	Summarize principles of pediatric examination and IHPS recognition/management.	State key learning points and clarify doubts.	Interactive summary	Summary slide	Oral recap
5 min	Conduct formative assessment and provide immediate feedback.	Complete assessment and identify learning gaps.	MCQ/SAQ + feedback	Assessment slides/platform	Formative assessment

6. Formative Assessment

- MCQs
- SAQs
- Oral questioning
- OSCE-style examination checklist
- Clinical case-based assessment
- Image-based assessment

- Immediate facilitator feedback

7. Take-Home Messages

1. **Pediatric examination is not simply a smaller version of adult examination; age, development and cooperation must guide the approach.**
2. Observation begins **before touching the child**, including behaviour, interaction, breathing, colour, posture and general appearance.
3. Neonatal examination requires particular attention to **temperature, respiratory status, perfusion, feeding, hydration, congenital anomalies and developmental maturity.**
4. IHPS typically presents with **progressive non-bilious vomiting in early infancy**, requiring prompt clinical assessment and appropriate imaging.
5. Before definitive treatment of IHPS, **dehydration and metabolic/electrolyte abnormalities must be appropriately corrected.**

8. Self-Directed Learning

Recommended Textbook Chapters

- **Nelson Textbook of Pediatrics** – Approach to the Child and Examination of the Newborn.
- **Holcomb and Ashcraft's Pediatric Surgery** – Hypertrophic Pyloric Stenosis.

Recommended Guideline

- **American College of Radiology (ACR) Appropriateness Criteria®: Vomiting in Infants.**

Independent Learning Activity

Perform a **structured pediatric examination using an OSCE checklist** and prepare a separate clinical approach for an infant with persistent vomiting, including differential diagnosis, recognition of IHPS, appropriate imaging, initial stabilization and referral.

9. References

1. Bangladesh Medical & Dental Council (BMDC). *Competency-Based MBBS Curriculum* (Latest Edition).
2. Bangladesh Medical Education Accreditation Council (BMEAC). *Standards for Medical Education Accreditation*.
3. World Federation for Medical Education (WFME). *Global Standards for Quality Improvement in Medical Education*.
4. Kliegman RM, et al. *Nelson Textbook of Pediatrics*. Latest Edition.
5. Holcomb GW, Murphy JP, St Peter SD, eds. *Holcomb and Ashcraft's Pediatric Surgery*. Latest Edition.
6. American College of Radiology (ACR). *Appropriateness Criteria®: Vomiting in Infants*. Latest Edition.

Competency-Based MBBS Lesson Plan (CBME)

Cumilla Medical College

Aligned with BMDC Competency-Based MBBS Curriculum, BMEAC Standards and WFME Global Standards

1. Curriculum Alignment

Item	Description
MBBS Phase	Phase IV
Department	Pediatric Surgery
Subject	Surgery & Allied Subjects
Academic Year	4th Year MBBS
Topic	Umbilical Disorders in Infants and Children
Relevant Phase Outcome	Recognize common pediatric surgical conditions, perform appropriate clinical assessment, initiate appropriate management and arrange timely specialist referral.
Relevant Subject Outcome	Identify common congenital, inflammatory and acquired umbilical disorders in infants and children, formulate differential diagnoses, and outline appropriate investigation and management.
Relevant Competency	Closest curriculum-aligned competency identified: Recognize common umbilical disorders in children, perform appropriate clinical assessment, select relevant investigations, initiate management and arrange pediatric surgical referral when indicated.
Learning Domains	Knowledge, Skill, Attitude
Bloom's Taxonomy	Understand (C2), Apply (C3), Analyze (C4), Evaluate (C5)
Horizontal Integration	Paediatrics, Neonatology, Radiology & Imaging, Infectious Diseases, Emergency Medicine
Vertical Integration	Anatomy, Embryology, Physiology, Pathology, Microbiology
Clinical Importance	Umbilical abnormalities in infants may represent benign conditions or congenital anomalies requiring surgical intervention. Early recognition of infection, hernia, persistent embryological remnants and other abnormalities is important to prevent complications and ensure timely referral.

2. General Information

Item	Description
Teacher	Prof. Dr. Abhi Kumar Chakrabarty
Duration	60 Minutes
Session Type	Interactive Lecture
Target Learners	MBBS Phase IV Students
Venue	Lecture Gallery / Smart Classroom

3. Learning Objectives

By the end of the session, students will be able to:

Learning Objective	Bloom's Level	Domain
Identify common congenital and acquired umbilical disorders in infants and children.	C2 – Understand	Knowledge
Differentiate common umbilical disorders based on history and clinical examination.	C4 – Analyze	Knowledge
Demonstrate a systematic clinical examination of an infant or child with an umbilical abnormality.	C3 – Apply	Skill
Select appropriate investigations according to the suspected umbilical disorder.	C3 – Apply	Skill
Outline the principles of conservative and surgical management and indications for referral.	C3 – Apply	Knowledge/Skill
Demonstrate safe, hygienic and child-centred management of umbilical conditions.	C5 – Evaluate	Attitude

4. Lesson Sequence

Session	Time
Introduction	5 min
Recall of Previous Knowledge	5 min
Main Discussion	30 min
Clinical Correlation	10 min
Summary	5 min
Formative Assessment & Feedback	5 min
Total	60 min

5. Lesson Plan

Time	Teacher Activities	Student Activities	Teaching Method	Learning Resources	Assessment
5 min	Present clinical images/cases of an umbilical swelling and umbilical discharge. Introduce learning objectives and clinical relevance.	Identify the clinical problems and suggest possible diagnoses.	Case/image-triggered interactive lecture	PPT, clinical images	Oral questioning
5 min	Recall umbilical anatomy, embryology	Participate in brainstorming and	Retrieval learning, questioning	Whiteboard, diagrams	Verbal assessment

Time	Teacher Activities	Student Activities	Teaching Method	Learning Resources	Assessment
	and normal cord separation/healing. Discuss common umbilical disorders, including umbilical hernia, granuloma, omphalitis and persistent embryological remnants; emphasize clinical differentiation and red flags. Demonstrate systematic assessment, appropriate investigations and management pathways; emphasize recognition of infection and congenital anomalies. Present integrated cases involving umbilical swelling, discharge, bleeding and infection; discuss indications for pediatric surgical referral.	answer recall questions. Classify disorders and participate in guided clinical reasoning.	Interactive lecture, image-based learning	PPT, clinical photographs	Facilitator observation
15 min		Analyze clinical cases and select appropriate investigation and management.	Case-based learning, demonstration	Clinical cases, ultrasound examples	Case assessment
10 min		Work in pairs, formulate differential diagnoses and justify management/referral decisions.	Think–Pair–Share, CBME case discussion	Clinical vignettes, diagnostic algorithm	Peer assessment + facilitator feedback
5 min	Summarize diagnostic approach, important red flags and management principles.	State key learning points and clarify doubts.	Interactive summary	Summary slide	Oral recap
5 min	Conduct formative assessment and provide immediate feedback.	Complete assessment and identify learning gaps.	MCQ/SAQ + feedback	Assessment slides/platform	Formative assessment

6. Formative Assessment

- MCQs
- SAQs

- Oral questioning
- Clinical image identification
- Case-based assessment
- Immediate facilitator feedback

7. Take-Home Messages

1. **Most umbilical abnormalities can be diagnosed clinically**, but persistent or unusual findings require further evaluation.
2. Umbilical swelling should be differentiated from **umbilical hernia, granuloma and congenital remnants**.
3. **Omphalitis is potentially serious**, particularly in neonates, and requires prompt assessment and appropriate treatment.
4. Persistent umbilical discharge, especially urine-like or feculent discharge, should raise suspicion of an **underlying congenital communication**.
5. Early recognition of complications and appropriate pediatric surgical referral can prevent significant morbidity.

8. Self-Directed Learning

Recommended Textbook Chapters

- **Holcomb and Ashcraft's Pediatric Surgery** – Umbilical and Abdominal Wall Disorders.
- **Nelson Textbook of Pediatrics** – Disorders of the Umbilicus and Abdominal Wall.

Recommended Guideline

- **WHO.** *WHO Recommendations for Care of the Preterm or Low-Birth-Weight Infant* — relevant neonatal infection prevention and umbilical-care recommendations.

Independent Learning Activity

Prepare a **one-page diagnostic algorithm for an infant with umbilical swelling or discharge**, differentiating umbilical hernia, granuloma, omphalitis and congenital umbilical remnants, with appropriate examination, investigation, initial management and referral pathways.

9. References

1. Bangladesh Medical & Dental Council (BMDC). *Competency-Based MBBS Curriculum* (Latest Edition).
2. Bangladesh Medical Education Accreditation Council (BMEAC). *Standards for Medical Education Accreditation*.
3. World Federation for Medical Education (WFME). *Global Standards for Quality Improvement in Medical Education*.
4. Holcomb GW, Murphy JP, St Peter SD, eds. *Holcomb and Ashcraft's Pediatric Surgery*. Latest Edition.
5. Kliegman RM, et al. *Nelson Textbook of Pediatrics*. Latest Edition.
6. World Health Organization (WHO). *Recommendations for Care of the Preterm or Low-Birth-Weight Infant*. Latest Edition.

Competency-Based MBBS Lesson Plan (CBME)

Cumilla Medical College

Aligned with BMDC Competency-Based MBBS Curriculum, BMEAC Standards and WFME Global Standards

1. Curriculum Alignment

Item	Description
MBBS Phase	Phase IV
Department	Pediatric Surgery
Subject	Surgery & Allied Subjects
Academic Year	4th Year MBBS
Topic	Inguinoscrotal Swellings in Infants and Children
Relevant Phase Outcome	Recognize common pediatric surgical conditions, perform appropriate clinical assessment, formulate differential diagnoses, initiate appropriate management and arrange timely specialist referral.
Relevant Subject Outcome	Identify common causes of inguinoscrotal swelling in children, differentiate them clinically, select appropriate investigations when required, and outline principles of management.
Relevant Competency	Closest curriculum-aligned competency identified: Recognize and clinically differentiate common inguinoscrotal swellings, identify complications such as incarceration and strangulation, and arrange appropriate pediatric surgical management.
Learning Domains	Knowledge, Skill, Attitude
Bloom's Taxonomy	Understand (C2), Apply (C3), Analyze (C4), Evaluate (C5)
Horizontal Integration	Paediatrics, Urology, Neonatology, Radiology & Imaging, Emergency Medicine
Vertical Integration	Anatomy, Embryology, Physiology, Pathology, Clinical Medicine
Clinical Importance	Inguinoscrotal swelling is common in childhood and may represent an inguinal hernia, hydrocele, undescended testis, or other pathology. Accurate clinical differentiation is particularly important because an incarcerated or strangulated hernia is a time-sensitive surgical emergency.

2. General Information

Item	Description
Teacher	Prof. Dr. Abhi Kumar Chakrabarty
Duration	60 Minutes
Session Type	Interactive Lecture
Target Learners	MBBS Phase IV Students
Venue	Lecture Gallery / Smart Classroom

3. Learning Objectives

By the end of the session, students will be able to:

Learning Objective	Bloom's Level	Domain
Identify common causes of inguinoscrotal swelling in infants and children.	C2 – Understand	Knowledge
Differentiate inguinal hernia, hydrocele, undescended testis and other common causes using clinical findings.	C4 – Analyze	Knowledge
Demonstrate a systematic clinical examination of a child with an inguinoscrotal swelling.	C3 – Apply	Skill
Recognize clinical features suggestive of incarceration or strangulation requiring urgent intervention.	C4 – Analyze	Skill
Select appropriate investigations when clinical findings are uncertain or complications are suspected.	C3 – Apply	Skill
Outline the principles of management and timely pediatric surgical referral.	C3 – Apply	Knowledge/Skill

4. Lesson Sequence

Session	Time
Introduction	5 min
Recall of Previous Knowledge	5 min
Main Discussion	30 min
Clinical Correlation	10 min
Summary	5 min
Formative Assessment & Feedback	5 min
Total	60 min

5. Lesson Plan

Time	Teacher Activities	Student Activities	Teaching Method	Learning Resources	Assessment
5 min	Present a child with an inguinoscrotal swelling and introduce learning objectives. Emphasize the importance of distinguishing elective from emergency conditions.	Observe the case and suggest differential diagnoses.	Case-triggered interactive lecture	PPT, clinical images	Oral questioning

Time	Teacher Activities	Student Activities	Teaching Method	Learning Resources	Assessment
5 min	Recall inguinal canal anatomy, processus vaginalis, testicular descent and relevant embryology.	Participate in brainstorming and answer recall questions.	Retrieval learning, questioning	Whiteboard, anatomy diagrams	Verbal assessment
15 min	Discuss common causes: inguinal hernia, hydrocele, undescended/ectopic testis and other relevant swellings; emphasize clinical distinguishing features.	Construct a differential diagnosis and participate in guided discussion.	Interactive lecture, image-based learning	PPT, clinical photographs	Facilitator observation
15 min	Demonstrate systematic examination: inspection, palpation, reducibility, cough impulse, transillumination where appropriate, testicular position and assessment of complications.	Identify examination steps and interpret representative clinical findings.	Demonstration, case-based learning	Examination checklist, clinical cases	Observation + case assessment
10 min	Present cases of uncomplicated and incarcerated inguinal hernia, hydrocele and undescended testis; emphasize urgent referral and management priorities.	Work in pairs, analyze cases and justify investigation/referral decisions.	Think–Pair–Share, CBME case discussion	Clinical vignettes, management algorithm	Peer assessment + facilitator feedback
5 min	Summarize differential diagnosis, red flags and management/referral principles.	State key learning points and clarify doubts.	Interactive summary	Summary slide	Oral recap
5 min	Conduct formative assessment and provide immediate corrective feedback.	Complete assessment and identify learning gaps.	MCQ/SAQ + feedback	Assessment slides/platform	Formative assessment

6. Formative Assessment

- MCQs
- SAQs
- Oral questioning
- Clinical examination-based assessment
- Image-based assessment
- Case-based decision-making
- Immediate facilitator feedback

7. Take-Home Messages

1. **Inguinoscrotal swelling in a child requires systematic clinical examination to establish the likely diagnosis.**
2. Inguinal hernia, hydrocele and undescended testis are important differential diagnoses with different management pathways.
3. **Irreducibility, increasing pain, tenderness, vomiting or systemic deterioration** should raise concern for incarceration or strangulation.
4. Most uncomplicated pediatric inguinal hernias require **definitive surgical management**, whereas many hydroceles can be managed according to age and clinical course.
5. Early recognition of complications and **timely pediatric surgical referral** are essential to prevent bowel and testicular complications.

8. Self-Directed Learning

Recommended Textbook Chapters

- **Holcomb and Ashcraft's Pediatric Surgery** – Inguinal Hernia, Hydrocele and Disorders of the Testis.
- **Nelson Textbook of Pediatrics** – Disorders of the Male Genital System.

Recommended Guideline

- **European Association of Urology (EAU) / European Society for Paediatric Urology (ESPU) Guidelines – Paediatric Urology**, including cryptorchidism and related scrotal conditions.

Independent Learning Activity

Prepare a **one-page comparative diagnostic table** for inguinal hernia, hydrocele, undescended testis, varicocele and testicular torsion, including key examination findings, role of imaging, urgency and appropriate referral pathway.

9. References

1. Bangladesh Medical & Dental Council (BMDC). *Competency-Based MBBS Curriculum* (Latest Edition).
2. Bangladesh Medical Education Accreditation Council (BMEAC). *Standards for Medical Education Accreditation*.
3. World Federation for Medical Education (WFME). *Global Standards for Quality Improvement in Medical Education*.
4. Holcomb GW, Murphy JP, St Peter SD, eds. *Holcomb and Ashcraft's Pediatric Surgery*. Latest Edition.
5. Kliegman RM, et al. *Nelson Textbook of Pediatrics*. Latest Edition.

6. European Association of Urology (EAU) / European Society for Paediatric Urology (ESPU). *Guidelines on Paediatric Urology*. Latest Edition.

Competency-Based MBBS Lesson Plan (CBME)

Cumilla Medical College

Aligned with BMDC Competency-Based MBBS Curriculum, BMEAC Standards and WFME Global Standards

1. Curriculum Alignment

Item	Description
MBBS Phase	Phase IV
Department	Pediatric Surgery
Subject	Surgery & Allied Subjects
Academic Year	4th Year MBBS
Topic	Acute Abdomen in Infants & Children
Relevant Phase Outcome	Recognize acute surgical conditions in children, perform systematic clinical assessment, initiate appropriate stabilization and arrange timely definitive management or specialist referral.
Relevant Subject Outcome	Identify the major causes and clinical features of acute abdomen in infants and children, formulate differential diagnoses, select appropriate investigations, initiate management and recognize indications for urgent surgical referral.
Relevant Competency	Closest curriculum-aligned competency identified: Recognize acute abdomen in infants and children, formulate an appropriate differential diagnosis, select relevant investigations, initiate stabilization and arrange timely pediatric surgical referral.
Learning Domains	Knowledge, Skill, Attitude
Bloom's Taxonomy	Understand (C2), Apply (C3), Analyze (C4), Evaluate (C5)
Horizontal Integration	Paediatrics, Neonatology, Emergency Medicine, Radiology & Imaging, Anaesthesiology
Vertical Integration	Anatomy, Physiology, Pathology, Microbiology, Pharmacology
Clinical Importance	Acute abdomen in children may result from surgical, infectious, inflammatory, traumatic or systemic causes. Early recognition of potentially life-threatening conditions such as intestinal obstruction, appendicitis, intussusception, volvulus and perforation is essential to prevent morbidity and mortality.

2. General Information

Item	Description
Teacher	Prof. Dr. Abhi Kumar Chakrabarty
Duration	60 Minutes
Session Type	Interactive Lecture

Item	Description
Target Learners	MBBS Phase IV Students
Venue	Lecture Gallery / Smart Classroom

3. Learning Objectives

By the end of the session, students will be able to:

Learning Objective	Bloom's Level	Domain
Identify the major causes of acute abdomen in different pediatric age groups.	C2 – Understand	Knowledge
Describe the important clinical features and red flags of pediatric acute abdomen.	C2 – Understand	Knowledge
Analyze clinical findings to formulate an appropriate differential diagnosis.	C4 – Analyze	Skill
Select appropriate initial investigations based on the clinical presentation.	C3 – Apply	Skill
Outline initial stabilization and identify indications for urgent surgical referral.	C3 – Apply	Skill
Demonstrate a systematic, safe and child-centred approach to a child with acute abdominal pain.	C5 – Evaluate	Attitude

4. Lesson Sequence

Session	Time
Introduction	5 min
Recall of Previous Knowledge	5 min
Main Discussion	30 min
Clinical Correlation	10 min
Summary	5 min
Formative Assessment & Feedback	5 min
Total	60 min

5. Lesson Plan

Time	Teacher Activities	Student Activities	Teaching Method	Learning Resources	Assessment
5 min	Present a child with acute abdominal pain, vomiting and abdominal distension. Introduce objectives and emphasize recognition of surgical emergencies.	Identify the clinical problem and suggest initial differential diagnoses.	Case-triggered interactive lecture	PPT, clinical vignette	Oral questioning

Time	Teacher Activities	Student Activities	Teaching Method	Learning Resources	Assessment
5 min	Recall pediatric abdominal anatomy, common causes of abdominal pain and principles of pediatric examination.	Participate in brainstorming and answer recall questions.	Retrieval learning, questioning	Whiteboard, PPT	Verbal assessment
15 min	Discuss age-specific causes, clinical assessment, red flags and differential diagnosis of acute abdomen.	Construct differential diagnoses according to age and presentation.	Interactive lecture, problem-based discussion	PPT, clinical images	Facilitator observation
15 min	Discuss investigation pathways and imaging selection; use cases of appendicitis, intussusception, obstruction, volvulus and perforation.	Interpret clinical/imaging findings and select appropriate investigations.	Case-based and image-based learning	X-ray, USG/CT images, clinical cases	Case/image assessment
10 min	Present integrated emergency cases; emphasize resuscitation, analgesia, fluid management, surgical consultation and timely referral.	Work in pairs, prioritize stabilization, investigations and referral, and justify decisions.	Think–Pair–Share, CBME case discussion	Clinical vignettes, management algorithm	Peer assessment + facilitator feedback
5 min	Summarize systematic assessment and emergency management principles.	State key learning points and clarify doubts.	Interactive summary	Summary slide	Oral recap
5 min	Conduct formative assessment and provide immediate corrective feedback.	Complete assessment and identify learning gaps.	MCQ/SAQ + feedback	Assessment slides/platform	Formative assessment

6. Formative Assessment

- MCQs
- SAQs
- Oral questioning
- Clinical case-based assessment
- Abdominal imaging interpretation

- Immediate facilitator feedback

7. Take-Home Messages

1. **Acute abdominal pain in a child requires systematic assessment because the presentation may differ substantially from adults.**
2. **Age, pain characteristics, vomiting, abdominal distension, bowel symptoms and systemic features** help narrow the differential diagnosis.
3. Red flags such as **shock, peritonism, persistent bilious vomiting, severe distension or gastrointestinal bleeding** require urgent evaluation.
4. Imaging should be **clinically directed**, with appropriate use of ultrasound and radiography and selective use of CT when necessary.
5. Early stabilization and **timely pediatric surgical consultation** are critical when a surgical cause is suspected.

8. Self-Directed Learning

Recommended Textbook Chapters

- **Holcomb and Ashcraft's Pediatric Surgery** – Acute Abdomen and Common Pediatric Surgical Emergencies.
- **Nelson Textbook of Pediatrics** – Abdominal Pain and Acute Gastrointestinal Disorders.

Recommended Guideline

- **American College of Radiology (ACR) Appropriateness Criteria®: Acute Nonlocalized Abdominal Pain / Acute Abdominal Pain in Children.**

Independent Learning Activity

Prepare a **one-page diagnostic algorithm for acute abdomen in children**, stratified by age and major clinical presentation, incorporating differential diagnosis, initial stabilization, appropriate investigations, imaging selection and indications for urgent pediatric surgical referral.

9. References

1. Bangladesh Medical & Dental Council (BMDC). *Competency-Based MBBS Curriculum* (Latest Edition).
2. Bangladesh Medical Education Accreditation Council (BMEAC). *Standards for Medical Education Accreditation*.
3. World Federation for Medical Education (WFME). *Global Standards for Quality Improvement in Medical Education*.
4. Holcomb GW, Murphy JP, St Peter SD, eds. *Holcomb and Ashcraft's Pediatric Surgery*. Latest Edition.
5. Kliegman RM, et al. *Nelson Textbook of Pediatrics*. Latest Edition.
6. American College of Radiology (ACR). *Appropriateness Criteria®*. Latest Edition.

