

**NICU Surgery Fellowship
Division of General and Thoracic Surgery
Hospital for Sick Children**

Goals and Objectives

Revised: June 13 2010

GOALS

To master the skills necessary to assume complete responsibility for the preoperative, operative, and post operative management of the problems of the NICU surgical patient, to interact appropriately with allied colleagues in the care of the NICU surgical patient, to interact effectively with the NICU surgical patient and his/her family and to maintain the leadership and direction of the profession of pediatric general surgery.

OBJECTIVES

The NICU Surgery Fellow, relative to the following headings, should be able to....

MEDICAL EXPERT

1. Develop the following clinical skills given a NICU patient with a Pediatric General Surgical disease:

- Take a relevant history.
- Perform an acceptable physical examination concentrating on the relevant areas.
- Arrive at an appropriate differential diagnosis.
- Order appropriate laboratory, radiological and other diagnostic procedures, demonstrating an ability to interpret these investigations.
- Arrive at an acceptable plan of management, demonstrating knowledge and skill in both the operative and non-operative treatment of the disease process.
- Manage patients in the ambulatory setting, especially patients who were managed in and graduated from the NICU
- Manage the NICU patient throughout the entire in-hospital course, demonstrating appropriate knowledge and skills.
- Provide a plan for patient follow-up.
- Demonstrate efficiency in the utilization of health care resources.

2. Demonstrate a fundamental knowledge and understanding of the following general areas and disease processes within the field of Pediatric General Surgery, as it pertains to the care of the NICU patient, which is adequate to permit appropriate assessment, investigation, diagnosis, and treatment of these patients:

- Common genitourinary problems – ovarian masses, foreskin problems, cryptorchidism, testicular torsion.
- Soft tissue and skin infections – primary and secondary, antibiotic therapy, related surgical procedures.
- Hernias – inguinal, umbilical, epigastric.
- Common subcutaneous and soft tissue masses: lymphangioma, hemangioma, dermoid cyst, thyroglossal duct cyst, torticollis, branchial cleft cyst and fistula, lymphoma, breast lumps.
- Common problems of the endocrine system which may involve the surgeon – thyroid, hypoglycemia, intersex conditions.

- The “Acute Abdomen” – bowel obstruction, intussusception, malrotation and volvulus.
- Disorders of the umbilicus – umbilical granuloma, umbilical discharge, omphalomesenteric and urachal anomalies.
- Rectal bleeding – necrotizing enterocolitis, medical conditions that may cause rectal bleeding.
- The constipated child – Hirschsprung disease, motility disorders.
- Non-bilious vomiting – pyloric stenosis, gastroesophageal reflux.
- The abdominal mass – Wilms tumour, neuroblastoma, others.
- Pediatric hepatobiliary and pancreatic disorders – choledochal cyst, biliary atresia, inspissated bile syndrome, medical causes of jaundice, pancreatitis, pseudocyst.
- Common neonatal surgical conditions – neonatal intestinal obstruction, esophageal atresia and tracheoesophageal fistula, diaphragmatic hernia, omphalocele and gastroschisis, necrotizing enterocolitis, anorectal malformations, exstrophy.
- Disorders of the thorax – pneumothorax, empyema, cystic adenomatoid
- Fluid and dietary management of the NICU surgery patient – hemotherapy (blood, plasma, platelets), maintenance fluid regimens, replacement fluid regimens in specific conditions such as pyloric stenosis, small bowel obstruction, peritonitis, TPN.
- Associated medical conditions which impact on the NICU surgery patient – congenital heart disease, bronchopulmonary dysplasia, juvenile diabetes, immunodeficiency syndromes, etc.
- Indications for and complications of central venous lines in NICU patients
- Indications for and complications of gastrostomy tubes in NICU patients

3. Develop the following general skills (using a system of graded responsibility): to handle the tissues of the premature and full-term child gently and deliberately, to make reasoned intra-operative judgments, to contribute to a positive operating room atmosphere, and to demonstrate technical competence in performing the following procedures in premature and full-term children:

- Venous access, including insertion of tunneled central line, portacath, and PICC line.
- Incision and drainage of subcutaneous, soft tissue, or deep abscesses.
- Bronchoscopy.
- Repair of esophageal atresia with and without tracheoesophageal fistula, esophageal replacement, esophageal resection, repair of esophageal perforation.
- Pulmonary resection, including pneumonectomy, lobectomy, and wedge resection.
- Resection of extrapulmonary thoracic masses, including sequestration, bronchogenic cyst, mediastinal tumors and cysts
- Placement of gastrostomy, jejunostomy, ileostomy, colostomy.
- Exploratory laparotomy for acute abdomen.
- Pyloromyotomy for pyloric stenosis.
- Repair of neonatal intestinal obstruction, including atresia, stenosis, web, congenital band, meconium ileus.
- Surgical management of necrotizing enterocolitis, including laparotomy, resection, stoma formation, strictureplasty, and bedside drainage.
- Closure of abdominal wall defects, including gastroschisis, omphalocele, and cloacal exstrophy.

- Ladd's procedure, bowel resection, and adhesiolysis.
- Open and transanal pullthrough for Hirschsprung's disease.
- Posterior sagittal and laparoscopic pullthrough for high anorectal malformations, perineal procedures for low anorectal malformations.
- Repair of umbilical and incisional hernia.
- Repair of inguinal hernia and hydrocele, orchidopexy, repair of testicular torsion, orchidectomy.
- Circumcision.
- Laparotomy (and laparoscopy) and cholangiogram for neonatal jaundice, Kasai portoenterostomy, resection of choledochal cyst.
- Pancreatectomy and pancreatic drainage procedures for islet cell dysplasia.

COMMUNICATOR

- Obtain and synthesize relevant history from NICU patients, their families and the community.
- Demonstrate an appreciation of the unique relationship between NICU patients and their families and be able to deal effectively and compassionately with family members by establishing therapeutic relationships.
- Demonstrate an appreciation of the unique psychological needs of NICU patients.
- Listen effectively.
- Demonstrate effective communication skills.
- Maintain adequate written and dictated medical records.

COLLABORATOR

- Consult effectively with other physicians and health care professionals.
- Contribute effectively to other interdisciplinary team activities.
- Effectively use the team approach in the management of complex NICU patients with congenital anomalies

MANAGER

- Utilize resources effectively to balance patient care, learning needs, and outside activities.
- Allocate finite health care resources wisely.
- Work effectively and efficiently within each of the hospitals.
- Utilize health care technology to optimize NICU patient care, life-long learning and other activities.
- Demonstrate an appreciation of the economic factors that influence decision-making and the impact of such factors on families.
- Understand the principles and practice of quality assurance and improvement.

HEALTH CARE ADVOCATE

- Identify the important determinants of health affecting NICU patients, domestically and internationally.
- Demonstrate an understanding of injury prevention.
- Recognize and respond to those issues where advocacy is appropriate.
- Contribute to health-maintenance advocacy for premature and full-term children domestically and internationally including such areas as proper use of car seats.

SCHOLAR

- Complete at least one scholarly project (per year), including writing of research proposal, collection and analysis of data, writing/submission of abstract, presentation of abstract at a major meeting and submission of a manuscript for publication
- Develop, implement and monitor a personal continuing education strategy.
- Critically appraise sources of medical information.
- Facilitate learning of patients, housestaff / students and other health care professionals through formal and informal teaching opportunities.
- Contribute to the development of new knowledge to foster the academic growth of the specialty of Pediatric Surgery by participating in scholarly work.

PROFESSIONAL

- Deliver highest quality care with integrity, honesty and compassion.
 - Exhibit appropriate personal and interpersonal professional behaviors.
 - Practice medicine ethically consistent with obligations of a physician.
 - Demonstrate sensitivity to age, gender, culture and ethnicity in dealing with NICU patients and their families.
 - Understand the ethical principles as related to the complex issue of congenital abnormalities and as applied to NICU children submitted to medical treatment, research, etc.
 - Recognize the importance of maintenance of competence and evaluation of outcomes.
 - Understand the legal issues related to consent, confidentiality, and refusal of treatment.
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