



ALL INDIA INSTITUTE OF MEDICAL SCIENCES, NAGPUR

Course Curriculum

“Post Doctoral Certificate Course in Fetal Medicine”

By

Department Of Obstetrics And Gynaecology

Plot No – 2, Sector – 20, MIHAN, Nagpur– 441108

Website: - www.aiimsnagpur.edu.in

Proposal for Post Doctoral Fellowship Course in Fetal Medicine

Proposed Course

| | |
|--|--|
| Course | Post Doctoral Certificate Course |
| Subject | Fetal Medicine |
| Duration | One Year |
| Eligibility | M.S. or DNB Obstetrics and Gynaecology |
| Institute | All India Institute of Medical Sciences, Plot 2, Sector 20, MIHAN, Nagpur, 441108 |
| Existing Teaching Programs | MS Obstetrics and Gynaecology |
| Division in which the fellowship course will be conducted | Division of Fetal Medicine |
| Department | Department of Obstetrics and Gynaecology |

CONTENTS

1. OBJECTIVES OF THE PROGRAMME

a) Programme Goal

b) Programme Objective

- 2. Eligibility criteria for admission**
- 3. Selection criteria for admission**
- 4. TEACHING AND TRAINING ACTIVITIES**
- 5. SYLLABUS**
- 6. LOG BOOK**
- 7. EXAMINATION**
- 8. RECOMMENDED TEXT BOOKS AND JOURNALS**

Title - Post Doctoral Fellowship Course in Fetal Medicine

Course duration – 1 year

1. Programme Goal

Fellowship in Maternal-Fetal Medicine is a one-year post-MD/MS programme that provides knowledge and training in taking care of pregnant patients and fetuses. This is not only designed to train them in advanced obstetric imaging, but to incorporate the same into the broader perspective of fetal diagnosis, fetal care and care of the pregnancy as a whole with a multidisciplinary involvement. The students will also be involved in inpatient and outpatient clinical care.

Programme Objectives

Knowledge of Concepts - Through the programme, the students will learn about the principles and aspects of Fetal Medicine.

Development of Skills - The students will be able to develop their skills in prenatal diagnostic and therapeutic procedures to become competent specialists.

Research - Students will be involved in research projects so that they can become more experienced in the field.

2. Eligibility Criteria :

1. M.S. or DNB Obstetrics and Gynaecology recognised by Medical Council of India /NMC.
2. Basic knowledge and skills in Obstetric Ultrasound
3. Application form as per format to be submitted before due date as advertised on website

3. Selection Criteria for candidates:

Entrance Exams for Selection:

- 25 Marks MCQ Test based on subject concerned.
- 25 MCQs of 1 mark each
- No Negative Marking
- Merit list will be displayed for eligibility

4. Teaching and Training Activities

5. Syllabus

6. Log Book

4. TEACHING AND TRAINING ACTIVITIES:

Institutional Teaching Programme over 1 year should cover complete curriculum. In addition to clinical work and postings, following format (minimum no of sessions) is recommended.

1. Multidisciplinary Case discussion
 - i. Fetal Medicine : 5
2. Basic Sciences Lectures : 5
3. Seminars : 6
4. Journals Clubs : 4
5. Clinical Audits : 2
6. Grand Rounds : 20
7. Clinical Risk Management :1 each candidate
8. Perinatal Mortality Review :1 per each candidate

Students should also attend relevant PG classes in the Institution.

Research Project

Candidate must carry out a short research project under the guidance of designated teacher and write a project report of 50 pages which should be targeted to learn research methodology followed by presentation / publication.

Timeline for Project:

Topic Allocation – 1st 2 months

Project Completion – 3 months prior to completion of tenure

Project report of 50 pages to be submitted along with the logbook at the time of exam.

20 marks of logbook may be divided into 15 marks for logbook + 5 marks for research project.

He/she would also be given opportunity to take part in the research projects going on in the departments to learn their planning, methodology and execution so as to learn various aspects of research.

5. TRAINING CURRICULUM

A. First Module (3 months)

1. To be able to describe basics of

A) Embryology

B) The Fetoplacental Unit:

a. Physiology of Fetoplacental Unit

b. Fetal Anatomy

c. Placenta: Anatomy (Gross and Microscopic)

Pathology (Gross and Microscopic)

C) Fetal Growth Assessment: Normal and abnormal fetal growth patterns

2. Orientation and Knobology

3. Observe and able to describe basic scanning planes across all gestations

4. Perform NT scans, anomaly scans and growth scans under supervision and register with the Fetal Medicine Foundation for submission of images.

4. Participate in lectures provided by the faculty in obstetric ultrasound

6. Discuss and decide on Research project and obtain necessary approval

7. Participate in counselling in complex clinical scenarios

8. Attend Genetic and other counselling clinics as observer

9. RITA – Rigorous In Training Assessment at the end of 3 months

B. Second Module (3 months)

1. Further training in advanced radiological aspects of obstetric scans.

2. Know about 3D/4D ultrasound imaging and its application in clinical practice

3. Able to describe the abnormalities of the brain and spinal cord, face, heart and great arteries, lungs, diaphragm, gastrointestinal and urogenital tracts, abdominal wall and skeletal system under the headings of embryology, Pathology/Epidemiology, Screening/Diagnosis, Management/Outcome, Recurrence Risk/Prevention, Pharmacology.

3. Able to describe approach to a pregnancy with chromosomal defects with reference to epidemiology, implications and prenatal screening by ultrasound, serum biochemistry and analysis of cell-free DNA in maternal blood.

3. Participate in joint multidisciplinary clinical meeting to present and discuss complex case scenarios

4. Obtain certifications of competency for Nuchal translucency, Nasal bone, tricuspid flow, ductus flow from the Fetal Medicine Foundation.

5. Participate in Genetic counselling, Perinatal mortality meetings in joint association with other centres

6. Present interim results from the research project with aim to present data in national or international conferences
7. RITA – Rigorous internal training assessment at end of 6 months - to assess if the candidate has successfully completed the competencies as laid in the curriculum.

C. Third Module (3 months):

1. Able to independently perform ultrasound scans across all gestations with additional emphasis on fetal echocardiography.
2. Obtain certificate of competence for fetal abnormalities, fetal echocardiography, doppler ultrasound, cervical assessment from Fetal Medicine Foundation
2. Observe and assist simple fetal interventions like amniocentesis and Chorionic villus sampling
3. Attend special clinics like Genetics, Paediatric surgery, Neonatology and to be signed by respective consultants for achieving necessary competencies as part of the curriculum
4. Arrange and conduct weekly multidisciplinary meetings between the specialties to gain knowledge and experience
5. Write up first draft of the research and submission to educational supervisor for comments and review.

D. Fourth Module (3 months):

1. Continuation of the skills learned during the previous three modules to work as an independent operator
2. Perform common fetal invasive procedure like amniocentesis and Chorionic villus sampling under supervision with ability to independently perform some of the cases at the end of their training.
3. Observe complex fetal medicine invasive procedures like intrauterine transfusions, Laser, RFA, shunts and multifetal pregnancy reductions, medical treatment (transplacental and fetal), intrauterine surgery (open, laparoscopic and ultrasound-guided), at recognised centres (15 days observer ship).

During extramural posting, the fellow is supposed to assist procedures like intrauterine transfusions, multifetal reduction procedures and observe intrauterine surgeries like shunt placements, fetoscopic Laser and RFA.

4. Successful submission of research project, prior to exit exam and RITA
5. RITA before the exit exam to check and certify that necessary competencies have been achieved as laid out in the curriculum.
6. Exit exam at the end of training- with an external examiner (Theory and practical components)
8. Issue of certificate for successful candidates following completion of the training modules and achieving a pass mark in the exit examination.

At the end of the Training Fellowship the fellow will have obtained the FMF Certificates of competence and ISUOG certificates of completion in

- Nuchal translucency scan
- Assessment of the nasal bone
- Assessment of ductus venosus flow
- Assessment of tricuspid flow
- Preeclampsia screening
- Fetal defects
- Fetal echocardiography
- Doppler Ultrasound in Obstetrics
- Cervical assessment

SCHEDULE OF ROTATION POSTINGS FOR ONE YEAR

| Sr. No. | Department | Duration of posting |
|---------|--|---------------------|
| 1. | Paediatric Surgery | 2 weeks |
| 2. | Neonatology | 2 weeks |
| 3. | Radiology | 2 weeks |
| 4. | Extramural training including academic leave | 2 weeks |

Competencies & Skills [Mandatory / Must Know]

- i. Multifetal pregnancy- Detect, monitor a twin pregnancy, Manage pregnancy with growth problems
- ii. Care for woman with red cell al immunization - Monitoring for fetal anemia, Intrauterine transfusion, Delivery, Postnatal Management etc.
- iii. Able to use USG in pregnancy - optimize image, appropriate Doppler
- iv. USG for normal fetal anatomy and diagnosis of fetal anomalies of fetal CNS, Face and Neck, Thorax, CVS, abdominal wall and GIT, UGT, Fetal skeleton and extremities [TIFFA]
- v. USG for fetal growth, recognize and manage early and late onset FGR
- vi. Counselling for prenatal invasive procedures, Prerequisites, Procedures, Post procedure care and follow up
 - a. Amniocentesis
 - b. Chorion villus sampling
 - c. Cordocentesis
- vii. Diagnose abnormalities of liquor, Amnioreduction
- viii. Counselling for termination of pregnancy for fetal anomalies
- ix. Prognostication of the anomalous fetus
- x. Communication skills- Breaking bad news
- xi. Preconception counselling for cases whose last pregnancy affected by any of above
- xii. Counselling for Neonatal Surgery-Abdominal wall defect, Diaphragmatic hernia, Bowel atresia, Spina bifida, others
- xiii. Workup of previous/unexplained stillbirth
- xiv. Coordination with Paediatric Physician/ Surgeon for postnatal management
- xv. Ultrasound screen for aneuploidy 11-13+6 weeks' scan - measurement of CRL, NT, NB, DV, TR, identification of gross structural anomaly
 - a. Genetic counselling - Pedigree charting
 - b. Interpretation of screening test and further management of abnormal test
- xvi. Pregnancy at risk/affected by aneuploidy - take history, arrange parental and prenatal investigations, counsel regarding risk, screening and testing options, genetic consultation if needed.
- xvii. Pregnancy at risk/affected by single gene disorder - take history, make family tree, Parental investigations, communicate risk, Screening and testing options, Referral for genetic consultation.
- xviii. Diagnosis and management of genetic and syndromic disorders
- xix. Biochemical screening, molecular, cytogenetic tests for prenatal diagnostic investigations- interpretation and communication of test results and appropriate multidisciplinary consultation.
- xx. Fetal autopsy - Counselling, Indications, Technique

[Desirable /Good to know]

- i. Monochorionic twins: TTTS, SFGR, TRAP - Diagnosis, Management, Prognosis
- ii. Exchange transfusion
- iii. Advanced USG - Fetal Echocardiography, Neuroanatomy etc. as per ISUOG guidelines

- iv. Selective fetal reduction in dichorionic twins and vaso-occlusive techniques in MC twins
- v. Fetal pathology and Fetal autopsy
- vi. Fetal red cell intravascular/ intraperitoneal transfusion
- vii. Lab knowledge of molecular testing
- viii. Conducting / Performing fetal autopsy

SCHEDULE OF ACADEMIC ACTIVITIES :-

| Sr No | Academic activity | Schedule |
|--------------|--------------------------|-----------------|
| 1 | Case presentation | Once a week |
| 2 | Seminar/Journal club | Once a week |
| 3 | Journal club | Once a week |
| 4 | Recent advances | Once a month |
| 5 | Research review | Every 3 monthly |

Detailed Syllabus/Curriculum:

- Diagnoses, provides a differential diagnosis for, and manages the full range of rare fetal structural abnormalities.
- Takes an appropriate history and constructs, where appropriate, a family tree in women with or chance of genetic conditions.
- Explains common modes of Mendelian inheritance.
- Knows how to approach to a couple with previous aneuploidy, offers other prenatal tests appropriately.
- In collaboration with specialists, formulates, implements and where appropriate modifies management plan.
- Counsels women and their partners regarding the fetal risks, implications for the pregnancy and the long-term outcome.
- Constructs a follow-up plan for the pregnancy.
- Plans birth and appropriate neonatal support experienced in the ultrasound diagnosis and management of pregnancies complicated by a wide range of fetal abnormalities
- Able to communicate without judgement the types of tests on offer, their scope and their potential complications and disadvantages.
- In addition to common chromosomal abnormalities, they need to be aware of approach to rare problems like microdeletions and duplications which can only be diagnosed with chromosomal microarray
- Knows approach to a case with a personal or family history of a chromosomal abnormality, including assessment of risk, prenatal diagnostic options, and further management options after testing.
- Manages an ongoing pregnancy affected by a single gene disorder, including communication and planning with paediatric services.
- Manages ultrasound in twin pregnancies, rare complications of multiple gestations complications of chorionicity, management of complicated multiple pregnancies
- Diagnoses and manages TTTS, TRAP and provides follow-up care.
- Knows approach to a case with discordant anomaly, including counselling on the selective termination of pregnancy.
- Manages triplet and higher order multiple gestations, including the provision of counselling, without judgement, on multifetal pregnancy reduction.

- Diagnoses and manages severe early onset selective fetal growth restriction in monochorionic and dichorionic multiple pregnancies
- Knows and explains the techniques used for selective termination of pregnancy for discordant anomalies in multiple gestations, and the risks involved
- Indian law on termination of pregnancy, including justifying criteria, gestational limits and when to perform foeticide
- Able to narrate and practice various methods of termination of pregnancy, and the pros and cons of each method
- Knows and prescribes fetal MRI in special conditions like, brain and spinal abnormalities, face and neck abnormalities, as well as thoracic and abdominal abnormalities in which ultrasound diagnosis is not clear.
- Able to describe the risk of teratogenicity with various drugs, infections, physical agents, environmental toxins, and maternal health conditions like uncontrolled diabetes mellitus, autoimmune diseases and maternal phenylketonuria.

Approach to a pregnancy with Red cell alloimmunization:

- Explains the potential fetal and maternal risks of red cell antibodies.
- Approach to a pregnancy complicated by red cell antibodies and classifies the risk
- Liaises with blood transfusion and neonatal services.
- Able to perform and interpret MCA Doppler
- Provides appropriate surveillance for fetal anaemia.

Approach to a pregnancy with Fetal Infections

- Manages infections in pregnancy which may have an impact on the fetus
- Investigates and manages intrauterine infection with toxoplasmosis, cytomegalovirus, rubella, human immunodeficiency virus, hepatitis, varicella, Coxsackie, Parvovirus B19, Listeria. Pathophysiology, implications, screening, prevention, diagnosis, assessment and management.
- Is able to interpret laboratory results for each infection in liaison with virology.
- Explains the potential fetal, newborn and long-term effects of fetal infections

Approach to a pregnancy with Fetal Hydrops

- Constructs a differential diagnosis and targets appropriate investigations.
- Treats reversible causes.

Debriefs and provides advice following procedures.

Invasive procedures

- Knows the indications for offering invasive testing, its risk and benefits.
- Counsels following amniocentesis for both normal and abnormal results.
- Manages complications of amniocentesis
- The types of analysis that may be applied (QF-PCR analysis, full karyotyping, array analysis and targeted molecular genetic examination for family history of genetic conditions) – and how to discuss these appropriately
- Knows the conditions when sample should be stored in case of further analysis
- Aseptic technique, how to optimize the ultrasound image, when amniocentesis is not likely to be straightforward and the options available
- Explains what the test is not able to show, the significance of the result and the options available following an abnormal result
- Knows and explains the options following test failure, mosaicism, and the role of parental karyotyping in the interpretation of results

Genetics :

Basic Genetics

- Knows normal chromosome structure and function
- Knows gene structure and function, including gene control, mechanisms and effects of mutation, genetic heterogeneity
- Knows patterns of genetic inheritance and susceptibility, expression and penetrance, multifactorial and mitochondrial inheritance
- Knows cell division (meiosis and mitosis), and abnormalities arising from these processes

Advanced Genetics

- Knows types of aneuploidy, including structural rearrangements, deletions and common microdeletions, trisomies, sex chromosome anomalies (including Monosomy X, Klinefelter syndrome and Triple X), extra markers, mosaicism (fetal and placental), uniparental disomy, triploidy
- Describes the pre and postnatal phenotypes of these common aneuploidies, single gene disorders, and syndromes, including prognosis
- Methods of screening for aneuploidy, including ultrasound, biochemical and non-invasive DNA based techniques
- Knows and requests a wide range of molecular, cytogenetic and biochemical tests for prenatal diagnosis
- Is able to take non-directive informed consent for performing these tests.
- Is able to interpret and communicate the results of these tests and know when a multidisciplinary approach is required.

Higher level fetal interventional procedures/options of fetal therapy:

- Counsels on and obtains consent for high level interventional procedures.
- Observes and knows, conditions amenable to prenatal therapy, e.g. fetal arrhythmias, spina bifida, CDH, and how these treatments are administered and the complications of them
- Describes the indications, methods, potential benefits and complications of the following high-level fetal medicine procedures; vesicocentesis, pleural and vesical shunt placement, placental laser, radiofrequency ablation, cord occlusion, fetal blood transfusion
- Collaborates with local paediatric network, including surgical services
- Proposes a plan for future pregnancy management

Responsibility of Fellows

| | | | |
|----------------------------------|--|--|------------------------------------|
| Clinical Responsibilities | Care of Out -Patients and In -Patients | Pre-procedure assessment and planning as well as the post-procedure follow-up of their assigned patients | On Call duties |
| Research Responsibilities | One short term project | Paper or Poster presentation | |
| Academic Responsibility | One case presentation per month | Two Seminars per month | One journal presentation per month |

EXAMINATION

FORMATIVE ASSESSMENT

Formative assessment includes various formal and informal assessment procedures by which evaluation of student's learning, comprehension, and academic progress is done by the teachers/ faculty to improve student attainment. Formative assessment test (FAT) is called as "Formative" as it informs the in process teaching and learning modifications. FAT is an integral part of the effective teaching. The goal of the FAT is to collect information which can be used to improve the student learning process.

Formative assessment is essentially positive in intent, directed towards promoting learning; it is therefore part of teaching. Validity and usefulness are paramount in formative assessment and should take precedence over concerns for reliability. The assessment scheme consists of Three Parts which has to be essentially completed by the candidates.

The scheme includes:-

Part I :- Conduction of theory examination

Part II :- Feedback session on theory performance

Part-III :- Work place based clinical assessment

(i) Formative Examination: -

- One month prior to summative exam and pattern is as summative exam.

1. Eligibility to appear for Summative exam: -

- 40% Marks in formative exam separately in Theory & Practical
- 75% Attendance
- Paper presentation
- Poster presentation

2. For certification the Qualifying marks will be 50% marks separately in Theory & Practical in the Summative exam.

3. Repeat Summative Exam in 45 Days after results.

(ii) Summative Examination: -

- Paper of 50 Marks
- MCQs: 20 x 1=20 Marks
- Short Notes: 4 x 5 Marks =20 Marks
- Structured long answer question: 1 x 10 Marks=10 Marks
- Practicals of 50 Marks
- Duration 2 hours

The **theory examination** shall be held in advance before the Clinical and Practical examination, so that the answer books can be assessed and evaluated before the commencement of the Clinical / Practical & Oral examination.

(2) Clinical / Practical and Oral:

Practical examination shall consist of carrying out special investigative techniques for Diagnosis and Therapy. Candidates shall also be examined in procedures in surgical disciplines. Oral examination may be comprehensive enough to test the candidate's overall knowledge and competence about the subject, investigative procedures, therapeutic technique and other aspects of the specialty, which shall form a part of the examination.

One Long Case 25 Marks

One Short Case 1 x 15 = 15 Marks

Viva voce Instruments, Equipment, Specimens, Ultrasound and case discussion, Interpretation of genetic test (10 marks total and 2 marks each)

Total - 100 Marks

Practical Examination:

1. Maximum marks : 200
2. Comprises of Clinical Examination and viva
 - 1 Long case (50 marks)
 - 2 Short case (25 each)
 - Instruments, Equipment, Specimens, Ultrasound and case discussion, Interpretation of genetic test (20 marks each)
 - The candidate has to score a minimum of 50% marks in aggregate i.e. 150 out of total 300 marks (Theory & Practical) with at least 50% marks in theory examination to qualify in the Fellowship Summative Exam. i.e. separate passing in theory & practical.
 - The Theory and Practical of Fellowship Summative Examination shall be conducted at the same examination centre of the concerned specialty.

Declaration of Fellowship Results

Results of Fellowship Summative Examination (theory & practical) are declared as PASS/FAIL

Reference list of books & journals

Textbooks

1. Callens Textbook of USG in Obstetrics and Gynecology
2. Fetology, a textbook on Fetal Abnormalities
3. Creisy and Resnik's Textbook on Maternal Fetal Medicine
4. Textbook on Fetal Cardiology – Abuhamad et al
5. Textbook on Fetal CNS Imaging – Dr B S Ramamoorthy

Journals:

- Ultrasound in Obstetrics and Gynecology
- Prenatal Diagnosis
- Journal of Ultrasound in Medicine
 - Fetal Diagnosis and therapy

Websites: for reference and education

- www.isuog.com
- www.perinatology.com
- fetalmedicine.org

Sample question paper

Section A (MCQ 20 marks)

Section B (40 marks)

Time: 120 minutes (2 hours)

Draw diagrams wherever necessary.

A. Structured answer question. (any one)

(10 marks)

1. Describe in details etiology of fetal hydrops and describe the management of fetal hydrops due to Rh alloimmunization in G3P1L1A1 at 30 weeks of gestation.
2. A 32 years old primigravida comes to OPD with ultrasound done at 12 weeks showing absent nasal bone . Describe, how do you evaluate and counsel this case .

B. Short answer question. (any 4)

(5x4= 20)

1. Write in brief about various pre-natal tests.
2. Describe role of LASER in fetal medicine.
3. A 26 years old lady, comes to the OPD for pre-conceptional counselling. She gives the history of Duchenne Muscular Dystrophy in her Cousin sister. Describe the evaluation and management of this case.
4. Describe various methods of aneuploidy screening and interpretation of results.
5. Describe management of TORCH infections during pregnancy.

ANNEXURE I

ALL INDIA INSTITUTE OF MEDICAL SCIENCES, NAGPUR

Department of Obstetrics and Gynaecology



LOGBOOK

Department of Fetal Medicine Academic year - 20 - 20

| | CANDIDATE DETAILS |
|----|----------------------------|
| 1. | Name (in full): |
| 2. | Date of Birth: |
| 3. | Permanent Address: |
| 4. | Address for communication: |

| | | | | |
|----|--|---------|-----------------|------------|
| 5. | Centre: | Guide : | | |
| 6. | Date of the joining for this course: | | | |
| 7. | Qualifications: | Degree | Year of Passing | University |
| 8. | Experience: | | | |
| 9. | Title of research conducted (if any) : | | | |

CERTIFICATE

This is to certify that the candidate Mr/Ms _____

was admitted to the Post Doctoral Fellowship Certificate Course in Fetal Medicine

at All India Institute of Medical Sciences, Nagpur in the year _____.

He /She has satisfactorily completed / not completed all assignments and requirements

mentioned in this logbook for the above course during the period _____

She / He is eligible/ not eligible to appear for the Summative assessment.

Signature
Teacher-in-charge

Signature
Head of the Department

| S No. | Academic Activities | Page No. |
|-------|--|----------|
| 1. | Subject Seminars | |
| 2. | Journal clubs | |
| 3. | Case presentations, UG and PG Lectures | |
| 4. | Ultrasound and Diagnostic invasive procedures | |
| 5. | Genetic counselling | |
| 6. | External postings | |
| 7. | Rotations | |
| 8. | Fetal Autopsy | |
| 9. | CME / State / National / International Conferences attended and presented | |
| 10. | Publications | |

INSTRUCTIONS:

By the end of the course the candidate should have seen/assisted

- 50 First trimester scans
- 20 Anomaly scans
- 20 Growth Doppler scans
- 20 Cervical length scans
- 10 Multiple pregnancy scans
- 10 Counselling sessions for High-Risk pregnancies & Invasive procedures in Fetal medicine
- 20 Prenatal invasive procedures with report from lab attached

List of Competencies & Skills [Mandatory / Must Know]

- xxi. Multifetal pregnancy- Detect, monitor a twin pregnancy, Manage pregnancy with growth problems
- xxii. Care for woman with red cell al immunization - Monitoring for fetal anemia, Intrauterine transfusion, Delivery, Postnatal Management etc.
- xxiii. Able to use USG in pregnancy - optimize image, appropriate Doppler
- xxiv. USG for normal fetal anatomy and diagnosis of fetal anomalies of fetal CNS, Face and Neck, Thorax, CVS, abdominal wall and GIT, UGT, Fetal skeleton and extremities [TIFFA]
- xxv. USG for fetal growth, recognize and manage early and late onset FGR
- xxvi. Counselling for prenatal invasive procedures, Prerequisites, Procedures, Post procedure care and follow up
 - a. Amniocentesis
 - b. Chorion villus sampling
 - c. Cordocentesis
- xxvii. Diagnose abnormalities of liquor, Amnioreduction
- xxviii. Counselling for termination of pregnancy for fetal anomalies
- xxix. Prognostication of the anomalous fetus
- xxx. Communication skills- Breaking bad news
- xxxi. Preconception counselling for cases whose last pregnancy affected by any of above
- xxxii. Counselling for Neonatal Surgery-Abdominal wall defect, Diaphragmatic hernia, Bowel atresia, Spina bifida, others
- xxxiii. Workup of previous/unexplained stillbirth
- xxxiv. Coordination with Paediatric Physician/ Surgeon for postnatal management
- xxxv. Ultrasound screen for aneuploidy 11-13+6 weeks' scan - measurement of CRL, NT, NB, DV, TR, identification of gross structural anomaly
 - a. Genetic counselling - Pedigree charting
 - b. Interpretation of screening test and further management of abnormal test
- xxxvi. Pregnancy at risk/affected by aneuploidy - take history, arrange parental and prenatal investigations, counsel regarding risk, screening and testing options, genetic consultation if needed.
- xxxvii. Pregnancy at risk/affected by single gene disorder - take history, make family tree, Parental investigations, communicate risk, Screening and testing options, Referral for genetic consultation.
- xxxviii. Diagnosis and management of genetic and syndromic disorders
- xxxix. Biochemical screening, molecular, cytogenetic tests for prenatal diagnostic investigations- interpretation and communication of test results and appropriate multidisciplinary consultation.
- xl. Fetal autopsy - Counselling, Indications, Technique

[Desirable/Good to know]

- ix. Monochorionic twins: TTTS, SFGR, TRAP - Diagnosis, Management, Prognosis
- x. Exchange transfusion
- xi. Advanced USG - Fetal Echocardiography, Neuroanatomy etc. as per ISUOG guidelines
- xii. Selective fetal reduction in dichorionic twins and vaso-occlusive techniques in MC twins
- xiii. Fetal pathology and Fetal autopsy
- xiv. Fetal red cell intravascular/ intraperitoneal transfusion
- xv. Lab knowledge of molecular testing
- xvi. Conducting / Performing fetal autopsy

TEACHING FOR U.G/PG STUDENTS

| Sl. No | Date | Topics |
|--------|------|--------|
| | | |
| | | |
| | | |

PROCEDURES OBSERVED/ PERFORMED

Table 1. First trimester scans

| S No | Date | Case No/Initials | Indication | Finding | O | PS | PI |
|------|------|------------------|------------|---------|---|----|----|
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Table 2. Anomaly scans

| Sr No | Date | Case no /Initials | Findings | O | PS | PI |
|-------|------|-------------------|----------|---|----|----|
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Table 3. Growth and Doppler scans

| Sr No | Date | Case No /Initials | Findings | O | PS | PI |
|-------|------|-------------------|----------|---|----|----|
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Table 4. Biophysical profile

| Sr No | Date | Case No /Initials | Findings | O | PS | PI |
|-------|------|-------------------|----------|---|----|----|
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Table 5. Cervical length Scan

| Sr No | Date | Case No /Initials | Findings | O | PS | PI |
|-------|------|-------------------|----------|---|----|----|
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Table 6. MRI interpretation

| Sr No | Date | Case No /Initials | Findings | O | PS | PI |
|-------|------|-------------------|----------|---|----|----|
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Table 7. Prenatal invasive procedures

| Sr No | Date | Case No/Initials | Indication | O | PS | PI |
|-------|------|------------------|------------|---|----|----|
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Table 8. Advanced Interventional Procedures

| Sr No | Date | Name of procedure | Case No/ Initials | Indication | | |
|-------|------|-------------------|-------------------|------------|--|--|
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Table 9. Counselling Sessions

| Sr No | Date | Case No / Initials | Indication | Findings | Outcome |
|-------|------|-----------------------|------------|----------|---------|
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Table 10. Complications Observed and Management

| SerialNo | Date | Case no / Initials | Complication | Management | Outcome |
|----------|------|-----------------------|--------------|------------|---------|
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Table 11. Fetal Autopsy

| Sr No | Date | Indication | Sign of guide |
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EXTERNAL POSTING Dept. of Fetal Medicine (Duration: 2 weeks)

| Sl. No | Date | Name of patient | Hospital No | Procedure | Remarks |
|---------------|-------------|------------------------|--------------------|------------------|----------------|
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Rotations - Dept. of Neonatology, AIIMS, Nagpur (Duration: 2 weeks)

| Sl. No | Date | Name of patient | Hospital No | Diagnosis | Procedure observed |
|---------------|-------------|------------------------|--------------------|------------------|---------------------------|
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**ROTATIONS -DEPT. OF PAEDIATRIC SURGERY, AIIMS NAGPUR
(Duration: 2 weeks)**

| Sl. No | Date | Name of patient | Hospital No | Diagnosis | Procedure observed |
|---------------|-------------|------------------------|--------------------|------------------|---------------------------|
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ROTATIONS - DEPT. OF RADIODIAGNOSIS, AIIMS NAGPUR

(Duration: 2 weeks)

| Sl. No | Date | Name of patient | Hospital No | Diagnosis | Procedure observed |
|---------------|-------------|------------------------|--------------------|------------------|---------------------------|
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**Workshop/ Conferences (Local, National & International) , National Seminars Attended
and Paper Presented**

| Sr No | Date | Topic | Presenter | Sign of guide |
|-------|------|-------|-----------|---------------|
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Publications

| Sr No | Title | Journal | Remarks |
|-------|-------|---------|---------|
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