

Needs: Local : Pink, National : Orange, Regional: light blue, International : green

Annexure I

Revised Curriculum for Post-Doctoral Certificate Course (PDCC) in Neonatology

Goal

The goal of medical education for PDCC in Neonatology shall be to produce competent and safe specialist in the field of Neonatology with

1. Who shall have acquired the knowledge and clinical skills to manage most neonatal clinical conditions and understand the principles and practice of evidence based neonatology.
2. Who shall be aware of the contemporary advances and developments in the field of Neonatology
3. Who shall have acquired the basic skills in teaching medical and paramedical professionals

Objectives

1. Knowledge and clinical skills to manage most neonatal clinical conditions and understand the principles and practice of evidence based neonatology.
2. Awareness of the contemporary advances and developments in the field of Neonatology.
3. Acquisition of the basic skills in teaching of the medical and paramedical professionals.

Admission/Eligibility requirements for the course

MD Paediatrics, DNB Paediatrics

Duration of course

01 year

Total number of trainees

06 per year

Method of selection, Fees, Accommodation, Stipend and Leave

As per other PDCC courses at SGPGIMS

Priority area in curriculum PDCC

| | |
|-------------|--|
| Local level | 1. Neonatal Sepsis (A very common disease in Uttar Pradesh and rest of India) |
|-------------|--|



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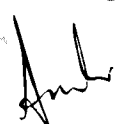
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|----------------|--|
| | <ol style="list-style-type: none"> 2. Neonatal Pneumonia and Respiratory distress Syndrome (A common problem in Uttar Pradesh) 3. Prematurity/Low Birth weight 4. Perinatal Asphyxia 5. Institutional births |
| National level | <ol style="list-style-type: none"> 1. Neonatal Sepsis (India has one the highest number of mortality rates related to sepsis in the world) 2. Perinatal asphyxia (Remains a significant cause of neonatal mortality India) 3. Prematurity |
| Regional level | <ol style="list-style-type: none"> 1. Definition, epidemiology, classification, pathogenesis ,prevention and management of neonatal sepsis 2. Definition, epidemiology , classification , causes, prevention of prematurity and prevention and management of prematurity related complications 3. Definition, epidemiology, causes, classification, prevention, diagnosis, management and prognosis of perinatal asphyxia. 4. Neonatal Pneumonia |
| Global level | <ol style="list-style-type: none"> 1. Prematurity (Globally 12-15% incidence and it is a very important cause of mortality in newborn) 2. Perinatal asphyxia (leads to 21% cause of neonatal mortality globally) 3. Infection 4. Birth defects (with increased antenatal detection it is being important area to address globally) |

Method of training

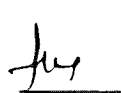
The training of PDCC degree shall be on full time pattern with graded responsibilities in the management of critically sick newborns entrusted to his/her care. The trainee will be included in the regular duty roster of the neonatal unit and attend normal and high risk deliveries caesarean section, perform regular duties in all clinical care areas of the department. In addition to the rostered neonatal duties he would be expected to supervise and train nurses and fresh entrants. He /she should have outpatient, high risk clinic and community exposure. The program is divided in two courses:


Courses offered in the program Course I: Basic aspect of subject



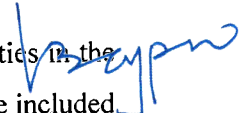











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Colour Coding

Global
Regional
National
Local (State)

GREEN
BLUE
ORANGE
PINK

Course II: Applied and recent advances

Course I: **Basic aspect of subject neonatology**

Course objective: Student shall have fair knowledge and understanding about the **basic anatomy, physiology, cellular mechanism, and intracellular mechanism involved in physiology and pathogenesis of various body systems along with basic research.**

Course outcomes: At the end of the course, the PDCC student should acquire the following competencies under the three domains:

A. Cognitive domain (Knowledge domain)

1. **Pathophysiology of disease.**
2. **Applied anatomy and embryology**
3. Neonatal adaptation
4. Development and maturation of lungs, respiratory control, lung functions, ventilation
5. Physiology and development of cardiovascular system, Nervous system, Renal system
6. Fetal and intrauterine growth.
7. Developmental hematology, bilirubin metabolism
8. Electrolyte balance
9. Shall have good knowledge and application of neonatal resuscitation
10. Shall have sound knowledge of etiology and pathogenesis of various systemic diseases and their complications
11. Shall have knowledge about various aspects related to neonatal transport like maintenance of eutermic and stabilization of neonate
12. **Causes of neonatal and perinatal death**
13. **Neonatal care priorities like Care at primary health centre, secondary level of care and tertiary level care**
14. **National programmes**

General Topics

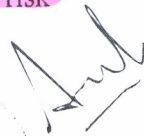
1. Research methodology
2. Basic Biostatistics

Perinatology

1. Perinatal and neonatal mortality, morbidity
2. **High risk pregnancy: detection, monitoring and management**
3. **Assessment of fetal risk**



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4. Medical diseases affecting pregnancy and fetus, psychological and ethical considerations

Additional modules

| Compulsory module | Optional Module |
|-------------------------------------|--------------------------------|
| 1. Clinical rotation: In obstetrics | 1. Patient safety |
| 2. Basic biostatistics course | 2. Hospital infection control |
| 3. Basic neonatal ventilation | 3. Biomedical Waste Management |

Course II: Recent advances in Neonatology

Course objectives: Student shall be well versed with the new knowledge, cutting edge issues, controversies, new diagnostic and therapeutic modalities, new interventions, and changing trends of epidemiology

Course outcomes: The students shall have acquired the following knowledge, skills, and attitude at the end of the course

1. **In depth knowledge of the recent advances and cutting-edge issues in diagnosis and management of different neonatal diseases**
2. Shall be aware and capable to diagnose, and manage the newly defined disease entities in the field of Neonatology
3. Shall be updated with the changing terminology for diseases and conditions
4. Should be aware of new equipment and technology in field of neonatology

Additional modules

| Compulsory module | Optional Module |
|--|-------------------------------------|
| 1. Clinical rotation: In blood bank, pediatric surgery | 1. Breaking bad news to the parents |
| 2. Neurodevelopmental supportive care | 2. Therapeutic hypothermia |
| 3. Lactation management | |

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B. Affective domain (Attitudes including Communication and Professionalism)

The PDCC student should:

- Have empathy for patients and their family and should address them as worthy human beings.

- Discuss options, including advantages and disadvantages of each investigation and treatment. She/He should be able to discuss medical issues with them in layperson's language.
- Become confident communicators and should be well accomplished professionals.
- Have developed skills to debate, deliver scientific lecture, participate in panel discussions, and hold group discussions and be ready to deliver the knowledge received by him/her during the course.
- Be able to function as a part of a team, develop an attitude of cooperation with colleagues, and interact with the patient and the clinician or other colleagues to provide the best possible diagnosis or opinion.
- Always adopt ethical principles and maintain proper etiquette in dealing with patients, relatives and other health personnel and to respect the rights of the patient including the right to information and second opinion.
- Develop communication skills to write reports and give professional opinion as well as to interact with patients, relatives, peers and paramedical staff, and for effective teaching.

C. Psychomotor domain

At the end of the course, the student should have acquired following skills:

The student should be able to perform following procedure:

| Skills | Perform independently | Skills | Perform independently |
|-------------------------------------|-----------------------|----------------------------------|-----------------------|
| Newborn resuscitation | 20 | Parenteral nutrition* | 2 |
| Gestational assessment | 10 | Neurosonography | 10 |
| Meconium suction | 5 | ECHO | 10 |
| Lactation management and counseling | 20 | Ventilation | 10 |
| Counseling parents | 20 | Peripheral exchange transfusion* | 2 |
| Feeding tube insertion | 20 | Developmental evaluation | 10 |

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| | | | |
|--|---|------------------------------|---|
| Surfactant administration | 5 | Peritoneal dialysis* | 1 |
| Exchange transfusion | 5 | BAER/ OAE/EEG interpretation | 2 |
| Umbilical/ peripheral arterial cannulation | 3 | ROP screening observed | 2 |
| Chest tube placement* | 1 | | |

*Subject to number of procedures performed in the unit

Methods for computing course outcomes

Course I: Basic sciences as applied to neonatology and perinatology; research methods. Assessment of the student will be done on his/her performance in the following academic activities

1. Seminars presentation
2. Short topic presentation
3. Journal clubs
4. Group discussion during the rounds and during teaching hours
5. Clinical management of the patients in the ward
6. Procedural skills for common neonatal procedures surfactant, umbilical line, PICC line, partial exchange, exchange transfusion, CPAP application, lumbar puncture etc.
7. Approach to the patients in OPD care
9. Updated knowledge in the field of community neonatology and Pediatric Surgery

Course II: Applied and recent advances: Assessment of the student will be done on his/her performance in the following academic activities

1. Journal club presentation
2. Number of journals followed by the student on regular basis
3. Knowledge on recent guidelines or recommendations

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4. Level of knowledge about the new drugs, diagnostic tests, and procedures

Methods for computing program outcome

I. Formative assessment during the course at periodic intervals along with bedside rounds

II. The summative assessment examination shall include two heads

a. Theory examination-

Theory examination shall comprise of four papers, each representing four courses included in the program. Passing percentage shall be at least 50% in each paper.


b. Practical, Clinical examination, and Viva-voce-

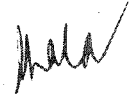
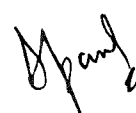
Practical /Clinical examination consisting of

- one long case which must be on acute care of a sick neonate. The long case should include: History taking, physical examination, interpretation of clinical findings, differential diagnosis, investigations, prognosis and management.
- One stable growing preterm. High risk recovering case
- The log book of procedures and interventions shall be assessed
- Objective Structured Clinical Examination (OSCE) including affective OSCE.
- Viva-voce Examination: The viva voce examination should focus on psychomotor and affective domain, for a minimum period of 20 minutes per candidate. It will include general viva on drugs, equipment, including radio-imaging, investigations i.e. ultrasound/CT/MRI, records, interpretation of 'ABGs', neurophysiologic records such as BERA, EEG; national programs, policy.
- Passing percentage shall be 50%. Passing shall be separate for each head and failing shall be common, meaning thereby that clearance at theory and failure at practical / clinical shall amount to failure at Summative examination and vice versa.

Suggested Books for reading

1. Keszler M, Suresh G, Goldsmith JP (editors). Goldsmith's Assisted Ventilation of the Neonate: An Evidence-Based Approach to Newborn Respiratory Care. 7th edition. December 24, 2021
2. Groves A, Boardman J, Ramasethu J (editors). Avery & MacDonald's Neonatology: Pathophysiology and Management of the Newborn. 7th edition. Wolters Kluwer; 2021.


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3. Weiner GM, Zaichkin J, (editors). Textbook of Neonatal Resuscitation. 8th ed. American Academy of Pediatrics; 2021.
4. Hansen AR, Stark AR, Eichenwald EC, Martin CR(editors). Cloherty and Stark's Manual of Neonatal Care. 9th ed. Wolters Kluwer; 2022.
5. Hansen AR, Stark AR, Eichenwald EC, Martin CR, Jain N (editors). Cloherty and Stark's Manual of Neonatal Care, South East Asian edition. 9th ed. Wolters Kluwer; 2020.

Suggested Journals with website link

1. Indian Pediatrics (IAP)- <https://www.indianpediatrics.net/>
2. Indian Journal of Pediatrics (Springer publications)- <https://www.springer.com/journal/12098>
3. Journal of Neonatology (SAGE publications)- <https://journals.sagepub.com/home/NNT>

E learning Resources

- <https://www.ontop-in.org/>



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