

National Board of Examinations

REVISED CURRICULUM FOR COMPETENCY BASED TRAINING OF DNB CANDIDATES

PEDIATRICS
2006



National Board of Examinations
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Preface

The National Board of Examination was established in 1975 with the primary objective of improving the quality of the Medical Education by elevating the level and establishing standards of post graduate examinations in modern medicine on all India basis. There are more than 450 N.B.E accredited institutions/ Hospitals , imparting DNB training programmes in 28 Broad specialties and 16 super specialties. Besides, there are Post-doctoral fellowship programmes in 14 specialties and Post-graduate dental programmes in 9 specialties. In order to have standardized and quality training in all the accredited hospitals, National Board of Examinations has a well structured curriculum. The curriculum is being revised periodically to incorporate newer topics and introduce more innovative training methods. The present curriculum has been revised by National Board of Examinations' experts and has details of the training objectives, schedule, methods, technical contents. There are lists of skills in various procedures/ surgical techniques which a DNB candidate must acquire during the training, reference and text books as well as the journals in the speciality. The curriculum also gives sample theory questions and common cases for practical skill assessment during training every six months in the form of concurrent assessment. The guidelines for thesis and maintenance of log book to record day to day activities carried out by the candidates are also given.

It is expected that the revised curriculum will be useful to the DNB consultants in organizing the DNB training programmes in their respective hospitals. The DNB candidates will also benefit from this document.

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Program Goals

To train a postgraduate in Pediatrics who will be able to

- To practice as a Child and adolescent Health Specialist (up to the age of 18 years) equipped with appropriate knowledge and skills necessary for care of the normal and sick child.
- To practice Child & Adolescent Health in the community (urban or rural) and to perform professionally at levels of the existing health care system.
- To practice with empathy and impart the highest ethical standards of the profession.
- To continue to strive for excellence by continuing medical education throughout his or her professional career.
- To teach by sharing knowledge and skills with colleagues.
- To research and find solutions to newer challenges in health care.

Objectives to be achieved by an individual at the end of 3 years of DNB training

The objectives to be fulfilled at the completion of the course are as follows:

Knowledge

- Describe, identify and monitor normal patterns of growth and development of children and adolescents.
- Describe etio-pathogenesis, principles of clinical diagnosis, investigations and treatment of disease of childhood and adolescence.
- Demonstrate an understanding of Basic (Pre and Para clinical) Science and its application to the normal and abnormal processes.
- Analyze clinical and investigation data approach and manage a health related problem.

- Identify and understand socio-economic environmental –cultural factors in healthcare.
- Recognize problem outside his or her abilities and appropriately refer.
- Update one's knowledge and skills by self directed learning and by participating in continued medical education program utilizing media-spoken, written and electronic. Teach and share knowledge and skills with colleagues.
- Audit and analyze work, assist in research and publish scientific articles in peer-reviewed journal.
- Acquire knowledge about Basic Research Methodology

Skills

- Elicit appropriate clinical history
- Demonstrate appropriate clinical and physical examination skills on children.
- Plan & decide upon and interpret appropriate cost effective investigation.
- Perform, resuscitate and stabilize children in Pediatric or Neonatal emergencies.
- Learn procedures directed both towards therapeutic and diagnostic purposes e.g., bone marrow, lumbar puncture etc.
- Learn proper examination including use of oto-scope and ophthalmoscope

Communication and Attitudes

- Communicate appropriately with guardians and children, assisting in their health care decision making.
- Practice child health care at the highest ethical level, protecting the child at all costs.
- Respect patients (and their guardians rights and professional relationships) (Doctor-Doctor-Nurse, Doctor Patient, Doctor-Society).
- Apply the highest level of ethics in research, publication, references and practice of pediatrics

Tentative Schedule for three years of DNB Training

Clinical postings

Acquisition of practical competence is the keystone of postgraduate medical education. A candidate has to look after the hospitalized inpatient in the hospital everyday besides different training and teaching activities mentioned later.

Learning in postgraduate program should be essentially self directed and emanating from clinical and academic work. A postgraduate student during a period of three years for his training should be posted in neonatology for a period of at least 6-9 months and training in social pediatrics preferably for a period of 3 months in a primary /community health center.

Methods of training and teaching

In addition to regular bed side teaching, a typical week for postgraduate could be as follows:

Weekday	Activity
Mon	Seminar 3 days in a month: interdepartmental meeting once a month
Tue:	grand rounds, records rounds
Wed:	Bedside clinic/case presentation
Thur:	Mortality meeting once in a month: Clinico-pathological Conference/Journal club once in a month
Fri:	Hospital conference / interdepartmental meeting
Sat:	Unit activity

Orientation/didactic lectures could be held in the beginning before actual regular teaching program starts.

Thesis

The detailed guidelines are given in annexure.

Assessments/ Examinations

Concurrent examination/assessment

The purpose of the concurrent assessment is to give regular feed back to the DNB candidates about their performance and to prepare them for the final terminal examination by giving them exposure to the examination pattern. As a part of the concurrent evaluation the DNB candidates will be assessed every six months by an independent local appraiser selected by National Board of Examinations. This would include theory examination (100 marks of three hours duration) containing 10 short structured question related to the topics covered during the preceding six months by the accredited hospital/institution.

The practical examination (300 marks) will include long case, short case, spots, ward round, viva voce on the topics covered during the period by the hospital/institution.

Final examination

Final examination shall consist of two parts, i.e., theory and practical

PAPER I	Clinical Pediatrics
PAPER II	Preventive and Social Pediatrics Including growth and development and perinatal medicine
PAPER III	Specialities of Pediatrics, Psychiatry, Endocrinology, Cardiology, Neurology, Haematology, Nephrology
PAPER IV	Basic Medical Sciences as applied to Pediatrics

Practical Examination:

Long & short cases and OSCE should be given to the students for history taking and examination. Spot case should be given to the candidate in the presence of the examiner/s, to be examined (including history taking by the candidate) and assessed by the examiners Viva Voce on-Instruments, Pathology specimens, Drugs & X-rays, Sonography etc.

ANNEXURE- I, THEORY SYLLABUS

Patho-physiology of body fluids and fluid therapy (approach and management)

Physiology of fluids, electrolytes and acid bases, Dehydration and fluid management, Dys-electrolytemia, Acid Base Disorders, Special Situations-Pyloric stenosis, Central Nervous System disorders, burns, perioperative, Hirschsprung disease, endocrine disorders, renal failure & fluid management in the neonate

Acutely ill child

Evaluation in emergency, Control, Emergency medical services, Pediatric critical care respiratory failure and shock acute neurological dysfunction, resuscitation-basic and advanced, Neonate Ambulatory Life Support /Pediatric Ambulatory Life Support, post resuscitation stabilization, Cold/Heat injury, Transportation of sick children/neonates, Post operative supportive care

EMERGENCIES/ CRITICAL CARE PEDIATRICS

Fluid abnormalities, Electrolyte abnormalities, Thermoregulation problems, Hypertensive crisis Congestive cardiac failure, Cardiogenic shock, Pericardial tamponade, Cyanotic spells, Unstable and stable Arrhythmias, Vomiting and diarrhea, GI bleeds- Hematemesis, melena, hematochezia, Adrenal crisis, Metabolic problems-hyper ammonemia, lactic acidosis, acid base abnormalities, hypoglycemia, Septicemic shock, viral infections and shock Systemic, Inflammatory Response Syndrome, Multiorgan Dysfunction Syndrome, Pneumothorax, empyema, leural effusion, ascites, Severe anaemia, bleeding child, neutropenia., Pain management, drug therapy, Adult Respiratory Distress Syndrome, Respiratory failure, Burns/electrocution, Animal bites, Pre-anaesthetic check up (PAC), Sickle cell crisis, severe complicated malaria, Oncological emergencies e.g., cord compression and Sup.Vena caval syndrome, Acute severe asthma, bronchiolitis, Status epileptics, Febrile seizure, Coma, Increased intra-cranial pressure, Cardiopulmonary resuscitation, Shock, Upper airway obstruction, Near drowning, Poisoning, Snake bite, Scorpion sting, Physical abuse, .Sexual abuse, Pediatric anesthesia, Organization of a PICU/NICU, Equipment for intensive care, Levels of care in NICU/PICU

Human Genetics

Molecular basis of disorders, Molecular diagnosis,, Inheritance patterns, Chromosomal / genetic clinical abnormalities (Trisomies etc), Genetic counseling, Dysmorphism, Gene therapy, Pedigree charting, Screening for genetic disorders

Metabolic disorders

Approach to Inborn Errors of Metabolism defects, Amino acid metabolic defects-common, Carbohydrate metabolism-common, Mucopolysaccharidosis, Hypoglycemia, Porphyria, Lipid metabolism –common, Purine and pyrimidine, Amino acid metabolic defects- Rare, Lipid metabolism-rare, Errors in CHO metabolism-common, Mucolipidosis,

Human Genome Project

Fetus and newborn

Mortality and morbidity, Newborn-history, examination, routine, delivery care, nursery care, bonding, High risk pregnancies, Dysmorphology, Fetus well being (including NST, partogram, cardiotocogram), Growth/development, Fetal distress, Maternal medications, Detection, treatment, prevention of fetal disease, Antenatal diagnosis, Fetal therapy, Antenatal therapy, Counseling, Teratogenesis/radiation, High risk infant, Multiple pregnancies, Prematurity, Postdated, Intrauterine Growth Retardation/Low Birth Rate, Large for gestational age, Congenital anomalies/malformations (Neural tube defects, Intestinal atresia, malrotation etc), Birth injuries, Hypoxia-ischemia, asphyxia, Neonatal Encephalopathy, Organisation and levels

of newborn care, Normal newborn, Common problems in normal newborn, Delivery room emergencies NALS, Respiratory disorders (Hyaline Membrane Disease, Meconium Aspiration Syndrome, MAS), Chronic Lung Disease, CLD, Apnea, Air Leak syndrome), Oxygen therapy, toxicity, Ventilation, GI disturbances including Necrotising Enterocolitis, Gastroesophageal reflux, Feeding Intolerance, Hyperbilirubinemia, Cardiac problems, Persistent Pulmonary Hypertension, Blood disorders – Polycythemia- Anaemia - Hemorrhagic disease of newborn – Thrombocytopenia Genitourinary disturbances, Metabolic disorders Endocrine disorders- Idiopathic Diabetes Mellitus, Congenital Adrenal Hyperplasia, Congenital Adrenal Hyperplasia, Ambiguous genitalia, Fluid and electrolytes in newborn care, Nutrition and feeding the newborn term/preterm, Low Birth Weight,, Intrauterine Growth Retardation, Large for gestational age, Total Parenteral Nutrition, Neonatal transport, Neonatal Seizures, Intracranial hemorrhage, Surgical problems, Tracheo-esophageal fistula, Anorectal malformations, Diaphragmatic hernia/eventration, Hirschsprung, Urogenital anomalies, Necrotising-enterocolitis, Congenital labor emphysema volvulus, Thermoregulation, Arthritis & Osteomyelitis, Neonatal follow up Retinopathy of prematurity (ROP), hearing, early intervention, Neurodevelopmental follow up, Neonatal Screening, Neonatal Equipment, Hemodynamic monitoring , Surfactant therapy

Neonatal infections

Epidemiology, Intrauterine infections, Viral infections, Neonatal sepsis/meningitis, Pneumonia, UTI (Urinary Tract infections), Hepatitis, Perinatal HIV, Nosocomial infections, Universal precautions, Prevention of infections, Therapy-antimicrobials, adjuvant

Adolescent health

Epidemiology, Sexual development and Sexual Maturity Ratings stages, Deliveries of health care, Pregnancy, Contraception, Sexually Transmitted Disorders/HIV, Menstrual problem, Anorexia nervosa, bulimia, Life Skills Management, Accidents and risk taking behavior

Immunological system

Basics of immunology, Approach to immunodeficiency, Human Immunodeficiency virus, Bone marrow transplantation, Primary B cell disease, Primary T cell disease, Complement and phagocytic disease, Chronic granulomatous disease, Chediak Higashi disease, Neutrophil abnormalities, Adhesion disorders

Allergic disorders

Allergy and Immunological basis, Diagnosis, Therapy-principles, Allergic rhinitis, Asthma, Atopic dermatitis, Urticaria, angioedema, Anaphylaxis, Serum sickness, Adverse drug reactions, Adverse food reaction, Insect allergy, Ocular allergy

Rheumatology

Autoimmunity, Laboratory evaluation, Neonatal lupus, Juvenile Rheumatoid Arthritis, HLA Typing, Ankylosing spondylosis, Scleroderma, Mixed connective tissue disease, Dermatomyositis, Behcet, Sjogren

Mental disorders

Depression, Suicide, Substance abuse, Sleep disorders,

Skin / orthopedics

SLE, Vasculitis, Erythema, Nodosum, Newer Drug therapy & disease modifiers, Kawasaki disease ,Non- rheumatic conditions

Respiratory system

Development and function, Disorders of upper respiratory tract, Disorders of lower respiratory tract, Pleural disorders, Chronic respiratory disease, Interstitial fibrosis, ILD, empyema, lung abscess, Bronchiectasis, Recurrent respiratory disease, Ventilation, Pulmonary function tests, Cystic fibrosis, Obstructive sleep apnea, Pulmonary hemosiderosis, Neuromuscular skeletal disorders, Bronchial asthma, Foreign Body, Congenital disorders of nose, Hypoventilation, Hypostatic pneumonia, Kyphoscoliosis, Central hyperventilation, Obesity, Cough syncope

Cardiovascular system

Investigations-lab, ECG, CXR, ECHO, Physiology and pathophysiology of transitional circulation embryology, Congenital heart disease epidemiology approach, cyanotic and acyanotic, Cardiac arrhythmia, Acquired heart disease infective, Endocarditis rheumatic heart disease, Disease of the myocardium-Myocarditis, Cardiac therapeutics, Hyperlipidemia & Hypertension; Sick sinus syndrome, Tumors of heart, Heart lung, Heart transplants, Aneurysms and fistulae, catheterization

Infectious diseases

Fever, Clinical use of micro lab, Fever without a focus, Sepsis and shock, CNS infections, Pneumonia, Gastroenteritis, Osteomyelitis, septic arthritis, Compromised host infections, Bacterial infections, Anaerobic infections, Viral infections, Mycotic infections, Candidiasis, Aspergillosis, Parasitic infections, Helminthiasis, Protozoal infections, Malaria, Kalazar, Leishmania, Giardia, Amoebiasis, Antiparasitic drugs, Antimicrobials, Antiviral drugs, interferon, Antifungals, Preventive measures, Health advice for traveling, Infection control, Immunization-principles, schedules, controversies standard and optional vaccines recent advances in vaccines

Digestive system

Normal tract-physiology, anatomy, development, Clinical features of disorders, Disorders of esophagus, Disorders of stomach, Disorders of intestines except food allergy, Disorders of pancreas, Disorders of liver and biliary system acute hepatitis, chronic hepatitis, cirrhosis, metabolic liver diseases, cholestatic liver diseases, neonatal obstructive cholangiopathy, complication of liver disease-portal hypertension, encephalopathy, coagulopathy, Disorders of peritoneum, GI functions tests, Liver Function Tests, Gastroesophageal Reflux, Celiac Disease, Antiviral therapy for Hep B & C, Approach to malabsorption

Blood

Development of hematopoietic system, Anemia, Inadequate production, nutrition-iron, folate, B₁₂, Bone marrow failure, Hemolytic, congenital and acquired, Constitutional pancytopenia, Thalassemias, Sickle cell anemia, Granulocyte transfusions, Pancytopenia, Blood and component transfusions, Thrombotic disorders, Hemorrhagic disorders-acquired and congenital, physiology, bleeding disorders, coagulation disorders, Hypersplenism, trauma, splenectomy, Physiology and disorders of the spleen, Lymphoreticular malignancies

Neoplasms

Principles of diagnosis & Epidemiology, Principles of treatment & Molecular pathogenesis, Leukemia & Lymphomas, Neuroblastomas & Kidney tumors, Bone neoplasms & Soft tissue sarcomas, Brain Tumors & Retinoblastoma, Gonadal, germ cell tumors, Liver neoplasm, GI neoplasm X, Carcinomas X, Skin cancer X, Benign tumors

Nephrology

Structure and function of kidney, Hematuria & Proteinuria Evaluation, HUS (Hemolytic Uraemic Syndrome), Evaluation Renal Function Test, Proteinuria, Nephrotic syndrome, Acute

glomerulonephritis, Tubular disorders ATN (Acute Tubular Necrosis), Function RTA (Renal tubular acidosis), DI (Diabetes Insipidus), Renal failure (Ac & Ch) & ESRD (End stage renal disease), RPGN (Rapidly progressive glomerulonephritis), Renal replacement therapy, Bartter syndrome, Investigations, Toxic nephropathy, Membranous Glomerulo-nephritis, Lupus nephritis, Membranoproliferative Glomerulonephritis), Interstitial nephritis, Cortical necrosis

Urological disorders

UTI (Urinary Tract Infection), Congenital anomalies, Dysgenesis kidney, Vesicoureteral reflux, Bladder anomalies, Obstructions, Anomalies of Urogenital System, Obstructions, Scrotal anomalies, Genitourinary trauma, Urinary lithiasis, Investigations-imaging, renal function tests, Neurogenic bladder

Gynecological problems

Menstrual problems, Vulvovaginitis, Developmental anomalies, A child with special gynae need

Good pasture Syndrome

Neoplasms, Breast disorders, Hirsutism, polycystic ovaries, Gyne imaging, Athletic problems

Endocrine

Hypothalamus and pituitary, Hyperpituitarism, Hypopituitarism, DI (Diabetes Insipidus), ADH (Antidiuretic hormone), Physiology of puberty, Disorders of puberty, Precocious puberty, Delayed puberty, Thyroid, Thyroid studies, Hypothyroidism, Thyroiditis, Goiter, Hyperthyroidism, Parathyroid and disorders;Diabetes mellitus, Adrenal disorders, CAH (Congenital adrenal hyperplasia), Cushing, Addison, Excess mineralocorticoids, Feminizing adrenal tumors, Pheochromocytoma, Ambiguous genitalia, Menstrual Disorders, Obesity, Short Stature

CNS

Examination, localization of lesions, Congenital anomalies, Seizures, Headaches, Neurocutaneous disorders, Coma, Brain death, Head injury, Neurodegenerative disorders, Approach, grey/white, Acute stroke, Brain abscess, Tumors, Spinal cord disorders, Investigations, Antiepileptic drugs, SSPE (Subacute Sclerosing panencephalitis), Rabies vaccine encephalomyelitis, Acute demyelinating encephalomyelitis, Approach, investigations of Upper Motor Neuron, Lower Motor Neuron, extra pyramidal, cerebellar lesions, Cerebral palsy, Neuroinfections, Encephalopathies , Movement disorders

Neuromuscular

Evaluation, investigations, Muscular dystrophies, congenital, Neuromuscular transmission, Bell's palsy, Floppy infant/Ac Flaccid paralysis, Myasthenia gravis, Motor sensory neuropathy, Autonomic neuropathy

Eye

Examination of eye, Diseases of eye movement and alignment disorders, Disease of conjunctiva-conjunctivitis, Diseases of lens- cataracts, Diseases of optic nerve-papillitis, Diseases of cornea- clouding, Vitamin A deficiency, Lacrimal problems- dacryocystitis, Retinopathy of prematurity, Visual Evoked Response, Orbital Cellulitis Cavernous sinus thrombosis, Retinoblastoma , Injuries to eye

Ear

Clinical manifestations, Hearing loss, External otitis, Otitis Media, BERA, Rhabdomyosarcoma Ear Drum & Sinus Diseases

SKIN

Morphology, Evaluation, Principles of therapy, Neonatal Skin, Ectodermal dysplasias, Vascular disorders, Cutaneous nevi, Pigment disorders, Hyper pigmentation, Hypo pigmentation, Vesiculo-bullous disease, Eczema, Cutaneous infections-bacterial, viral, fungal, Arthropod bites, infections, Acne, Nutritional diseases, Drug reactions

Bone/Joint

Evaluation, Diseases of foot, toes, Torsional, angular deformities disorders, Arthrogyrosis, Common fractures, Arthritis-approach, investigations, management, Congenital dislocation of hip, Osteomyelitis, Septic arthritis, Idiopathic hypercalcemia, Disease of the hip, Disease of the spine, Disease of the neck

Metabolic Bone Disease

Bone and Vitamin D, Familial Hypophosphatemia, Rickets-nutritional and non nutritional

Unclassified disease

SIDS (sudden infant death syndrome), Langerhan Cell Histiocytosis, Cystic fibrosis, Lead poisoning, Envenomation, Mammalian bites, Common poisoning- Organo phosphorus, kerosene, Phenobarbitone, iron, etc. Radiation, Chemical pollutants, Mercury, Non bacterial poisoning

SOCIAL PEDIATRICS

Epidemiology and Medical statistics, Immunization, National Programs, Acute Flaccid Paralysis (AFP) Surveillance, Reproductive & Child Health, Integrated Management of Childhood illness, Impact of Air, Water and environmental pollution, pesticides, Impact on Growing fetus, Medical Waste Disposal, Medico Legal Aspects

ANNEXURE-II, DETAILS OF THE SKILLS TO BE ACQUIRED DURING THE TRAINING PERIOD

CLINICAL PROCEEDURES WHICH THE CANDIDATES MUST KNOW

Name of Procedure	As Observer	As first assistant	Independently
Venous Cannulation	5	10	50
Arterial Cannulation	5	5	30
Central Venous Cannulation	3	5	20
PICC	2	3	20
Umbilical Cannulation	2	3	10
Thoracocentesis	5	3	2
Acsites tap	5	3	2
Pericardialcentesis	5		
Bladder Catheterization	2	3	25
Suprapubic Puncture	2	3	10
Lumbar Puncture	10	30	50
Subdural Tap	5		
Tuberculin test	5	5	50
Chest Phsiotherapy	5	5	50
Nebulization	5	5	50
Chest Tube	5	5	
Neonatal Resuscitation	5	10	50
Exchange Transfusion	2	2	10
Resuscitation of acutely ill child	5	5	25
Endotracheal Intubation	5	5	25
Ventilation	5	5	15
Peritoneal Dialysis	5		
Bone Marrow aspiration & biopsy	5	5	25
Kidney Biopsy	1	2	2
Skin Biopsy	3		
Muscle Biopsy	3		
FNAC	5	25	25
BCG	5	5	50
OPV	5	5	50
DPT	5	5	50
Measles	5	5	50
MMR	5	5	50
Sonography/CT Guided FNAB/FNAC	5		

Investigations/Tests, which the candidate must know to interpret
Hb
TLC
DLC
P/Smear
MP
Urine
Stool
CSF
Gram Staining
AFB Staining
Ascitic Fluid
Pleural
USG Interpretation
X Ray
CT Scan
MRI
EEG
ABG
Spirometry
NCV/EMG (Desirable to know)

ANNEXURE –III, SAMPLE CASES FOR PRESENTATION AND DISCUSSION

- Fever
- Fever and rash
- Chronic/persistent/recurrent fever
- Pyrexia Unknown Origin
- Cough Chronic/persistent/recurrent cough
- Acute diarrhea
- Vomiting
- Seizures
- Ear discharge
- Dysuria
- Coma/altered sensorium
- Jaundice
- Short stature
- Mental retardation/delayed development
- Acute diarrhea
- Regression of milestones
- Bleeding tendency
- Coagulation abnormalities
- Rash
- Congenital heart diseases-Cyanotic, Acyanotic
- Abdominal pain, Recurrent abdominal pain
- Recurrent respiratory infections
- Floppy infant
- Hemiplegia
- Paraplegia
- Quadriplegia
- Monoplegia
- Recurrent infections
- Organomegaly
- Anemia
- Gastrointestinal bleeds
- Ambiguous genitalia

ANNEXURE-IV, SAMPLE QUESTIONS FOR SIX MONTHLY ASSESSMENTS

- Describe prenatal development of the lungs i.e., morphogenesis of lungs.
- Delineate diagnosis and management of GE reflux
- Give differential diagnosis of Upper airway Infectious obstruction
- Management of complete airway obstruction secondary to foreign body
- Diagnosis and management of obstructive sleep apnea
- How will you diagnose and manage a suspected case of retropharyngeal abscess?
- How will you diagnose a case of cystic fibrosis? Write a short note on gene therapy for cystic fibrosis.
- Write a note on recent management of cystic fibrosis.
- Write a note on Pulmonary hemosiderosis.
- Write a note on chylothorax.
- Write a note on role of steroids in Bronchial asthma.
- What's recurrent abdominal pain. What are the red flags signs in a case of pain abdomen in a child.
- How would you approach a case of jaundice in a child persisting beyond 2 weeks of age
- Describe pancreatic function tests.
- Describe the clinical presentation and management of Achalasia Cardia.
- Meckel's Diverticulum
- Intussusception
- Short term notes management of chronic hepatitis B and chronic hepatitis C
- What are indications of liver transplantation in a child
- Describe Juvenile tropical pancreatitis
- What's mucocele of Gall Bladder. Write a short note on its etiology and management
- Describe the role of Probiotics in diarrhoea
- New Osmolarity ORS
- Role of Zinc in diarrhoea
- What are the glycogen storage disorders which affect the liver. How would you diagnose and treat them
- Octerotide
- NTBC
- NAFLD & NASH
- How would you manage a case of abdominal Koch's
- How do you differentiate abdominal tuberculosis from Crohn's disease.
- What are the serological tests used to diagnose coeliac disease. Write a short note on them.
- Enunciate the steps in management of status epilepticus.
- Name the X-linked neurological disorders in children.
- Briefly discuss the etiologies of acute cerebellar ataxia in children.
- Discuss role of Botulinum toxin in childhood diseases.
- Describe the differential diagnosis of Acute Flaccid Paralysis.
- What investigations would you recommend in childhood occlusive arterial stroke?
- Name the drug of choice for: a) Primary Generalised Epilepsy b) Absence seizures, c) Myoclonic epilepsy, e) Partial seizures, f) Infantile Spasms.
- Acute Disseminated Encephalomyelitis.
- Pervasive Developmental Disorders.
- Investigate a child with Coma

ANNEXURE- V, BOOKS AND JOURNALS

Recommended Reference Books

- Behrman Ehrman RE, Kliegman RM, Jenson HB. Nelson Textbook of Pediatrics. Harcourt Asia Pie Ltd. 17th edition, 2004.
- Rudolph AM, Hoffman JIE, Rudolph CD. Rudolph's Pediatrics. Appleton and lange, 20th edition, 1996. Campbell AGM, McIntosh N. Forfar and Arneil's Textbook of Pediatrics. ELBS. 4th edition, 1992.
- Ghai OP, Gupta P, Paul VK. Essential Pediatrics. Interprint, New Delhi, 5th edition, 2001.
- Singh M. Pediatrics Clinical Methods. Saga, Publications, 1st edition 1992.
- The Harrier Lane Handbook. Mosby & Harcourt India.
- Singh M, Deorari AK. Drug Doses in Children.

Growth and Development

- Illingworth RS. The development of the infant and young child. Normal and abnormal. Churchill Livingstone

Nutrition

- Alleye GAO, Hay RW, Picou DI, Stanford JP, Whitehead RG. Protein energy malnutrition. Jaypee Brothers
- Management of severe malnutrition: a manual for physicians and other senior health workers. WHO, Geneva, 1999.
- Suskind RM, Lewinter-Suskind C. The malnourished child. Nestle Nutrition Workshop Series. Volume 19, 1990.

Infectious diseases

- Feigin RD, Cherry ID. Textbook of Pediatric Infectious Diseases. W.B. Saunders,
- Remington JS Klein JO. Infectious Diseases of the Fetus and Newborn Infant. W.B. Saunders
- Weatherall DJ, Ledingham JGG, Warrell DA. Oxford Textbook of Medicine; Volum I. Oxford University Press.
- Cook G. Manson's tropical diseases. ELBS and W.B. Saunders Co.
- Seth V, Kabra SK. Essential of tuberculosis in children. Jaypee Brothers
- Pizzo PA, Wilfert CM. Pediatric AIDS. Lippincott Williams.

Intensive care

- Singh M Medical emergencies in children. Sagar Publications.
- Nichols DG. Textbook of Pediatric intensive care, Williams & Wilkins
- Neonatal and Pediatric emergencies Sachdeva et al Jaypee Brothers.

Neonatology

- Singh M. Care of the Newborn, Sagar Publication, 2000.
- Avery GB, Fletcher MA, MacDonald MG. Neonatology- Pathophysiology and Management of the Newborn. Lippincott William and Wilkins.
- Cloherty JP, Stark AR. Manual of Neonatal Care. Lippincott-Raven Publishers.
- Kattwinkel I. Textbook of neonatal resuscitation. American Heart Association and American Academy of Pediatrics.

Neurology

- Swaiman B, Kenneth F, Ashwal S. Pediatric Neurology: Principles and Practice. St. Louis Mosby.
- Brett EM. Pediatric Neurology. Churchill Livingstone.
- Menkers JH. Textbook of Childhood Neurology. Lea and Febiger.

Cardiology

- Allen HO, Clark FB, Gutgesell HP, DJ. Moss and Adam's Heart Disease in Infants, Children and Adolescent. Lippincott Williams and Wilkins.
- Park MK. Pediatric cardiology for practitioners. Mosby-Year Book, Inc.

Gastroenterology

- Suchy FI, Sokol RJ, Balistreri WF. Liver disease in children. Lippincott Williams and Wilkins.
- Bhan MK, Bhatnagar S. Guidelines for management of diarrhoea in children. Ministry of Health, GOI and WHO/SEARO, 2000.

Endocrinology

- Lifshitz F. Pediatric Endocrinology. Marcel Dekker, Inc.
- Sharma S, Singhal T, Bajpai A. Management protocols in pediatric endocrinology.
- Desai MP, Bhatia B, Menon PSN. Pediatric Endocrine Disorders. Orient Longman, 2001.

Nephrology

- Barratt TM, Avner ED, Harmon WE. Pediatric nephrology: Baltimore Williams and Wilkins.
- Srivastava RN, Bagga A. Pediatric Nephrology, 3rd edition, Jaypee, New Delhi, 2001.

Hematology & Oncology

- Nathan DG, Orkin SH. Nathan and Oski's Hematology of Infancy and Childhood. W.B. Saunders. 5th edition, 1998.

Rheumatology

- Cassidy JT, Petty RE. Textbook of Pediatric Rheumatology. W.B.Saunders.

Respiratory Medicine

- Chernick V, Boat TF. Kendig's Disorders of the Respiratory Tract in Children. WB Saunders.

ANNEXURE-VI, GUIDELINES FOR WRITING THESIS/DISSERTATION

Research shall form an integral part of the education programme of all candidates registered for Diploma of NB degrees of the Board. The Basic aim of requiring the candidates to write a thesis/dissertation is to familiarize him/her with research methodology. The members of the faculty guiding the thesis/dissertation work for the candidate shall ensure that the subject matter selected for the thesis/dissertation is **feasible, economical and original**.

Guidelines

- I. The thesis may be normally restricted to the size to 100 pages. To achieve this, following points may be kept in view;
 - (i) Only contemporary and relevant literature may be reviewed.
 - (ii) The techniques may not be described in detail unless any modification/innovations of the standard techniques are used and reference may be given.
 - (iii) Illustrative material may be restricted.
 - (iv) Since most of the difficulties faced by the residents relate to the work in clinical subject or clinically oriented laboratory subjects the following steps are suggested:
 - For prospective study, as far as possible, the number of cases should be such that adequate material, judged from the hospital attendance, will be available and the candidate will be able to collect the case material within a period of 6-12 months so that he/she is in a position to complete the work within the stipulated time.
 - The objectives of the study should be well defined.
 - As far as possible, only clinical or laboratory data of investigations of patients or such other material easily accessible in the existing facilities should be used for the study.
 - Technical assistance, wherever necessary, may be provided by the department concerned. The resident of one speciality taking up some problem related to some other speciality should have some basic knowledge about the subject and he/she should be able to perform the investigations independently, wherever some specialised laboratory investigations are required a co-guide may be co-opted from the concerned investigative department, the quantum of laboratory work to be carried out by the candidate should be decided by the guide and co-guide by mutual consultation.
 - The Clinical residents may not ordinarily be expected to undertake experimental work or clinical work involving new techniques, not hitherto perfected or the use of chemicals or radio isotopes not readily available. They should however, be free to enlarge the scope of their studies or undertake experimental work on their own initiative but all such studies should be feasible within the existing facilities.
 - The residents should be able to use freely the surgical pathology/autopsy data if it is restricted to diagnosis only. If however, detailed historic data are required the resident will have to study the cases himself with the help of the guide/co-guide. The same will apply in case of clinical data.
 - Statistical methods used for analysis should be described in detail.

Rules for Submission of Thesis/ Dissertation by candidates for DNB

- (i) The protocol of Thesis/ Dissertation should be submitted to the office of the NBE through head of the institutions within three (3) months of joining the training in Medical college/university/DNB accredited institution.
- (ii) No correspondence will be made in regard to acceptance of the protocol except only in the case of rejected protocols for which individual will be informed by office through mail/website.
- (iii) The guide will be a recognized PG teacher in Medical college or university or NBE Accredited institutions. The teacher should have the experience of 5 years in speciality after obtaining the post graduate degree. The certificate of PG teaching and being Guide recognized by University/NBE must be enclosed alongwith thesis/dissertation. The Guide can guide one MD/MS candidate and one university diploma candidate desirous of taking the DNB examination, or one direct NBE candidate. Total number of candidates should be two including all sources.
- (iv) Candidates who will be appearing in the subject under the heading Super Speciality (like Cardiology & Cardio Thoracic Surgery etc.) need not write their thesis/dissertation if they have already written their thesis during their MD/MS/NBE examinations. However they have to submit a proof in support of their having written thesis during their MD/MS examination.
- (v) If the candidates appearing in the broad specialities have already written their thesis in the MD/MS examination, they need not submit the thesis/dissertation. However they are required to submit a copy of the letter accepting the thesis by the University.
- (vi) If thesis is rejected or needs to be modified for acceptance, the Board will return it to the candidate with suggestion of assessors in writing for modification. The result of such candidate will be kept pending till the thesis is modified or rewritten, accordingly as the case may be and accepted by the assessors of the Board.
- (vi) If any unethical practice is detected in work of the Thesis, the same is liable to be rejected. Such candidates are also liable to face disciplinary action as may be decided by the Board.
- (vii) The thesis is to be submitted 6 MONTHS before the commencement of the DNB examination. Theory result of the candidates whose thesis/dissertation are accepted by the Board will be declared.

Guidelines for Writing of Thesis/Dissertation

Title - Should be brief, clear and focus on the relevance of the topic.

Introduction – Should state the purpose of study, mention lacunae in current knowledge and enunciate the Hypothesis, if any.

Objectives- General & Specific

Review of Literature – Should be relevant, complete and current to date.

Material and Methods- Should include the type of study (prospective, retrospective, controlled double blind) details of material & experimental design procedure used for data collection & statistical methods employed; statement of limitations ethical issues involved.

Observations– Should be Organized in readily identifiable sections. Should have correct analysis of data to be presented in appropriate charts, tables, graphs & diagrams etc. These should be statistically interpreted.

Discussion- Observations of the study should be discussed and compared with other research studies. The discussion should highlight original findings and should also include suggestion for future.

Summary and Conclusion

Bibliography - Should be correctly arranged in Vancouver pattern.

Appendix—All tools used for data collection such as questionnaire, interview schedules, observation check lists etc should be put in the annexure.

ANNEXURE-VI, GUIDELINES FOR LOCAL APPRAISERS

Ref. National Board of Examinations/ Monitoring DNB trg2006
Dated 23.6.2006

Sir/Madam,

Thank you for agreeing to act as appraiser for the subject _____ at the _____.

You are hereby requested to carry out the followings:

- i. Prepare one paper containing ten short questions in the areas covered by the hospital/ institution in the last six months.
- ii. Conduct the theory examination for the candidates in the subject in the hospital.
- iii. Review the thesis progress and log book records for each candidate.
- iv. Conduct practical examination for the DNB candidates in the discipline.
- v. Appraise the infrastructure and facilities in the hospital in the concerned subject as per the enclosed format.
- vi. Send the report in the enclosed format to The Executive Director, National Board of Examinations, Ansari Nagar, Ring Road, New Delhi-110029.
- vii. Give suggestion for improving the DNB training and appraisal.

You are requested to contact _____ of the hospital _____ at Phone No. _____ You will be paid the honorarium for these activities by the concerned hospital as per the enclosed norm.

Thank you for your co-operation and support.

Yours sincerely

(A.K. Sood)

Copy to

Director/DNB Coordinator should make the necessary arrangements to conduct appraisal by the 31 July 2006.



National Board of Examinations
Guidelines for local Appraisers

1. **NBE is pleased to suggest your name as local appraiser. The purpose of introducing six monthly appraisals of NBE accredited hospitals/institutions is to further improve the quality of training, assess the training infrastructure for the DNB candidates and also assist the local institutions to develop in to a center of academic excellence. This would further add value to the services being rendered in these accredited hospitals/institutions. Please do not think that this assessment has negative connotation. Please plan your appraisal in such a way as to minimally affect the routine working of the department.**

2. **The Board expects the local appraiser to be a post graduate in the speciality with teaching and research experience. He/She should have enough time and expertise to carry out the following activities in the allotted hospitals/Institutions:**
 - 2.1 **He/she should participate in thesis protocol/progress presentation & discussion; assist the DNB candidates in their thesis work by giving them suggestions and monitoring their progress. He/she should give specific remarks to improve the Thesis work after reviewing the objectives, methodology (sample size, sampling technique, data collection tools etc.), data analysis plan and statistical tests, results and discussion plan etc. of thesis of each candidate. These remarks should also be communicated in writing to the supervisor and the concerned candidate by the appraiser and a copy be sent to National Board of Examinations.**

 - 2.2. **He /she is expected to examine the log book maintained by the candidates and give specific remarks to improve the log book maintenance after reviewing the contents of the log book (name of procedure, details of the case, salient findings, remarks of the supervisor for the improvement of the candidate etc). These remarks should also be communicated in writing to the supervisor and the concerned candidate by the appraiser and a copy be sent to National Board of Examinations.**

 - 2.3 **He/ should prepare question paper containing ten short structured questions in the speciality on the topics covered during the preceding six months and evaluate the answer sheets. He/she will maintain total confidentiality in these activities. The arrangements for six monthly theory and practical examination will be made by local accredited hospitals/institutions.**

- 2.3. He/she will formally conduct practical examination (On the topics/areas covered in preceding six months). The practical will have long case, short cases; ward round, spots and viva voce as per the DNB format.**

- 2.4. He/she will communicate the result of assessment to the concerned candidates along with detailed feed back on their performance. He/she will give detailed suggestions to each candidate in writing for improving his/her performance. He/she will act as counselor and give specific remarks for improving the overall performance level of the candidate. These remarks should also be communicated in writing to the supervisor and the concerned candidate by the appraiser and a copy be sent to National Board of Examinations.**

- 2.5. He/she will prepare the Examination worksheet for each candidate and submit the same to the concerned hospital for records with a copy of the same to the National Board of Examinations.**

- 2.6. He/she will submit the report to the Executive Director, NBE, on the format (enclosed herewith).**

- 2.7. He/she will also send six monthly report on the infrastructure, patient load and manpower in the concerned speciality of the accredited hospital, to Executive Director, National Board of Examinations, Ring Road, Ansari Nagar, New Delhi-110029.**

3. Remuneration/honorarium to the Appraisers

NBE recommends that suitable honorarium be given to the local appraisers by the concerned accredited hospital/institution, considering the activities performed and number of DNB candidates in the speciality. The recommended minimal amount be given as follows:

- 3.1. Assessment of Infrastructure and facilities in the hospital/institutions in the speciality = Rs. 500/-.**
- 3.2. Participation in thesis protocol presentation and discussion = Rs. 500/-per candidate.**
- 3.3. Development of theory paper = Rs. 500/-.**
- 3.4. Assessment of theory paper(s) = Rs. 500/-**
- 3.5. Holding of practical examination = Rs. 1000/- per candidate.**

This expenditure will be met out of the fee collected from the candidates.



National Board of Examinations

(Ministry of Health & Family Welfare, Govt. of India)
Ansari Nagar, Ring Road, New Delhi-110029.
Tel.No. 011- 26589119, 26589517, 26589656
Website : www.natboard.nic.in

**PROFORMA FOR INFRASTRUCTURE AND DNB CANDIDATES' PERFORMANCE ASSESSMENT
BY APPRAISER
(PLEASE FILL SEPARATE FORM FOR EACH DNB DISCIPLINE)**

01.	Name of the Hospital, Address, Telephone number, Fax number and e-mail				
02.	Name of the Department offering DNB				
03.	No. of beds in the speciality	Total	General (Free)*	Paying	Subsidized
04.	Number of indoor admission during the last six months	Total	General (Free)*	Paying	Subsidized

* Free – which recovers the cost only and are available for training of DNB trainees.

05. Facilities for supportive services

Subject	Please list the type and number of tests done in the reference period of last one month
Pathology	
Biochemistry	

Microbiology

Radiology

Blood Bank	
Any other	

06. Physical facilities :-
Please list the facilities related to the specialty present in the department

--	--	--

07.	Library facilities Budget spent on library in last six months.	
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09.	Track record of the candidates for the last three years : (in the specialty)				
	Year	Registered	Appeared	Passed	Left (with reason)

10. Please attach the details(such as the topic covered, date, the resource persons etc.) of various academic activities carried out by the department like -

- i. Guest lectures**
- ii. Case presentations and discussions**
- iii. Clinical conferences**
- iv. Seminars**
- v. Teaching sessions/ lectures for candidates**
- vi. Other activity specify**

11. Any other information

NATIONAL BOARD OF EXAMINATION

WORK- SHEET FOR ASSESSMENT OF CANDIDATE BY LOCAL APPRAISER

Date: _____

Name & Address of Hospital _____

Name of the candidate and registration No. _____

Training Year of the candidate - _____

First/ second/ Final

Name of Appraiser _____

I Clinical Examination

Case	Agreed Diagnosis	Max. Marks	Marks Awarded				Total Marks	
			History	Clinical Examination	Diagnosis	Management	In words	In Figure
Long case -I		60						
Short case -I		40						
Short case -II		40						
Short case-III		40						
Total		180						

II. Ward Round M. Marks = 40	Marks words	in	Awarded figure	in	Sub Total I + II (Max. Marks = 220)	
					In words	In figure

III. Viva voce Max. Marks = 80

Marks	Pathology	X-rays	Instrument Orthotics prosthetic	Operative surgery	Total
Maximum					
Marks Awarded (In words)					
Marks Awarded (In figure)					

IV. Grand Total (Sum of I+II+III) Max. Marks = 300

Marks Awarded in words

Marks Awarded in figure

V. Result _____

VI. Specific description of the strong points in case of pass candidate and of weak points in case of failed candidate. Please list out the specific details which need to be communicated to the candidate to help him improve.

VII. Examiner's Name & Signature _____

3.9. Please mention the names of any three standard text books in your speciality ` which are available in the library of your hospital and you have referred to them in the last six months-

3.10. Please mention the names of any one National and any one International journal which you have referred to in your hospital library in the last six months-

**3.11. How many clinical procedures you have done under supervision in last six months
Please mention names and number of any three of them**

**3.12. How many clinical procedures you have done independently in last six months
Please mention names and number of any three of them.**

3.13. Please give five suggestions to improve your training in your speciality

ANNEXURE- VII, FORMAT FOR LOG BOOK

Instructions for the supervisor

P.G. Training Programme - The post graduate programme broadly should include lecture/demonstration on applied basic sciences, bed side clinics, case presentations. Faculty lectures, symposia/seminar journal clubs, biopsy, radiology discussions and graded clinical responsibility.

Evaluation - It is essential that the trainee maintains a detailed account of the work done by him. The record book will in addition remind the trainee of what he should observe, learn and perform in a programmed and phased manner during the course of training. It is hoped that this record will stimulate the trainee towards greater effort in areas where he is below par and also record his progress. It forms the basis for assessment and evaluation of the trainees progress. Some of the possible criteria on the basis of which a trainee could be evaluated are - soundness of knowledge, application & judgment, keenness to learn, punctuality and promptness, initiative, reliability, clinical skill, behavior with patients, attitudes towards patient's relatives, colleagues, seniors and other staff, ability to express

Depending on the qualities and the level of attainments, a candidates could be considered for appraisal, on the basis, for example, of the following 5 letter grading system.

A	Excellent	Above	75%	B	Good	60% -	65%
---	-----------	-------	-----	---	------	-------	-----

C	Satisfactory	50%-	60%	D	Poor	30% -	50%
---	--------------	------	-----	---	------	-------	-----

E	Bad	Below	30%
---	-----	-------	-----

Besides the grading as indicated above, each student should also be given a formal feed back on his/her weak points and how to overcome his/her deficiencies.

ALL THE CANDIDATES MUST WRITE THE LOG BOOK IN DETAILS WITH REMARKS FROM THE SUPERVISORS AND THESE ENTRIES MUST BE CHECKED BY THE LOCAL APPRAISERS EVERY SIX MONTHS.

1. Name of Trainee : _____

2. Name of Hospital/Institution : _____

3. Address : _____

4. Specialty : _____

5. Name of Supervising Specialist : _____

6. Name of Medical
Director/Superintendent : _____

Date : _____

Signature of Supervising Specialist

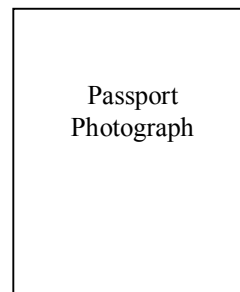
Name (Block Letters) :

Permanent Address :

Date of Birth :

Fathers Name & Address :

Education :



MBBS

Specimen Signature

Name of the College	Date of joining	Date of passing	No. of attempts	Prizes
---------------------	-----------------	-----------------	-----------------	--------

House-job

Subject	Date of joining	Date of leaving	Period
---------	-----------------	-----------------	--------

Primary Diplomat of N.B.

Subject	Date of Passing	No. of Attempts
---------	-----------------	-----------------

Final Diplomat of N.B.

Subject	Date of joining
---------	-----------------

Posting schedule

S. No.	Specialty	From	To	Period
--------	-----------	------	----	--------

Lectures

S. No.	Date	Topic and name of the resource person
--------	------	---------------------------------------

Seminars

S. No.	Date	Topic and name of the facilitators	Evaluation
--------	------	------------------------------------	------------

Journal Clubs

S. No.	Date	Topic and name of the facilitators	Evaluation
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Clinical Procedures/Operations Performed

S. No.	Date	Details of the patients and the procedures/Operations performed; names of the supervisors

Clinical Procedures/Operations Assisted

S. No.	Date	Details of the patients and of the procedures/Operations performed along with the names of the supervisors

Presentations

S. No.	Date	Details of the Case	Names of the consultants/resource persons	Evaluation

Emergencies

S. No.	Date	Details of the patients and management of emergency cases

Panel Discussions

(A) Radiology

S. No.	Date	Details of the case discussed	Names of panelists

(b) Biopsy

S. No.	Date	Details of the case discussed	Names of panelists

(C) Death review

S. No.	Date	Details of the case discussed and names of the resource persons