Life Saving Anaesthetic Skills for Emergency Obstetric Care

Log Book for Trainees

Maternal Health Division
Department of Family Welfare
Ministry of Health & Family Welfare
Government of India
New Delhi

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LIFE SAVING ANAESTHETIC SKILLS FOR EMERGENCY OBSTETRIC CARE

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General Instructions to Students

This log book is compulsory component of your training. You are required to maintain record of all your learning activities and other tasks that you perform during the course. These activities are to be performed under the supervision of the supervisor, who will give you comments for your future improvement.

The log book would enable your trainers to have the first hand information about various tasks performed by you and help in assessing the practical hands on experience gained by you. This would also be very useful to you for planning your activities in advance of the actual performance of the task. This record will also be given due weightage for your final assessment. You should keep this document with you whenever you are practicing a skill and should complete it and show it to your supervisor for his remarks and suggestions.

The first part of the log book gives you details of genesis of course, aim and objectives of course, curriculum for course such as duration, methodology, learning materials, course contents, assessment, facilities for trainees etc.

The next part gives the details of the records which you are expected to keep whenever you carry out any procedure under the supervision of the designated supervisor. You may add more items after discussion with your supervisor, whenever required. In the log book only one record for one procedure is given, however if desired you may get the necessary copies made after discussion with your supervisor. You must show the record to your supervisor after the procedure he/she has observed and request him/her to give the remarks and suggestions where you need to improve your competencies. Please be honest in completing this log book, since this is meant to help you acquire competencies. It is very important that you know your deficiencies and improve upon them during the training period.

The annexure has list of drugs which are available at CHCs/FRUs/PHC for essential obstetric care, anesthetic equipment being provided in these facilities under the RCH programme. Please discuss all the details of these with your supervisors. You are going to use these after your training in your respective institutions. We have also given case studies to stimulate your analytic and decision making skills in relation to selected essential obstetric care conditions which you are likely to face in the field settings. Please go through these and discuss these also with your supervisors. The check list of guidelines for selected procedures in anaesthesia are also given in the annexure for your ready reference. You may modify these as and when required in consultation with your supervisor. Please keep the log book even after you finish your training. This would be handy in your FRU later on.

Wish you best of luck.

I. Introduction and Genesis of Course

All pregnant women are at risk of obstetric complication and life-threatening complication occur during labour and delivery. Every year more than 1,00,000 women die in India due to causes related to pregnancy. The main causes of maternal mortality are the complications resulting form hemorrhage, unsafe abortions, eclampsia, sepsis and obstructed labour. Death from most of these causes is preventable with provision of good quality antenatal, natal and post-natal care, safe institutional delivery services, timely referral and provision of emergency obstetric care.

Under the RCH Programme, a number of initiatives have been taken to strengthen Emergency obstetric care services at the First Referral Units. Emergency Obstetric Care Drug Kits are being provided. Each drug kit contains 69 essential drugs including antibiotics, I/V infusions and anaesthetic agents. Equipment for operative procedures has already been provided. Equipment for blood storage facilities has been provided by NACO in a number of CHCs and will be provided to remaining units as part of RCH-II. Funding for provision of transport for referral for such cases is also being provided through Panchayats in remote sub-centre areas.

Despite this, the actual operationalisation of First Referral Units (FRUs) is suffering due to lack of specialist/trained manpower, particularly in the field of anaesthesia. A scheme for hiring of anaesthetists at FRU/CHC level at a payment of Rs 1000 per case has been operational for the last 4 years. However, due to acute lack of anaesthetists, particularly in sub-district areas, it has not been possible to get their services. The Tenth Plan Working Group on Health of Women and Children has observed that 'Shortage of Anaesthetists is perhaps the single most important cause of inadequacy of emergency care in Government Hospitals particularly in rural areas'. The Planning Commissions 'Steering Committee on Family Welfare – 10th Plan" have recommended that 'Posts of specialists in CHCs should be filled; reorientation, skill up gradation and redeploying existing manpower should be the method used to fill critical gaps'.

With this in view; the Government of India formed a Core Group of Experts in June 2002 with the Professor of Anaesthesia and Head, Casualty and Emergency Services, AIIMS New Delhi, as Chairman and DDG (MH) as the Convener. The group consists of experts in Anaesthesia with representation from the National Institute of Health and Family Welfare, WHO and EC. The terms of reference of the group were to develop a curriculum and course content for a short course for MBBS Doctors to be trained in Anesthesia for Emergency Obstetric Care; develop criteria for certification competency and suggest norms for identification of training institutions, requirement for training etc. The present training

course, “Life saving anesthetic skills for emergency obstetric care” has been designed by the core group. The group also considered the Medical Council of India curriculum on anesthesia during internship of MBBS doctors to identify the key skill areas for the present course.

II. Aim and objectives of the course

The purpose of this course is to provide the selected MBBS doctors with necessary skills and competencies to manage cases requiring life saving emergency obstetric care at the First Referral Units.

2.1. Knowledge based specific objectives

After under going the training course the trainees are expected to describe

- Anatomy of upper airway and spine, use of the knowledge of anatomy while performing endotracheal intubations, spinal and epidural blocks, how to reassess and retry if encountering difficulty during the above procedures, anatomical differences between pregnant and non-pregnant patient and physiological changes of pregnancy
- Direct and indirect effects of anaesthetics on the fetus, benefits and risks of various anaesthetic techniques to the mother, how to ascertain which drugs to be used in which anaesthetic situation, how to decide the dosage and route of administration of the drug, how to judge the effects and complications of these drugs and how to manage their complication if and when they occur.
- Basic working principle of anaesthesia machine, various safety mechanisms incorporated in the machine for a safe delivery of anaesthesia and ways to check the integrity and functions of the various component of the machine before using it.
- How to prepare patient take history and do examination and theater preparation.
- Guidelines regarding administration of general or regional anaesthesia for emergency obstetric procedure and important considerations to be kept in mind while anaesthetizing a patient for emergency caesarean section
- Various systemic diseases that may be associated with pregnancy, clinical presentation, diagnosis and emergency management and how to make a decision regarding shifting of the patient to a referral center.
- Various types of trauma that a pregnant lady may commonly sustain, how the management of such a patient may differ from that of a non-pregnant patient and how to resuscitate a pregnant trauma victim.
- Method of evaluation of the airway, how to diagnosis a difficult airway and to weigh the advantages of proceeding for anesthesia at the FRU, airway adjuncts available and their usage, the technique of intubations and difficult intubation drill.
- Legal aspect of the medical profession.

2.2. Skills based specific objectives

After under going the training course the trainees are expected to acquire skills in the following areas

- Pre-anaesthetic examination of patient (history, physical examination, systemic examination, interpretation of test results, deciding about the type of anaesthesia which can be best given to the patient, pre-anaesthetic preparation (physical, psychological, legal aspects like consent, drugs etc.)
- Use of various types of anaesthetic and support equipment usually required at FRU level, preparation of equipment before surgery and their maintenance and upkeep after surgery
- Resuscitation of new born and mother
- Perform laryngo-scopy and endo-tracheal intubation

Administration of general anaesthesia and regional anesthesia, their maintenance during surgery and management of patient during and after surgery

III. Curriculum for course

3.1. Duration of course

The total duration of the course will be 18 weeks. For 8 weeks trainees will be trained in the obstetrics emergency in the operation theatre and for 4 weeks in general emergency at the Casualty of AIIMS New Delhi. The trainees will be sent to CHC Ballabgarh (Field practice area of AIIMS) for 2 weeks to complete their rural training. Then for 4 weeks the trainees will work in the selected district hospital in their respective states, under supervision of the supervisor.

3.2. Number and Nature of Trainees

The batch size will be of 8-10 trainees. The trainees will be MBBS doctors, who are in state government services for at least 5 years and should not have less than 10 years service left in the state services.

The concerned State Government will give a commitment that the trained doctors would be posted in the selected FRUs after training for at least 4-5 years.

3.3. Methodology

For the first pilot course the initial training will be done at AIIMS, New Delhi for a few weeks and then the trainees will be posted in the state medical college and selected district hospital for hands-on experience.

The training methods used will be initial orientation by lecture discussion, practice in dummy, followed by intensive hands-on practical training under supervision of the faculty from the department of anaesthesia.

The trainees will be required to maintain log book for the activities completed during their placement in various units and the level of competencies acquired by them will be certified and indicated in the log book by the immediate supervisor. The tasks which are not satisfactory will be repeated till the trainees have acquired the desired level of competencies.

3.4. Learning material

- The trainees will be provided with modules specially prepared for the course.
- Besides the practical hands on experiences provided to trainees during their placement at various units in the hospitals, case studies (given in annexures), video tapes, interactive CDs and simulated practice on various models will be used during the training.

3.5. Contents

The contents of the various modules are as follows:

Module-I, Anatomy as relevant to anaesthesia for emergency obstetric care

Anatomy of larynx, airway assessment by physical examination, changes in the respiratory system of a pregnant patient, anatomy for spinal puncture and anatomy of epidural space.

Module-II, Physiological changes during pregnancy as relevant to anaesthesiologist

Body weight and composition, metabolism, respiration, heart and circulation, hematology and coagulation, gastrointestinal system, liver and gall bladder, renal system, nervous system, endocrine system, musculoskeletal system, immune system and anaesthetic implications

Module-III, Pharmacology

Inhalation anaesthetic agents (Entonox, Halothane, Isoflurane , Sevoflurane), Intravenous anaesthetic agents (Thiopentone, Ketamine, Propofol), Local anaesthetics (Bupivacaine, Lignocaine, Adjuvants), Neuromuscular blocking agents (Suxamethonium, Pancuronium, Vecuronium, Rocuronium, Reversal agents), Narcotics (Pentazocine, Pethidine, Morphine, Fentanyl), Non-narcotics (Diclofenac, Tramodol, Ketorolac), Adjuvant diverse (Antacids/antiemetics/prokinetics, Benzodiazepenes, Sodium citrate, H2 blockers, Ondansetron, Metoclopramide, Cisapride) and Oxytocics, vasoactive agents (Mephenteramine, Ephedrine)

Module-IV, Anaesthesia machine

Anaesthetic machine, components, cylinders, piped medical gases and vacuum systems, Yoke assembly, Pin index system, pressure gauge, pressure regulator, oxygen pressure failure warning devices, flow meters, oxygen ratio control devices, oxygen analyzer, continuous flow anaesthesia machine, safety measures to prevent delivery of excessive anaesthetic concentration, safety measures to prevent development of excessive pressure on the machine and breathing systems, check out procedure to be followed everyday before using the machine and anaesthesia breathing circuit

Module-V, Patient preparation, pre-medication and theatre preparation

Patient preparation, quick assessment of patient, psychological preparation, administrative consideration and theatre preparation

Module-VI, General and regional anaesthesia

Pre anaesthesia check up, regional anaesthesia (choice of the drugs for the regional anaesthesia, individual techniques, contraindications to regional techniques, management of complications of regional anaesthesia), general anaesthesia (things to remember before starting general anaesthesia, techniques), anaesthesia for labour and vaginal delivery (drugs that can be used for vaginal delivery , inhalation anaesthetic for vaginal delivery , regional anaesthesia techniques for vaginal delivery and drugs that can be used in spinal and epidural block)

Module-VII, The parturient with systemic disease

Hypertensive disorders of pregnancy, pregnancy and diabetes mellitus with medical and anaesthetic management, anaesthetic management of pulmonary disease in pregnant patient, preoperative evaluation, antepartum and post partum haemorrhage, common haematologic and coagulation disorders in pregnancy, anaesthetic management of patients with liver disease, amniotic fluid embolism, pregnancy and renal disease, anaesthetic management of pregnant patient with preterm labour, pregnancy and heart disease.

Module-VIII, Trauma and pregnancy

Anatomic changes in pregnancy, physiologic changes in pregnancy, initial assessment, secondary assessment, maternal assessment, fetal assessment, types of trauma during pregnancy and their management, algorithm for trauma management in pregnancy, unique problems of CPR in pregnancy

Module-IX, Difficult air way in obstetric

Certain basic considerations (definition of difficult intubation, basic technique of laryngoscopy), preoperative assessment of airway (global , regional , radiologic), grading of glottic exposure, airway assessment- deductions derived, contents of the difficult airway cart, certain useful airway equipment (face masks, mechanical airway, LMA, combitube, laryngoscopes), needle cricothyrotomy and difficult intubation drill (flow chart)

Module-X, Neonatal and adult resuscitation

Patho-physioloy of asphyxia and resuscitation

Module-XI, Ethical and legal issues and consumer protection

Ethical considerations, legal considerations and the consumer protection act, duties of an anaesthetist, legal protection to medical practitioners and negligence in medical practice

3.6. Assessment

The trainees will be placed under the direct supervision of faculty members from the department of anaesthesia. The performance of the trainees will be periodically monitored and formal feed back will be given to trainees. At the end of the training course formal terminal assessment will be done and proper certificate will be issued to the successful trainees. Those who could not clear the terminal examination will be offered another chance to appear in the terminal assessment.

3.7. Record Keeping

The trainees will keep record of all their activities on a log book and complete the specified number of activities

The attendance records will be maintained and kept with supervisor.

The leave benefits will be as per the norms.

The records related to certification will be maintained at the training institution as per the guidelines.

3.8. Facilities at first referral units

The selected FRUs in the states will be strengthened by providing equipment and drugs as per the details given in the Annexures.

3.9. Facilities for trainees

The trainees will be provided with hostel facilities on payment basis. The per diem to the training will be paid as per the project guidelines.

This per diem will be paid for one time and those trainees who do not complete the training will be required to repeat the training at their own expenses.

4.1. Records of Pre-Anaesthetic Check up and Patient Preparation

Pre-anesthetic check up and Patient Preparation

1. Name of student
2. Enrollment number
3. Date and time of carrying out the activity
4. Place and address of the facility

5. Name and designation of the supervisor who observed the trainee
6. Remarks of the supervisor
7. Skills/activities which were satisfactorily performed

8. Skills/activities which need to be improved

9. Suggestions for the trainee

10. Over all grading (A = Very good/B = Good/C = Average/D = Poor/E = Very poor) Any grading below B is not acceptable and the trainee will have to repeat the procedure

Signature of supervisor with date

General Information

Name of the Patient	
Address	
CR No.	
Bed Number	
Unit number and name of unit head	
Ward	
Date of admission	
Diagnosis	
Proposed surgical procedure	
Date of surgical procedure	
Age	
Sex	
Height	
Weight	
Checked the consent form- whether it is signed or not	
Confirmed he/she is the same patient to be operated	
Any other specify	

History

	Present/Absent	Remarks
History of any significant illness		
Diabetes		
Hypertensive disorder		
Asthma		
Sickle cell disease		
Valvular heart disease		
Any other specify		
History of previous operation and anaesthesia		
Any problem with airway management.		
Outcome of anaesthesia		
Any other specify		
History of any complication during previous anaesthesia exposure		
Malignant hyperthermia		
Nausea/vomiting		
Delayed recovery		
Any other specify		
History of oral intake		
Liquid		
Solid		
Current drugs Bronchodilators/Antihypertensive/ Anti-diabetic/any other)		
Allergies		
Any other specify (Smoking/Alcohol)		

General physical examination

	Observation	Remarks
Hydration		
Anaemia		
Nutritional status		
Pulse rate		
Blood pressure		
JVP		
Cyanosis		
Jaundice		
Oedema		
Ascites		
Any other specify		

Airway assessment

Profile	Observation	Remarks
Profile examination of head, neck and face (Patient with short neck, receding chin causes difficulty in intubation)		
Mouth opening (Mouth opening less than three finger cause difficulty in oral intubation)		
Any other specify		

Systemic Examination

	Observation	Remarks
Cardiovascular system Auscultation of heart sounds. Any murmur (All diastolic murmurs are organic, palpable murmur is indicative of organic disease)		
Respiratory system Auscultation of breathing sounds. Any added sounds like, crepitation and rhonchi		
Abdominal examination Hepatosplenomegaly (Splenomegaly is found in thallassemia), Kidney		
Central Nervous system		
Endocrinal system		
Any other specify		

Psychological Preparation

Activity	Done/Not done	Remarks
Reassure the patient		
Tell the patient you are here for her		
Tell her you will look after her during the whole procedure		
Do not forget to tell a lady suffering from labour pain that you will relive her pain.		
Any other specify		

Investigation

Test	Value	Remarks
Hemoglobin		
Urine		
Sodium, potassium		
Blood urea		
Blood sugar		
TLC		
ECG		
X-ray Chest		
Renal function tests		
Liver function tests		
Special tests if any specify		

Instructions and advice

	Instructions	Remarks
Fitness of patient for surgery and anaesthesia		
Type of anaesthesia to be given		
Pre-medication		
Other advice		
Any other specify		

4.2. Operation Theatre Preparation

Operation Theatre Preparation

1. Name of student
2. Enrollment number
3. Date and time of carrying out the activity
4. Place and address of the facility

5. Name and designation of the supervisor who observed the trainee
6. Remarks of the supervisor
7. Skills/activities which were satisfactorily performed

8. Skills/activities which need to be improved

9. Suggestions for the trainee

10. Over all grading (A = Very good/B = Good/C = Average/D = Poor/E = Very poor). Any grading below B is not acceptable and the trainee will have to repeat the procedure

Signature of supervisor with date

Theatre Preparation

	Available in working order Yes/No	Any other remarks
Anaesthesia equipment checklist		
Back up ventilation		
High pressure system		
O2 fail safe mechanism		
Low pressure system		
Breathing system		
Any other specify		
Resources for airway management		
Laryngoscope and assorted blades.		
ET tubes with stylet.		
Suction source with tubing and catheter.		
Medication for hypnosis, relaxation and blood pressure support		
Any other specify		
Resources for difficult airway management		
Rigid laryngoscope blade.		
ET tubes of different size.		
LMA		
Jet ventilation/cricothyrotomy unit with TTJV		
Combitude		

	Available in working order Yes/No	Any other remarks
Semirigid stylet		
Equipment for emergent surgical airway		
Topical anaesthesia and vasoconstrictor		
Fibre-optic bronchoscope		
Any other specify		
Resources For Obstetric Hemorrhagic Emergency		
Large bore I/V catheter.		
Fluid warmer		
Forced air body warmer		
Blood bank resource		
Pressure bags and automatic infusion device		
Any other		
Maternal Monitoring Equipment		
ECG		
Blood pressure (non-invasive)		
Pulse oximetry		
Temperature		
Any other specify		
Fetal Monitoring Equipment		
Fetal heart rate		
Any other specify		

4.3. Anaesthetic Machine Preparation

Anaesthetic machine preparation

1. Name of student
2. Enrollment number
3. Date and time of carrying out the activity
4. Place and address of the facility

5. Name and designation of the supervisor who observed the trainee
6. Remarks of the supervisor
7. Skills/activities which were satisfactorily performed

8. Skills/activities which need to be improved

9. Suggestions for the trainee

10. Over all grading (A = Very good/B = Good/C = Average/D = Poor/E = Very poor). Any grading below B is not acceptable and the trainee will have to repeat the procedure

Signature of supervisor with date

Item	Observation	Remarks
Source of gas supply		
Yoke assembly		
Pressure gauge		
Pressure regulators		
Oxygen pressure failure safety/warning devices		
Flow-meters		
Oxygen ratio control devices		
Vaporizers		
Common gas outlet		
Breathing systems.		

4.4. Resuscitation of New Born

Resuscitation of new born

1. Name of student
2. Enrollment number
3. Date and time of carrying out the activity
4. Place and address of the facility

5. Name and designation of the supervisor who observed the trainee
6. Remarks of the supervisor
7. Skills/activities which were satisfactorily performed

8. Skills/activities which need to be improved

9. Suggestions for the trainee

10. Over all grading (A = Very good/B = Good/C = Average/D = Poor/E = Very poor). Any grading below B is not acceptable and the trainee will have to repeat the procedure.

Signature of supervisor with date

Newborn resuscitation

Step/Task	Observation	Remarks
General activities		

Resuscitation Using Bag And Mask		

Post-procedure Tasks		

Documenting Resuscitation Procedures		
Condition of the newborn at birth		

Procedures necessary to initiate breathing		
Time from birth to initiation of spontaneous breathing		

Clinical observations during and after resuscitation measures		
Names of providers involved		

Out-come of the procedure

Out-come of the procedure	Remarks
Factors for success	
Factors for failure	

4.5. Adult Resuscitation

Adult Resuscitation

1. Name of student
2. Enrollment number
3. Date and time of carrying out the activity
4. Place and address of the facility

5. Name and designation of the supervisor who observed the trainee
6. Remarks of the supervisor
7. Skills/activities which were satisfactorily performed

8. Skills/activities which need to be improved

9. Suggestions for the trainee

10. Over all grading (A = Very good/B = Good/C = Average/D = Poor/E = Very poor). Any grading below B is not acceptable and the trainee will have to repeat the procedure.

Signature of supervisor with date

Step/Task	Observation	Remarks Successful/ unsuccessful step etc.
General Management		
Any other specify		

Step/Task	Observation	Remarks Successful/ unsuccessful step etc.
Immediate Management		
Woman's vital signs		
Temperature		
Pulse		
Blood pressure		
Respiration		
Positioning		
Oxygen		
Warmth		
Others		

Step/Task	Observation	Remarks Successful/ unsuccessful step etc.
Blood Collection and Fluid Replacement		
Others specify		

Step/Task	Observation	Remarks Successful/ unsuccessful step etc.
Bladder Catheterization		
Others specify		

Step/Task	Observation	Remarks Successful/ unsuccessful step etc.
Reassessment and Further Management		
Others specify		

Out-come of the procedure

Out-come of the procedure	**Remarks**
Factors for success	
Factors for failure	

4.6. Cardio-pulmonary Resuscitation

Cardio-Pulmonary Resuscitation

1. Name of student
2. Enrollment number
3. Date and time of carrying out the activity
4. Place and address of the facility

5. Name and designation of the supervisor who observed the trainee
6. Remarks of the supervisor
7. Skills/activities which were satisfactorily performed

8. Skills/activities which need to be improved

9. Suggestions for the trainee

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Signature of supervisor with date

Cardiopulmonary Resuscitation

Step/Task	Observations/ actions	Remarks
General tasks		

Starting Resuscitation		
Clear the airway and inflate the lungs		
Check for major pulse – carotid or femoral.		
Any other specify		

External Cardiac Massage		

Reassessment		

Use of Drugs		

Out-come of the procedure

Out-come of the procedure	Remarks
Factors for success	
Factors for failure	

4.7. Control of Airway

Control of Airway

1. Name of student
2. Enrollment number
3. Date and time of carrying out the activity
4. Place and address of the facility

5. Name and designation of the supervisor who observed the trainee
6. Remarks of the supervisor
7. Skills/activities which were satisfactorily performed

8. Skills/activities which need to be improved

9. Suggestions for the trainee

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Signature of supervisor with date

Control of Airway

Task	Observations	Remarks
General tasks		

Assessing and Preparing Airway for Ventilation		

Ventilation with Bag and Mask		

Out-come of the procedure

Out-come of the procedure	Remarks
Factors for success	
Factors for failure	

4.8. Intra Venous Cannulation

Intra Venous Cannulation

1. Name of student
2. Enrollment number
3. Date and time of carrying out the activity
4. Place and address of the facility

5. Name and designation of the supervisor who observed the trainee
6. Remarks of the supervisor
7. Skills/activities which were satisfactorily performed

8. Skills/activities which need to be improved

9. Suggestions for the trainee

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Signature of supervisor with date

I/V Cannulation

Task	Observations	Remarks
General activities		

Identifying and Exposing the Vein		

Inserting the Cannula		

Out-come of the procedure

Out-come of the procedure	Remarks
Factors for success	
Factors for failure	

4.9. Lumbar Puncture and Spinal Anaesthesia

Lumber Puncture and Spinal Anaesthesia

1. Name of student
2. Enrollment number
3. Date and time of carrying out the activity
4. Place and address of the facility

5. Name and designation of the supervisor who observed the trainee
6. Remarks of the supervisor
7. Skills/activities which were satisfactorily performed

8. Skills/activities which need to be improved

9. Suggestions for the trainee

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Signature of supervisor with date

Lumber Puncture And Spinal Anaesthesia

Tasks	Observation	Remarks
General activities		
Preparation of the necessary equipment for lumber puncture and spinal anaesthesia		
Preparation of women		
Baseline pulse rate and blood pressure.		

Preparing and positioning the patient		

Pre lumber puncture tasks		

Performing the lumber puncture and spinal anaesthesia		

Post lumber puncture tasks		

Out-come of the procedure	Remarks
Factors for success	
Factors for failure	

4.10. Endotracheal Intubation

Endotracheal Intubation

1. Name of student
2. Enrollment number
3. Date and time of carrying out the activity
4. Place and address of the facility

5. Name and designation of the supervisor who observed the trainee
6. Remarks of the supervisor
7. Skills/activities which were satisfactorily performed

8. Skills/activities which need to be improved

9. Suggestions for the trainee

10. Over all grading (A = Very good/B = Good/C = Average/D = Poor/E = Very poor). Any grading below B is not acceptable and the trainee will have to repeat the procedure.

Signature of supervisor with date

Endotracheal intubation

(Many of the following steps/tasks should be performed simultaneously)

Tasks	Observation	Remarks
General activities		
Preparation of the necessary equipment		

Preparation of patient		

Intubation		

Ensuring correct placement of endotracheal tube		

Extubation		

Out-come of the procedure	Remarks
Factors for success	
Factors for failure	

4.11. Laryngeal Mask Air Way

Laryngeal Mask Air Way

1. Name of student
2. Enrollment number
3. Date and time of carrying out the activity
4. Place and address of the facility

5. Name and designation of the supervisor who observed the trainee
6. Remarks of the supervisor
7. Skills/activities which were satisfactorily performed

8. Skills/activities which need to be improved

9. Suggestions for the trainee

10. Over all grading (A = Very good/B = Good/C = Average/D = Poor/E = Very poor). Any grading below B is not acceptable and the trainee will have to repeat the procedure.

Signature of supervisor with date

Laryngeal mask airway

(Many of the following steps/tasks should be performed simultaneously)

Tasks	Observation	Remarks
General activities		
Preparation of the necessary equipment		

Preparation of patient		
Baseline pulse rate and blood pressure		

Inserting the LMA		

Out-come of the procedure	Remarks
Factors for success	
Factors for failure	

Annexure-4.1

RCH Programme List of RCH Drugs For CHCs/FRUs (Emergency Obstetric Care Drugs)

S. No	Product	Strength	Formulation unit	Annual quantity per FRU
1	Halothane BP	0.01% w/w thymol	200 ml. per bottle	5 Bottles
2	Atropine Sulphate Injection	600 ug/ml	Inj. 1 ml /amp.	50 Ampoules
3	Thiopentone Sodium IP	500 mg/ml	Inj. 5 ml. per vial	100 Ampoules
4	Bupivacaine Hydrochloride Inj. IP	5 mg/ml	Inj. 20 ml. per vial	50 Vials
5	Lignocaine Hydrochloride Inj. IP	5% w/v/vial	Inj. 5 ml. per vial	50 Vials
6	Lignocaine Hydrochloride Inj. IP	2% w/v/vial	Inj. 30 ml/vial	50 Vials
7	Diazepam Injection	5 mg/ml	Inj. 2 ml /amp.	100 Ampoules
8	Pentazocine Lactate Injection	30 mg/ml	Inj. 1 ml /amp.	100 Ampoules
9	Dexamethasone Sodium Phosphate Inj. IP	4 mg/ml	Inj. 1 ml /amp.	100 Ampoules
10	Promethazine hydrochloride Inj. IP	25 mg/ml	Inj. 2 ml /amp.	50 Ampoules
11	Nifedipine Capsules IP	10 mg/cap	Capsule	500 Capsules
12	Mephentermine Sulphate Inj. IP	15 mg/ml	Inj. 1 ml. per vial	25 Ampoules
13	Dopamine hydrochloride Inj. USP	40 mg/ml	Inj. 20 ml. per vial	25 Vials
14	Digoxin IP Tab	250 ug/tab	Tablet	500 Tablets
15	Digoxin Inj. IP	250 mg/ml	Inj. 2 ml. per amp.	50 Ampoules
16	Methyldopa Tablet IP	250 mg/tab	Tablet	500 Tablets
17	Frusemide Tab. IP	40 mg/tab	Tablet	500 Tablets
18	Frusemide Inj. USP	10 mg/ml	Inj. 2 ml. per ampoule	100 Ampoules
19	Ampicillin Sodium Inj. IP	250 mg/vial	Inj. 5 ml. per vial	1000 Vials
20	Gentamycin Sulphate Inj. IP	40 mg/ml	Inj. 2 ml. per ampoule	1000 Ampoules
21	Amoxycillin Trihydrate Capsules	250 mg per cap	Capsule	2000 Capsules
22	Norfloxacin Tab. IP	400 mg/tab	Tablet	2000 Tablets
23	Doxycycline Hydrochloride Capsule IP	100 mg per capsule	Capsule	1000 Capsules
24	Tinidazol Tablets	500 mg per tablet	Tablet	1000 Tablets
25	Ergometrine Maleate Inj. IP	500 ug/ml	Inj. 1 ml. ampoule	500 Light Resistant Amber colour Ampoules

S. No	Product	Strength	Formulation unit	Annual quantity per FRU
26	Oxytocin Inj. IP	10 units per ml. Inj.	Inj. 1 ml. ampoule	500 Ampoules
27	Etophylline Anhydrous Theophylline	84.7 mg. per ml. / 25.3 mg. per ml.	Inj. 2 ml/ ampoule	100 Ampoules
28	Hydrocortisone Acetate IP	25 mg/ml	Inj. 2 ml. per vial	100 Vials
29	Salbutamol Sulphate Tablets	2 mg per tab.	Tablet	1000 Tablets
30	Adrenaline Bitartrate Injection	1 mg per ml	Inj. 1 ml./ amp.	100 Ampoules
31	Succinyl Choline Chloride Inj. IP	50 mg/ml	Inj. 10 ml. per vial	30 Vials
32	Ketamine Hydrochloride Inj. IP	10 mg/ml	Inj. 10 ml. per vial	50 Vials
33	Diazepam Tablets	5 mg. per. tab.	Tablet	250 Tablets
34	Vecuronium Bromide BP	4 mg/ml	Inj. 1 ml. ampoule	500 Ampoules
35	Pancuronium Bromide Inj. BP	4 mg/amp	Inj. 2 ml. ampoule	500 Ampoules
36	Neostigmine Methyl Sulphate Inj. IP	0.5 mg/ml	Inj. 1 ml. ampoule	1000 Ampoules
37	Benzyl Pencillin Inj. IP	300 mg/vial	Vial	2000 Vials
38	Fortified Procaine Penicillin Inj. IP	Procaine Penicillin 300mg (3,00,000 IU) Benzyl Penicillin 60mg (1,00,000 IU)	Vial	1000 Vials
39	Benzathine Benzyl Penicillin Inj. IP	6 lakhs units / vial	Inj. Vial	100 Vials
40	Cotrimoxazole Tabs. Trimethoprim IP Sulphamethoxazole IP Tablets	Trimethoprim IP 80 mg Sulphamethoxazole IP 400 mg	Tablet	5000 Tablets
41	Phenoxymethyl Penicillin Potassium Tablets	130 mg per tab	Tablet	3000 Tablets
42	Nalidixic Acid Tablets	500 mg per tablet	Tablet	3000 Tablets
43	Cloxacillin Sodium Inj. IP	250 mg/vial	Inj. Vial	100 Vials
44	Metronidazole IV IP	5 mg/ ml	Inj. 100 ml bottle	500 Bottles
45	Ergometrine Maleate Tab. IP	250 ug/tab	Tablet	2000 Tablets
46	Chloroquin Phosphate Inj. IP	40 mg/ml	Inj. 5 ml. ampoule	50 Ampoules
47	Phenytoin Sodium Tab IP	100 mg/tab	Tablet	150 Tablets
48	Hydroprogestrone Hexazoate Inj USP	250 mg/ml	Inj. 2 ml. amp.	100 Ampoules
49	Norethisterone Acetate BP	5 mg/tab	Tablet	1000 Tablets
50	Insulin Inj. IP	40 units /ml	Inj. 10 ml. per vial	10 Vials

S. No	Product	Strength	Formulation unit	Annual quantity per FRU
51	Insulin Zinc Suspension Inj. IP		Inj. 1 ml. Vial	10 Vials
52	Sodium Bicarbonate Solution BP	5% w/v	Inj. 10 ml. amp.	100 Ampoules
53	Magnesium Sulphate Inj. BP	50% w/v	Inj. 10 ml. per amp.	50 Vials
54	Phenytoin IP	50mg. Per ml.	Inj. 5 ml. per amp.	50 Ampoules
55*	Oxygen IP		Cylinder Bulk	2 with 24 fillings per year
56*	Sodium chloride Solution BP		Inj. 500 ml pl. pouch	1000 pl. pouches
57*	Dextrose Inj. Ip. I.V.Solution		500 ml pl. pouch	250 pl. pouches
58*	Nitrous oxide IP		Cylinder	2 cylinders 10 refillings per year
59*	Plasma Volume expander brand name: Haemaccel		500 ml.	10 Bottles
60*	Water for Injection		Inj. 5 ml. Glass amp.	1000 Ampoules
61*	I.V.Infusion Sets			100
62*	Intracath cannula (size- 16,18,20,22)			120 each size
63*	Syringes & Needles (Glass) size- 1ml, 2ml, & 5ml			@ 5,10.100
64*	Compound Sodium Lactate		500 ml pl. pouch	1000 pl. pouches
65*	Gloves (size-6, 7,& 8)			@2500,2500&1000

*** Marked items will be supplied through MSDs upto the District level consignees.**

Annexure-4.2

List of RCH Drugs For Primary Health Centre (PHC) (Essential Obstetric Care Drugs)

S. No.	Product	Strength	Formulation Unit	Annual Quantity Per PHC
1	Diazepam Inj. IP	5 mg/ ml	Inj. 2 ml per amp.	50 Ampoules
2.	Lignocaine Hydrochloride Inj. IP	2% w/v	30 ml per vial	10 Vials
3	Pentazocine Lactate Inj. IP	30 mg/ ml	Inj. 1 ml /Ampoule	50 Ampoules
4	Dexamethasone Sodium Phosphate Inj. IP	4 mg/ ml	Inj. 2ml /Amp.	100 Ampoules
5	Promathazine Hydrochloride Inj. IP	25 mg/ ml	Inj. 2 ml. Ampoule	50 Ampoules
6	Methyl Ergometrine Maleate Inj. IP	200 ug/ml (0.2mg/ml)	Inj. 1 ml. Ampoule	150 Ampoules
7	Etophylline BP Plus Anhydrous Theophylline IP Combination	84.7 mg/ ml 25.3 mg/ ml	Inj. 2 ml. Ampoule	100 Ampoules
8	Aminophylline Inj. IP	25 mg/ ml	Inj. 10 ml. Ampoule	50 Ampoules
9	Adrenalin Bitartrate Inj. IP	1 mg/ ml	Inj. 1 ml. Ampoule	50 Ampoules
10	Methylegometrine Maleate Tab. IP	125 ug/ tab	Tablet	500 Tablets
11	Diazepam Tab. IP	5 mg/ tab	Tablet	250 Tablets
12	Paracetamol Tab. IP	500 mg/ tab	Tablet	1000 Tablets
13	Co-trimoxozole tabs – Combination of - Trimethoprim IP - Sulphamethoxazole IP	 80 mg/ tab 400 mg/ tab	Tablet	2000 Tablets
14	Amoxycillin Trihydrate IP	500 mg/ cap.	Capsule	2500 Capsules
15	Doxycycline Hydrochloride Capsule IP	100 mg/cap.	Capsule	500 Capsules
16	Tinidazole IP	500 mg/ tab	Tablet	1000 Tablets
17	Salbutamol Sulphate IP	2 mg/ tab	Tablet	1000 Tablets
18	Phenoxymethy1 Penicillin Potassium IP (PENICILLIN V)	130 mg/ tab	Tablet	2000 Tablets
19	VIT.K3 (Menadione Inj.) USP	10 mg/ ml	Inj. 1 ml. Ampoule	200 Ampoules
20	Atropine Sulphate Inj. IP	600 ug/ ml	Inj. 1 ml. Ampoule	50 Ampoules
21	Nalidixic Acid Tab. IP	500 mg/ tab	Tablet	1000 Tablets
22	Oxytocin Inj. IP	5 I.U/ml	Inj. 1 ml. Ampoule	100 Ampoules
23	Phenytoin Sodium Inj. IP.	50 mg/ 2ml	Inj.5 ml. per vial	25 Ampoules
24	Chlorpromazine Hydrochloride Inj.	25 mg/ ml	Inj. 2 ml. Ampoule	50 Ampoules
25	Cephalexin Cap. IP	250 mg/cap.	Capsule	1000 Capsules
26*	Compound Sodium Lactate Inj. IP.		500 ml plastic. pouch	200 pl. pouches
27*	Dextrose Inj. IP I.V. solution	0.05	Inj. 500 ml pl. pouch	50 pl. pouches
28*	Sodium chloride Inj. IP. I.V. solution	0.9% W/V	Inj. 500 ml pl. pouch	100 pl. pouches

Annexure-4.3

Anaesthesia Equipment Kit for FRUs

Specifications for:

Anaesthesia Machine – One

- Boyle type Anesthesia Machine made of stainless steel body with antistatic wheel and facility to lock.
- Two A type cylinders for oxygen and nitrous oxide with pressure reducing valve.
- Pressure gauge to monitor the pressure of gases in cylinders.
- Rota meter with bob in for accurately calculating the flow of gases.
- Two vaporizers one Boyle bottle for Ether and one flutech for Halothane.
- Breathing circuit:-Magill and Bains two sets of each.
- Preferably with soda lime canister with circle absorber and close circuit.
- Guarantee for two years and after sales service and spares for five years.

Pulse Oximeter – One

- To monitor the oxygen saturation.
- Give numerical as well as graphic display.
- Alarms for lower limits of saturation, disconnection and low signal etc.
- Should have memory and trend for 8 hours.
- Should have battery back up for two hours.
- Guarantee for two years and after sale service and spares for five years.

Laryngeal Mask Airway

- Securing the airway for short surgical procedures/difficult airway and intubation.

- Size 3.0 & 4.0 (one of each size)
- Should be able to autoclave.

Ambu Bag- Two

- Self-inflating, silicon bag with provision to give oxygen along with non-rebreathing valve for resuscitation. Size – Adult.

Suction Machine – One

- Electrically operated, heavy duty with two bottles of five litre capacity each. Machine should be able to generate negative pressure upto 600 mm of Hg.

Needle, Spinal, Stainless, Set of 4 of each size – One set each

- Straight bevel needle with stylet for lumbar puncture, steel, autoclavable.
- Size 22G, 24G, 25G.
- Length – 10 cm.

I/ V Cannulae – twelve of each size

- I/V Teflon Cannula with injection port.
- Sizes – 16G, 18G, 20G, 22G.
- Silicon valve for intermittent injection with a syringe.
- Supplied with a male Luer lock obsturator.

I/V Set – Forty eight in No.

- Plastic tubing
- With chamber.
- With Luer lock to connect to I/V Cannula.

Face Mask – Two each

- Low pressure seal: soft, pliable, air filled.
- Traditional Anatomical Shape.
- Removable hook ring for head straps.
- Black Rubber.
- Sizes: 2, 3, 4.

Airway – Two of each size

- Sizes: 2, 3, 4.
- Integral hard bide blode.
- Transparent Plastic.

Suction Catheter

- Smooth low friction frozen surface tubing.
- Open end with one lateral eye.
- Length -53cm
- Sizes FG. 6,8,10,12,14,16,18.

Urinary Catheter

Stylet for Endotracheal Intubation

- Malliable, blunt tip, for 6 mm 1D endotracheal tube.

Laryngoscopes

- Mackintosh Laryngoscope
- Curved Blade
- Blade sizes-small, medium, large and extra large.

- Handle with space for batteries
- Handle should have serrations
- Light source-bulbs.

Endotracheal Tubes

- Partex Type
- Oral or nasal use
- High volume low pressure cuff
- Sizes should range from internal diameter of 2.5, 3.0, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5 mm.
- Pilot balloon with unidirectional valve

Magill Forceps

- Stainless Steel body.
- Two sizes-small and large.

Annexure-4.4

Essential new born care equipment

Essential New Born Care Equipment Kit For PHCs		
S.No.	**Item Description**	**Quantity**
1	Infant Resuscitation Bag	1
2	Infant Weighing Scales	1
3	Bassinet	1
4	Foot Operated Suction	1
5	Lamp	1

Essential New Born Care Equipment Kit For FRUs		
S.No.	**Item Description**	**Quantity**
1	Infant Radiant Warmer with bassinet	2
2	Infant Resuscitation Bag	2
3	Oxygen Hoods	1
4	Infant Weighing Scales	1
5	Phototherapy Lamps / Units	1
6	Bassinet	2
7	Foot Operated Suction	2

Essential New Born Care Equipment Kit For District Hospitals		
S.No.	**Item Description**	**Quantity**
1	Infant Radiant Warmer with bassinet	4
2	Infant Resuscitation Bag	3
3	Oxygen Hoods	2
4	Infant Weighing Scales	3
5	Phototherapy Lamps / Units	1
6	Layngoscope	2
7	Endotracheal Tubes	100
8	Bassinet	2
9	Foot Operated Suction	2

Annexure-4.5

MCI Curriculum on Anesthesia

During Internship

1. **As part of internship in medicine**

   Acquire skills in

   - Conducting CSF tap (Adults and Children), installing of airway tube, Oxygen administration (Medicine).

2. **As part of internship in surgery**

   - Maintain patent airway and resuscitate patient with cardio respiratory failure (Surgery).

3. **As part of internship in anesthesia (15 days-optional),**

   An intern shall acquire skills and attitude to:

   - Perform PAC and prescribe PAC medication
   - Perform venepuncture and set up drip
   - Perform larynogscopy and endotracheal intubations
   - Perform LP, spinal anesthesia, simple nerve blocks
   - Conduct simple GA procedures under supervision
   - Monitor patients during Anesthesia and post-operative period, recognize and treat complications in post-op period
   - Recognize and manage problems with emergency anesthesia
   - Perform C.P.B.R correctly, including recognition of Cardiac arrest.
   - Maintain Anesthesia Records

Annexure-4.6

Cases for use in training

- **Case study:** shock
- **Case study:** pre-operative breathing difficulty
- **Case study:** obstructed labor
- **Case study:** intra-operative hypotension
- **Case study:** intra-operative bradycardia
- **Case study:** normal post –operative evaluation and care
- **Case study:** post-operative breathing difficulty
- **Case study:** antepartum hemorrhage
- **Case study:** eclampsia
- **Case study:** intra-operative collapse
- **Case study:** post-operative collapse

Case study: Shock

Instructions

Read and analyze this case study individually. When the others in your group have finished reading it, answer the case study questions. Consider the steps in clinical decision-making as you answer the questions. The other groups in the room are working on the same or a similar case study. When all groups have finished, we will discuss the case studies and the answers each group has developed.

Case Study

Mrs. Rita is 34 years old. She had her fifth normal childbirth two hours ago. She lay in bed after she delivered a normal healthy male neonate and was examined once after the childbirth. She was apparently fine and did not complain of anything.

She got up from the bed to go to the toilet but fainted and fell back on the bed.

Assessment (history, physical examination, screening procedures/laboratory tests)

- What will you include in your initial assessment of Mrs. Rita and why?
- What particular aspect of Mrs. Rita's physical examination will help you make a diagnosis or identify her problems/needs and why?
- What screening procedures/laboratory tests will you include (if available) in your assessment of Mrs. Rita and why?

Diagnosis (identification of problems/needs)

You have completed your assessment of Mrs. Rita and your main findings include the following:

Mrs. Rita's pulse is 130 beats per minute, her blood pressure is 70/50 mm Hg and her respiration rate is 30 breaths per minute. Her hands and feet are cold, and she seems to have conjunctival pallor. She is semiconscious and responding to command. Mrs. Rita's abdomen is soft and not tender. Her hemoglobin level is 7 g/dl. Vaginal bleeding is present.

- Based on these findings, what is Mrs. Rita's diagnosis (problem/need) and why?

Care Provision (planning and intervention)

- Based on your diagnosis (problem/need identification), what is your plan of care for Mrs. Rita and why?

Evaluation

Three hours later following the initiation of treatment, Mrs. Rita's blood pressure is 110/70 mm Hg. She is conscious; her pulse is 110 beats per minute and her respiration rate is still 30 breaths per minute. Her hemoglobin level is 6 g/dl.

- Based on these findings, what is your continuing plan of care for Mrs. Rita and Why?

Case Study: Pre - Operative Breathing Difficulty

Instructions

Read and analyze this case study individually. When the others in your group have finished reading it, answer the case study questions. Consider the steps in clinical decision-making as you answer the questions. The other groups in the room are working on the same or a similar case study. When all groups have finished, we will discuss the case studies and the answers each group has developed.

Case Study

Mrs. Seema Singh, a 35-year old female, gravida 2, para 1, 38 weeks of gestation has been admitted for management of respiratory infection and asthmatic attacks. Previously, Mrs. Seema Singh had had a normal childbirth and she has no other medical disease apart from a history of bronchial asthma. Suddenly, Mrs. Seema Singh starts having labor pains with signs of fetal distress. The surgeon has decided to perform a cesarean section. You have been asked to perform the anesthetic evaluation of this patient for the planned cesarean section.

Assessment (history, physical examination, screening procedures/laboratory tests)

- What relevant history would you need from this patient as part of your anesthetic evaluation?
- What are the salient points relevant to anesthesia provision that should be recorded in your clinical examination?

Planning for Anaesthesia

- Based on your findings, which anaesthetic agent/technique would you choose for this patient and why?
- What are the major advantages of the anaesthetic agent/technique that you have chosen?
- What are the major disadvantages of this anaesthetic agent/technique? What necessary steps would you take to ensure the safety of the patient?

Monitoring and Evaluation

- What measures would you take for this patient during the recovery period?

Case Study: Obstructed Labor

Instructions

Read and analyze this case study individually. When the others in your group have finished reading it, answer the case study questions. Consider the steps in clinical decision-making as you answer the questions. The other groups in the room are working on the same or a similar case study. When all groups have finished, we will discuss the case studies and the answers each group has developed.

Case Study

Mrs. Shakuntala Devi, 18 years old, primi gravida, married one year was admitted 12 hours ago with labour pains of 20 hours duration. She is of short stature. Her bag of waters ruptured 18 hours ago. The obstetrician diagnosed the case as cephalo-pelvic disproportion, and a decision was made to perform a lower segment cesarean section (LSCS). You have been asked to perform the anesthetic evaluation of this patient for the planned LSCS.

Assessment (history, physical examination, screening procedures/laboratory tests)

- What relevant history would you need from this patient as part of your anesthetic evaluation.
- What are the salient points relevant to anesthesia provision that should be recorded in your clinical examination?
- What specific laboratory tests would you order/perform before deciding on the anesthetic agent/technique? Why?

Planning for Anesthesia

- Based on your findings, which anesthetic agent/technique would you choose for this patient and why?
- What are the major advantages of the anesthetic agent/technique that you have chosen?

Preparation of the Patient for LSCS

- What necessary steps would you take to ensure the safety of the patient for the chosen anaesthetic technique?
- What dosage of the anaesthetic agent would you use for this patient?
- What pre-medication would you use, if any, for this case?

Monitoring and Evaluation

- What are the main points to take note of during the patient's recovery period?

Case Study: Intra-Operative Hypotension

Instructions

Read and analyze this case study individually. When the others in your group have finished reading it, answer the case study questions. Consider the steps in clinical decision-making as you read the questions. The other groups in the room are working on the same or a similar case study. When all groups have finished, we will discuss the case studies and the answers each has developed.

Case study

Mrs. Sunita Devi is 25 years old, para 2. She is having a cesarean section under spinal anesthesia and has delivered a healthy female neonate. Her pulse rate is 90 beats per minute and her blood pressure *190* mm Hg. She is awake and comfortable on the operating room table. The surgeon has stitched the uterus and has started to close the peritoneum. Her pulse rate drops to 80 beats per minute and her blood pressure falls to 80/50 mm Hg. Her respiration rate is 20 breaths per minute.

Assessment (history, physical examination, screening procedures/laboratory tests)

- What will you include in your initial assessment of Mrs. Sunita Devi and why?
- What particular aspects of Mrs. Sunita Devi's physical examination will help you make a diagnosis or identify her problems/needs, and why?
- What screening procedures/laboratory tests will you include (if available) in your assessment of Mrs. Sunita Devi and why?

Diagnosis (identification of problems/needs)

You have completed your assessment of Mrs. Sunita Devi and your main findings include the following:

Mrs. Sunita Devi is conscious, not restless, her pulse rate is 60 beats per minute and her blood pressure is 75/50mm Hg. She is not sweating and does not have pallor. Her periphery is not cold. The surgeon is worried/happy that she is not bleeding as patients normally do. Her hemoglobin level is 9.8 g/dl.

- Based on these findings, what is Mrs. Sunita Devi's diagnosis (problem/need) and why?

Care Provision (planning and intervention)

- Based on your diagnosis (problem/need identification), what is your plan of care for Mrs. Sunita Devi and why?

Evaluation

Half an hour later following the initiation of treatment, Mrs. Sunita Devi's pulse rate is 90 beats per minute and her blood pressure is 120/80 mm Hg. Her respiration rate is 20 breaths per minute. She is conscious, oriented and comfortable on the operating room table. Her periphery is warm.

- Based on these findings, what is your continuing plan of care for Mrs. Sunita Devi and why?

Case Study: Intra-Operative Bradycardia

Instructions

Read and analyze this case study individually. When the others in your group have finished reading it, answer the case study questions. Consider the steps in clinical decision-making as you answer the questions. The other groups in the room are working on the same or a similar case study. When all groups have finished, we will discuss the case studies and the answers each group has developed.

Case Study

Mrs. Saroj Devi is 18 years old and is having a cesarean section after a successful spinal anesthesia. She has just delivered a healthy male neonate. Her blood pressure has stayed at 130/80 mm Hg and her pulse rate at 90 beats per minute throughout the procedure. Mrs. Saroj Devi has just received 1,200 ml of NaCl. The anesthesia provider has noticed a gradual drop in her pulse rate during the last five minutes. Her pulse is now 52 beats per minute, her blood pressure 125/75 mm Hg and her respiration rate 20 breaths per minute. She is conscious and not cold peripherally.

Assessment (history, physical examination, screening procedures/laboratory tests)

- What will you include in your initial assessment of Mrs. Saroj Devi and why?
- What particular aspects of Mrs. Saroj Devi's physical examination will help you make a diagnosis or identify her problems/needs and why?
- What screening procedures/laboratory tests will you include (if available) in your assessment of Mrs. Saroj Devi, and why?

Diagnosis (identification of problems/needs)

You have completed your assessment of Mrs. Saroj Devi and your main findings include the following:

Mrs. Saroj Devi is slightly restless and conscious. Her pulse rate is 50 beats per minute, her blood pressure is 120/80 mm Hg and her respiration rate is 20 breaths per minute. Her hemoglobin level is 10 g/dl.

- Based on these findings, what is Mrs. Saroj Devi's diagnosis (problem/need) and why?

Care Provision (planning and intervention)

- Based on your diagnosis (problem/need identification), what is your plan of care for Mrs. Saroj Devi and why?

Evaluation

Five minutes later following the initiation of treatment, Mrs. Saroj Devi's pulse rate is 110 beats per minute, her blood pressure is 125/80 mm Hg and her respiration rate is 24 breaths per minute. She is conscious, oriented and warm peripherally.

- Based on these findings, what is your continuing plan of care for Mrs. Saroj Devi, and why?

Case Study: Normal Post-Operative Evaluation and Care

Instructions

Read and analyze this case study individually. When the others in your group have finished reading it, answer the case study questions. Consider the steps in clinical decision-making as you answer the questions. The other groups in the room are working on the same or a similar case study. When all groups have finished, we will discuss the case studies and the answers each group has developed.

Case Study

Mrs. Lajwanti is 32 years old. She was admitted to the hospital with postpartum hemorrhage after a normal childbirth at home. She had a retained placenta and was bleeding. Anesthesia, in the form of Ketamine IV, was administered to her. The retained placenta was removed under prolonged anesthesia and with difficulty. She also bled moderately in the operating room. Mrs. Lajwanti recovered from the anesthesia and was moved to the post-operative ward for monitoring, observation and evaluation.

Assessment (history, physical examination, screening procedures/laboratory tests)

- What will you include in your initial assessment of Mrs. Lajwanti and why?
- What particular aspects of Mrs. Lajwanti's physical examination will help you make a diagnosis or identify her problems/needs and why?
- What screening procedures/laboratory tests will you include (if available) in your assessment of Mrs. Lajwanti and why?

Diagnosis (identification of problems/needs)

You have completed your assessment of Mrs. Lajwanti and your main findings include the following:

Mrs. Lajwanti is awake but disorientated. She is maintaining her airway. Her pulse rate is 110 beats per minute, her blood pressure 95/70 mm Hg and her respiration rate 18 breaths per minute. There is no active bleeding vaginally. Her chest is clear. Her periphery is not cold. She has passed 100 ml of urine. Her hemoglobin level is 7 g/dl.

- Based on these findings, what is Mrs. Lajwanti's diagnosis (problem/need) and why?

Care Provision (planning and intervention)

- Based on your diagnosis (problem/need identification), what is your plan of care for Mrs. Lajwanti and why?

Evaluation

Eight hours later following the initiation of treatment, Mrs. Lajwanti is still disorientated and maintaining her airway. Her pulse rate is 70 beats per minute and her blood pressure is 130/80 mm Hg. Her respiration rate is 20 breaths per minute. Her hemoglobin level is 9 g/dl. Her peripheral limbs are warm.

- Based on these findings, what is your continuing plan of care for Mrs. Lajwanti and why?

Case Study: Post-Operative Breathing Difficulty

Instructions

Read and analyze this case study individually. When the others in your group have finished reading it, answer the case study questions. Consider the steps in clinical decision-making as you answer the questions. The other groups in the room are working on the same or a similar case study. When all the groups have finished, we will discuss the case studies and the answers each group has developed.

Case Study

Mrs. Satya Rani is 28 years old. She has delivered a healthy male neonate by an uneventful cesarean section under spinal anesthesia. She maintained her pulse rate and blood pressure. She has received 1,000 ml of Hartman's Solution and 1,000 ml of 5% dextrose water. Fifteen minutes after being moved to the post-operative ward, she is complaining of difficulty in breathing.

Assessment (history, physical examination, screening procedures/laboratory tests)

- What will you include in your initial assessment of Mrs. Satya Rani and why?
- What particular aspects of Mrs. Satya Rani's physical examination will help you make a diagnosis, identify her problems/needs, and why?
- What screening procedures/laboratory tests will you include (if available) in your assessment of Mrs. Satya Rani and why?

Diagnosis (identification of problems/needs)

You have completed your assessment of Mrs. Satya Rani and your main findings include the following:

Mrs. Satya Rani is restless and complaining of difficulty in breathing. Her pulse rate is 120 beats per minute and her blood pressure is 150/100 mm Hg. She is conscious and orientated. There are bilateral Rhonchi and wheezing on auscultation. Basal crept is present in *both* the lungs. She is not cyanosed. Her hemoglobin level is 12 g/dl.

- Based on these findings, what is Mrs. Satya Rani's diagnosis (problem/need) and why?

Care Provision (planning and intervention)

- Based on your diagnosis (problem/need identification), what is your plan of care for Mrs. Satya Rani and why?

Evaluation

One hour later following the initiation of treatment, Mrs. Satya Rani is conscious and breathing comfortably. There are some Rhonchi and wheezing in both the lungs on auscultation. Basal crept is still present. She has passed 100 ml of urine. Her pulse is 90 beats per minute and blood pressure 140/90 mm Hg.

- Based on these findings, what is your continuing plan of care for Mrs. Satya Rani and why?

Case Study: Antepartum Hemorrhage

Instructions

Read and analyze this case study individually. When the others in your group have finished reading it, answer the case study questions. Consider the steps in clinical decision-making as you answer the questions. The other groups in the room are working on the same or a similar case study. When all groups have finished, we will discuss the case studies and the answers each group has developed.

Case Study

Mrs. Sita Rani a 25-year-old female, gravida 3, para 2 at 37 weeks of gestation was admitted to the hospital with repeated frequent vaginal bleeding; the vaginal bleeding is quite serious now. No other past medical problems were noted. The obstetrician has decided to conduct an emergency cesarean section. Mrs. Sita Rani's pulse rate is 120 beats per minute, her blood pressure is 85/40 mm Hg and her respiration rate is 24 breaths per minute. You have been asked to perform the anesthetic evaluation of this patient for the planned emergency cesarean section.

Assessment (history, physical examination, screening procedures/laboratory tests)

- What relevant history would you need from this patient as part of your anesthetic evaluation?
- What are the salient points relevant to anesthesia provision that should be recorded in your clinical examination?

Planning for Anesthesia and Surgery

- What would you do to prepare the patient for surgery?
- Based on your findings, which anesthetic agent/technique would you choose for this patient and why?
- What are the major disadvantages of this anesthetic agent/technique? What necessary steps would you take to ensure the safety of the patient?

Monitoring and Evaluation

- What measures would you take for this patient during the recovery period?

Case Study: Eclampsia

Instructions

Read and analyze this case study individually. When the others in your group have finished reading it, answer the case study questions. Consider the steps in clinical decision-making as you answer the questions. The other groups in the room are working on the same or a similar case study. When all groups have finished, we will discuss the case studies and the answers each group has developed.

Case Study

A 20-year-old primigravida with full term pregnancy was admitted for emergency cesarean section. This was her first visit to the health facility for this pregnancy. Her blood pressure was 200/120 mm of Hg, her pulse was 160/minute and she was unconscious. Her attendants/family gave a history of four to five fits at home about 6 hours back.

Assessment (history, physical examination, screening procedures/laboratory tests)

- What will be your assessment and why?
- What particular sign will help you to make your diagnosis and why?

Diagnosis

You have completed your assessment and your findings include:

No history of pre-existing CNS disorder

Clinical examination yielded the following findings:

a. Patient responded to deep pain

b. Repeated monitoring showed blood pressure and pulse rate to be persistently high

c. On auscultation the chest was clear

d. Urine output shows 15 ml of urine in 1 hour

- What other laboratory investigations would you order/perform to plan your intervention for this case?

Planning and Intervention

- How would you prepare the patient for surgery?
- What anesthetic technique will you plan for this case?

Monitoring and Evaluation

- What measures would you take for this patient during the recovery period?

Case Study: Intra-Operative Collapse

Instructions

Read and analyze this case study individually. When the others in your group have finished reading it, answer the case study questions. Consider the steps in clinical decision-making as you answer the questions. The other groups in the room are working on the same or a similar case study. When all groups have finished, we will discuss the case studies and the answers each group has developed.

Case Study

A 25-year-old pregnant woman, para one with full term pregnancy, was suffering from pregnancy induced hypertension (PIH). Her PIH was controlled with antihypertensive drugs. The woman developed fetal distress and the obstetrician decided on doing a cesarean section for the fetal distress. The anesthesia provider decided to perform the operation on Spinal Anesthesia and administered 12 mg of Bupivacaine intrathecally. After the anesthesia was administered, the woman's blood pressure dropped dramatically and she became unconscious.

Assessment (history, physical examination, screening procedures/laboratory tests)

- What will be your first assessment of the woman and why?

Diagnosis

You have completed your assessment and your findings include:

The patient is not breathing.

The carotid pulse cannot be palpated.

- Based on the findings that the patient is unconscious, not breathing and the absence of carotid pulse, what is your diagnosis?

Plan of Action

- Based on your finding, what is your plan of action?

Monitoring and Evaluation

- What measures would you take for this patient during the recovery period?

Case Study: Post-Operative Collapse

Instructions

Read and analyze this case study individually. When the others in your group have finished reading it, answer the case study questions. Consider the steps in clinical decision-making as you answer the questions. The other groups in the room are working on the same or a similar case study. When all groups have finished, we will discuss the case studies and the answers each group has developed.

Case Study

A 25-year-old primigravida was referred from a primary health care center as a case of prolonged labor. Prolonged labor with fetal distress was diagnosed, and an emergency cesarean section was performed. At the end of the operation the baby was delivered in stable condition and the mother's vital signs were stable. An hour after she was transferred to the post-operative ward the patient developed sudden hypotension and collapsed. The doctor on duty was called to attend the case. Presently, you are the anesthesia provider on duty and though you did not provide anesthesia to this patient, the doctor on duty has called on you to help manage the case.

Assessment (history, physical examination, screening procedures/laboratory tests)

- What will be your initial assessment and why?
- What particular aspects of the patient's physical examination will help you make your diagnosis?
- What background information and documents would you like to review to come to a diagnosis?

Diagnosis

You have completed your assessment and your findings include:

No history of pre-existing CNS disorder

Abdomen was soft and nothing remarkable

Clinical examination yielded the following findings:

The patient looked pale and is shivering

There was shortness of breath

Pulse rate - 130/minute and weak

Blood pressure - systolic blood pressure 80 mm of Hg and diastolic blood pressure could not be recorded

Temperature - 98 degrees F

Her preoperative chart showed nothing remarkable except that she had marked pallor.

- Based on your findings what is your differential diagnosis for the woman's condition?
- What is your final diagnosis?
- What other laboratory investigations would you order/perform to plan your intervention for this case?

Planning and Intervention

- Based on your diagnosis, what is your plan of care for the patient?

Monitoring and Evaluation

The patient shows good recovery and she is doing well now.

- Based on this outcome, what advice would you give to the patient?

Learning Guide For Adult Resuscitation
(Many of the following steps/tasks should be performed simultaneously)

Step/Task

General Management

1. SHOUT FOR HELP to urgently mobilize personnel.
2. Greet the women respectfully and with kindness.
3. If the woman is conscious and responsive, tell the woman (and her support person) what is going to be done, listen to her and respond attentively to her questions and concerns.
4. Provide continual emotional support and reassurance, as feasible

Immediate Management

1. Monitor the woman's vital signs every 15 minutes:
   - Temperature
   - Pulse
   - Blood pressure
   - Respiration
2. Turn the woman onto her side and ensure that her airway is open. If the woman is not breathing, begin resuscitation measures.
3. Give oxygen 6-8 L/minute by face mask or nasal cannula.
4. Cover the woman with a blanket to ensure warmth.
5. Elevate the woman's legs– if possible, by raising the foot of the bed.

Blood Collection And Fluid Replacement

1. Wash hands thoroughly with soap and water and dry with a clean, dry cloth or air dry.
2. Connect IV tubing to a 1 L container of normal saline or Ringer's lactate.
3. Run fluid through tubing.

4. Select a suitable site for infusion (e.g., back of hand or forearm).
5. Place a tourniquet around the woman's upper arm.
6. Put new examination or high-level disinfected surgical gloves on both hands.
7. Clean skin at site selected for infusion.
8. Insert 16- or 18-guage needle or cannula into the vein.
9. Draw blood for hemoglobin, cross-matching and bedside clotting test.
10. Detach syringe from needle or cannula.
11. Connect IV tubing to needle or cannula.
12. Secure the needle or cannula with tape.
13. Adjust IV tubing to run fluid at a rate sufficiently rapid to infuse 1 L in 15-20 minutes.
14. Place the blood drawn into a labeled test tube for hemoglobin and cross-matching.
15. Place 2 ml of blood into a small glass test tube (approximately 10 mm x 75 mm) to do a bedside clotting test:
    - Hold the test tube in your closed fist to keep it warm.
    - After 4 minutes, tip the tube slowly to see if a clot is forming.
    - Tip it again every minute until the blood clots and the tube can be turned upside down.
    - If a clot fails to form or a soft clot forms that breaks down easily, coagulopathy is possible.
16. If the woman is not breathing or is not breathing well, perform endotracheal intubation and ventilate with an Ambu bag.
17. Before removing gloves, dispose of waste materials in a leakproof container or plastic bag.
18. Immerse both gloved hands in 0.5% chlorine solution. Remove gloves by turning them inside out.
19. Wash hands thoroughly with soap and water and dry with a clean, dry cloth or air dry.

Bladder Catheterization

1. Put new examination or high-level disinfected surgical gloves on both hands.
2. Clean the external genitalia.
3. Insert catheter into the urethral orifice and allow urine to drain into a sterile receptacle, and measure and record amount.
4. Secure catheter and attach it to urine drainage bag.
5. Immerse both gloved hands in 0.5% chlorine solution. Remove gloves by turning them inside out.
    - If disposing of gloves, place them in a leakproof container or plastic bag.
    - If reusing surgical gloves, submerge them in 0.5% chlorine solution for 10 minutes for decontamination.
6. Wash hands thoroughly with soap and water and dry with a clean, dry cloth or air dry.

Reassessment and Further Management

1. Reassess the woman's response to IV fluids within 30 minutes for signs of improvement:
    - Stabilizing pulse (90 beats/minute or less)
    - Increasing systolic blood pressure (100 mm Hg or more)
    - Improving mental status (less confusion or anxiety)
    - Increasing urine output (30 ml/hour or more)
2. If the woman's condition improves:
    - Adjust the rate of IV infusion to 1 l in 6 hours.
    - Continue management for underlying cause of shock.
3. If the woman's condition fails to improve:
    - Adjust the rate of IV infusion to 1 l in 6 hours.
    - Continue oxygen at 6-8 l/minute.

- Continue to closely monitor vital signs and urine output.
- Arrange for additional laboratory tests.

4. Check for bleeding. If heavy bleeding is seen, take steps to stop the bleeding and transfuse blood, if necessary.
5. Perform the necessary history, physical examination and tests to determine cause of shock if not already known.

Learning Guide For Cardiopulmonary Resuscitation
(Many of the following steps/tasks should be performed simultaneously)

Step/Task

Getting Ready

1. SHOUT FOR HELP to urgently mobilize available personnel.
2. Treat the women respectfully and with kindness.
3. Provide continual emotional support and reassurance, as feasible.
4. Do not leave the woman.

Starting Resucitation

1. Clear the airway and inflate the lungs with whatever means available:
    - Mouth to mouth ventilation.
    - Ambu bag ventilation
2. Mouth to mouth ventilation:
    - Use the head-tilt, chin-lift technique.
    - Pinch nose of the patient with one hand, take a deep breath, seal your mouth around patient's mouth and blow until the chest rises.
    - Stop inflation, release seal when chest rises and allow patient to passively exhale completely.
3. Ambu bag ventilation (with or without oxygen):
    - Position yourself facing top of patient's head.
    - Insert oropharyngeal or nasopharyngeal tube.
    - Spread the mask, mold it over the mouth and nose, clamp it to the face with one hand, tilt the head backward and squeeze bag until the chest rises.
    - Ask assistant to squeeze bag if using both hands to fit the mask.
    - Release the bag abruptly to allow for complete passive exhalation.

4. Check for major pulse – carotid or femoral.
5. If major pulse is absent, start external cardiac massage.

External Cardiac Massage

6. Position yourself at either side of the patient on the operating table or on a stable flat surface.
7. Give pre-cordial thump.
8. Locate the junction of the lower margins of the rib cage and the sternum.
9. Place heel of hand over lower half of sternum. Place the heel of the other hand on top of the first interlocking. Straighten your arms and lock your elbows.
10. Push the sternum downward toward the spine using the weight of your upper body. After each compression, release pressure without losing contact and allow chest to return to its normal position. Hold it down for 50% of the cycle and release rapidly, and wait for the other 50%.
11. Compress at a rate of 80-100/minute. Alternate 2 lung inflations every 15 compressions (1 person) or 1 inflation/5 compressions (2 persons).

Reassessment

1. Check the pulse during compression.
2. Assess the patient's condition. The person ventilating the patient assumes responsibility for monitoring the pulse and breathing.
3. After 4 cycles of compression and ventilation, check the carotid pulse for 3-4 seconds. Resume cardiopulmonary resuscitation (CPR) if pulse is absent.
4. Continue CPR until spontaneous pulse returns.

Use Of Drugs

1. Start peripheral IV line without interrupting the CPR.
2. Give adrenaline 1 mg IV if pulse is absent.
3. Give atropine 1-3 mg IV if bradycardia.
4. Give lignocaine, bolus of 1 mg/kg of body weight IV for ventricular arrhythmias.
5. Abandon CPR if pulse does not return after 30 minutes.

Learning Guide For Control of Airway
(Many of the following steps/tasks should be performed simultaneously)

Step/Task

Getting Ready

1. Prepare the necessary equipment (oropharyngeal or nasopharyngeal airway tube, Ambu bag, facemask and oxygen supply).
2. Treat the women respectfully and with kindness and introduce yourself.
3. Allow the woman to lie down comfortably.
4. Tell the woman (and her support person) what is going to be done, listen to her and respond attentively to her questions and concerns.
5. Provide continual emotional support and reassurance, as feasible.

Assessing and Preparing Airway For Ventilation

1. Place the patient in a supine position.
2. Gently extend the hand on the neck.
3. Clear the airway if required.
4. Assess the airway patency.
5. Perform jaw thrust by pulling the jaw forward.
6. Insert the appropriate size airway tube, if necessary.

Ventilation With Bag And Mask

1. Fit the nose-notch of the facemask's notch onto patient's nose.
2. Gently spread and mold the malleable portion of the mask to fit the patient's face.

3. Do not press the mask onto the face; rather pull the face onto the mask.

4. Check for leaks under the cuff of the mask. Move the mask toward the leak and apply gentle pressure on that end to get a proper seal.

5. If using both hands to hold the mask, ask assistant to squeeze the bag.

6. Ask assistant to release the bag abruptly to allow for complete passive exhalation.

7. If using one hand to hold the mask, squeeze the bag with the other hand. Release the bag abruptly to allow for complete passive exhalation.

8. Watch for the chest to rise and fall with each inspiration and exhalation.

9. Maintain a rate of 15-20 respirations per minute.

Learning Guide For IV Cannulation
(Many of the following steps/tasks should be performed simultaneously)

Step/Task

Getting Ready

1. Prepare the necessary equipment (tourniquet, adhesive tape, alcohol-based swabs, drip set, IV cannula).
2. Treat the women respectfully and with kindness and introduce yourself.
3. Allow the woman to lie down comfortably.
4. Tell the woman (and her support person) what is going to be done, listen to her and respond attentively to her questions and concerns.
5. Provide continual emotional support and reassurance, as feasible.

Identifying And Exposing The Vein

1. Obtain the patient's consent for the procedure and tell her that you are leaving something behind in her arm, and not just taking blood.
2. Apply tourniquet approximately 20 cm above your intended cannulation point.
3. Wash hands thoroughly with soap and water and dry with a clean, dry cloth or air dry.
4. Put high-level disinfected or sterile surgical gloves on both hands.
5. Swab the skin surrounding the intended cannulation point with an alchohol based swab and allow it to dry.
6. Choose the vein that you intent to cannulate and palpate the vein with your fingertips.
7. Look at the other arms as well, for a more visible and distended vein.

Inserting the Cannula

1. Apply a small amount of traction to the skin below the cannulation point.
2. Hold the cannula in your dominant hand, with your index and middle fingers on either side of the cannula, and your thumb on the cap at the end or any other position that is most comfortable to the patient.

3. Push the point of the cannula through the skin at a 30-40 degree angle.
4. Advance the cannula slowly toward the vein, until you see fresh blood in the cannula chamber or you feel a slight decrease in resistance as the needle pierces the venous wall.
5. Holding the needle exactly where it is, advance the cannula itself over the needle as far as it will go.
6. Release the tourniquet.
7. Apply some pressure proximally to the cannula to (try to) occlude the vein, and withdraw the needle.
8. Apply stopper to the end of cannula or connect it to the already prepared IV drip.
9. Fix the cannula to the skin of the arm.
10. Ensure the drip, if connected, runs freely.
11. Clean the surrounding skin with an alcohol-based swab.
12. Before removing gloves, dispose of waste materials in a leakproof container or plastic bag.
13. Dispose of needle in a puncture proof container:

    Remember to retain the stopper on the end of the needle.
14. Immerse both gloved hands in 0.5% chlorine solution. Remove gloves by turning them inside out.
    - If disposing of gloves, place them in a leakproof container or plastic bag.
    - If reusing surgical gloves, submerge them in 0.5% chlorine solution for 10 minutes for decontamination.
15. Wash hands thoroughly with soap and water and dry with a clean, dry cloth or air dry.

Learning guide for newborn resuscitation
(Many of the following steps/tasks should be performed simultaneously)

Step/Task

Getting Ready

1. Quickly wrap or cover the newborn, except for the head, face and upper chest.
2. Place the newborn on its back on a clean, warm surface.
3. Tell the woman (and her support person) what is going to be done, listen to her and respond attentively to her questions and concerns.
4. Provide continual emotional support and reassurance, as feasible.

Resuscitation Using Bag And Mask

1. Position the head in a slightly extended position to open the airway.
2. Clear the airway by suctioning the mouth first and then the nose.
    - Introduce catheter 5 cm into the newborn's mouth and suction while withdrawing catheter.
    - Introduce catheter 3 cm into each nostril and suction while withdrawing catheter.
    - Do not suction deep in the throat because this may cause the newborn's heart to slow or breathing to stop.
    - Be especially thorough with suctioning if there is blood or meconium in the newborn's mouth and/or nose.
    - If the newborn is still not breathing, start ventilating.
3. Quickly recheck the position of the newborn's head to make sure that the neck is slightly extended.
4. Place the mask on the newborn's face so that it covers the chin, mouth and nose.
5. Form a seal between the mask and the newborn's face.
6. Squeeze the bag with two fingers only or with the whole hand, depending on the size of the bag.
7. Check the seal by ventilating two times and observing the rise of the chest.

8. If the newborn's chest is rising:
    - Ventilate at a rate of 40 breaths/minute.
    - Observe the chest for an easy rise and fall.
9. If the newborn's chest is not rising:
    - Check the position of the head again to make sure the neck is slightly extended.
    - Reposition the mask on the newborn's face to improve the seal between mask and face.
    - Squeeze the bag harder to increase ventilation pressure.
    - Repeat suction of mouth and nose to remove mucus, blood or meconium from the airway.
10. Ventilate for 1 minute and then stop and quickly assess if the newborn is breathing spontaneously.
11. If breathing is normal (30-60 breaths/minute) and there is no indrawing of the chest and no grunting:
    - Put in skin-to-skin contact with mother.
    - Observe breathing at frequent intervals.
    - Measure the newborn's axillary temperature and rearm if temperature is less than 36° C.
    - Keep in skin-to-skin contact with mother if temperature is 36° C or less.
    - Encourage mother to begin breastfeeding.
12. If newborn is breathing but severe chest indrawing is present:
    - Ventilate with oxygen, if available.
    - Arrange immediate transfer for special care.
13. IF there is no gasping or breathing at all after 20 minutes of ventilation, stop ventilating.

Post-procedure Tasks

1. Dispose of disposable suction catheters and mucus extractors in leakproof container or plastic bag.
2. For reusable catheters and mucus extractors:

- Place in 0.5% chlorine solution for 10 minutes for decontamination.
- Wash in water and detergent.
- Use a syringe to flush catheters/tubing.
- Boil or disinfect in an appropriate chemical solution.

3. Take the valve and mask and inspect for cracks and tears.
4. Wash the valve and mask and check for damage with water and detergent and rinse.
5. Select a method of sterilization or high-level disinfection:
    - Silicone and rubber bags and patient valves can be boiled for 10 minutes, autoclaved at 136° C or disinfected in an appropriate chemical solution (this may vary depending on the instructions provided by the manufacturer).
6. Wash hands thoroughly with soap and water and dry with a clean, dry cloth or air dry.
7. After chemical disinfection, rinse all parts with clean water and allow to air dry.
8. Reassemble the bag.
9. Test the bag to make sure that it is functioning:
    - Block the valve outlet by making an airtight seal with the palm of your hand and observe if the bag re-inflates when the seal is released.
    - Repeat the test with the mask attached to the bag.

Documenting Resuscitation Procedures

1. Record the following details:
    - Condition of the newborn at birth
    - Procedures necessary to initiate breathing
    - Time from birth to initiation of spontaneous breathing
    - Clinical observations during and after resuscitation measures
    - Outcome of resuscitation measures
    - In case of failed resuscitation measures, possible reasons for failure
    - Names of providers involved

Lumber Puncture And Spinal Anaesthesia
(Many of the following steps/tasks should be performed simultaneously)

STEP/TASK

Getting ready

1. Prepare the necessary equipment for lumber puncture and spinal anaesthesia (lumbar puncture set, local anaesthetic drugs, emergency drugs, antiseptics with sterile swabs, adhesives and dressing).
2. Treat the woman respectfully and with kindness and introduce yourself.
3. Tell the woman (and her support person) what is going to be done, listen to her and respond attentively to her questions and concerns.
4. Tell the woman that you will need her cooperation to complete the procedure successfully and with as little discomfort to her as possible.
5. Provide continual emotional support and reassurance, as feasible.
6. Measure and record baseline pulse rate and blood pressure.

Preparing and positioning the patient

1. Ensure that the patient is in a comfortable position with reliable IV access and that resuscitation equipment is immediately available.
2. Pre-load the patient with about 1,500 ml of crystalloid solution.
3. Place the patient in the lateral decubitus position lying on the edge of the bed and facing away from the operator.
4. Find the posterior iliac crest and palpate the L4 spinous process, and mark the spot with appropriate skin marker, if necessary.
5. Clean the patient's back with the swabs and antiseptic solution. Swab radially outward from the proposed injection site.
6. Discard the swab and repeat at least three times, making sure that a sufficiently large area is cleaned.
7. Allow the solution to dry on the skin.

Pre lumber puncture tasks

8. Put on personal protective barriers.
9. Wash hands thoroughly with soap and water and dry with a clean, dry cloth or air dry.
10. Put high-level disinfected or sterile surgical gloves on both hands.
11. Drape the patient.
12. Then, maintaining the lateral decubitus position, place the patient in a knee-chest position with the neck fixed making sure that the head rests on a pillow.
13. Check the equipment on the sterile tray.
14. Read the label on the anaesthetic solution to be injected intrathecally, making sure that it is the desired drug within the expiry date.
15. Draw the local anaesthetic to be injected intrathecally into the 5 ml syringe, from a single dose ampoule, opened by your assistant, taking care not to touch the outside of the ampoule.
16. Place the syringe with the anaesthetic safely on the lumber puncture tray.
17. Draw up the local anaesthetic to be used for skin infiltration into the 2 ml syringe after reading the label on the drug.
18. Place the syringe with the skin infiltration anaesthetic safely on the lumber puncture tray.

Performing the lumber puncture and spinal anaesthesia

1. Locate the previously marked lumbar puncture area, or if necessary, palpate the interspinous space one more time.
2. Inject a small volume of local anaesthetic under the skin with a disposable 25 guage needle at the proposed puncture site to anaesthetize the skin.
3. Insert the introducer if using a 24-to 25-guage needle.
4. Advance the introducer carefully up to the ligamentum flavum.
5. Insert the spinal needle (through the introducer, if applicable) with the stylet in place.

6. Ensure that the needle is inserted and stays in the midline and that the bevel is directed laterally, advancing with the needle pointing slightly toward the head.

7. Advance the needle until there is loss of resistance after piercing the ligamentum flavum.

8. With utmost care, advance the needle further until another loss of resistance is felt as the needle pierces the dura.

9a. Holding the needle steady in place, remove the stylet and cerebrospinal fluid (CSF) should flow from the needle.

9b. If bone is touched, withdraw the needle a centimeter and then re-advance the needle with tip pointing slightly more toward the head, ensuring that the needle stays in the midline.

9c. If a 25-guage spinal needle is being used, wait for 20-30 seconds for CSF to appear after the stylet has been removed.

9d. If CSF still does not appear, rotate the needle 90 degrees and wait further for another 20-30 seconds.

9e. If CSF still does not appear, replace the stylet and advance the needle a little further and try again until CSF appears.

10 Immobilize the spinal needle by resting the back of the non-dominant hand firmly against the patient and by using the thumb and index finger to hold the hub of the needle.

11 Take the 5 cc syringe with the spinal anaesthetic agent with the dominant hand and attach the syringe firmly to the hub of the needle.

12 Aspirate gently to check that the needle tip is still intrathecal and then slowly inject the local anaesthetic.

13 When the injection is complete, withdraw the spinal needle, introducer and syringe as one.

14 Apply sterile gauge over the puncture and close it with adhesive tape.

15 Before removing gloves, dispose of waste materials in a leakproof container or plastic bag.

16 Place all instruments in 0.5% chlorine solution for 10 minutes for decontamination.

17 Decontaminate or dispose of needle or syringe.

18 Immerse both gloved hands in 0.5% chlorine solution. Remove gloves by turning them inside out.

19 Wash hands thoroughly with soap and water and dry with a clean, dry cloth or air dry.

Post lumber puncture tasks

1. Keep the patient in a supine position.
2. Immediately insert a wedge under the patient's right hip to tilt the uterus to the left. Alternatively, tilt the table to the left, if possible.
3. Give oxygen by facemask or intranasal catheter at the rate of 2 L/minute throughout the operation.
4. Check for pulse rate and blood pressure.
5. Wait approximately 20 minutes for the spinal anaesthesia to take effect.
6. Assess the level of block.
7. After the birth of the newborn, give syntocinon 5-10 mg IV.

Endotracheal intubation
(Many of the following steps/tasks should be performed simultaneously)

Step/task

Getting ready

1. Prepare the necessary equipment.
2. If the woman is conscious and responsive, tell the woman (her support person) what is going to be done, listen to her and respond attentively to her questions and concerns.
3. Provide continual emotional support and reassurance, as feasible.

Intubation

1. Wash hands thoroughly with soap and water and dry with a clean, dry cloth or air dry.
2. Put new examination or high-level disinfected surgical gloves on both hands.
3. Give 100% oxygen by bag and mask for 5 minutes.
4. Position the woman's head on a folder sheet, ensuring her neck is not extended.
5. If the woman is conscious, give diazepam 5-10 mg IV slowly over 2 minutes.
6. Ask an assistant to apply pressure to the cricoid against the esophagus.
7. Open the woman's mouth and gently insert the laryngoscope over the tongue and toward and back of the throat.
8. Lift the blade of the laryngoscope upward and forward, using the wrist, to visualize the glottis.
9. Insert the endotracheal tube and stylet through the glottis into the trachea.
10. Remove the laryngoscope.
11. Withdraw the stylet.

12. Inflate the cuff of the endotracheal tube with 3-5 ml of air.

13. Connect the endotracheal tube to the Ambu bag.

Ensuring correct placement of endotracheal tube

1. Press the Ambu bag 2-3 times rapidly while observing the woman's chest for inflation.

1a. If the chest inflates while pressing the Ambu bag, auscultate the chest to confirm that air is entering both lungs equally.

- If air entry into both lungs is unequal, deflate the cuff and gently withdraw the endotracheal tube slightly until air entry is heard equally on both sides. Re-inflate the cuff.

1b. If the chest does not inflate:

- Deflate the cuff, withdraw the endotracheal tube and remove the laryngoscope.
- Give 100% oxygen by bag mask for 3 minutes.
- Attempt intubation again.

2. Once the endotracheal tube is properly positioned, use adhesive tape to fix the tube to the woman's face.

3. Before removing gloves, dispose of waste materials in a leakproof container or plastic bag.

4. Immerse both gloved hands in 0.5% chlorine solution. Remove gloves by turning them inside out.

- If disposing of gloves, place them in a leakproof container or plastic bag.
- If reusing surgical gloves, submerge them in 0.5% chlorine solution for 10 minutes for decontamination.

5. Wash hands thoroughly with soap and water and dry with a clean, dry cloth or air dry.

Extubation

1. Confirm that the woman is ready for extubation.
2. Explain to the woman (and her support person) what is going to be done and provide emotional support.
3. Wash hands thoroughly with soap and water and dry with a clean, dry cloth or air dry.
4. Put new examination or high-level disinfected surgical gloves on both hands.
5. Remove adhesive tape that holds the tube in position.
6. Gently open the woman's mouth and suction out any secretions in the throat.
7. Deflate the cuff of the endotracheal tube and gently remove the tube.
8. Give oxygen by mask while ensuring that regular breathing is established.
9. Before removing gloves, dispose of waste materials in a leakproof container or plastic bag.
10. Immerse both gloved hands in 0.5% chlorine solution. Remove gloves by turning them inside out.
    - If disposing of gloves, place them in a leakproof container or plastic bag.
    - If reusing surgical gloves, submerge them in 0.5% chlorine solution for 10 minutes for decontamination.
11. Wash hands thoroughly with soap and water and dry with a clean, dry cloth or air dry.

Laryngeal mask airway
(Many of the following steps/tasks should be performed simultaneously)

Step/task

Getting ready

1. Prepare the necessary equipment (appropriate size laryngeal mask airway [LMA], syringe, adhesive tape, scissors, oxygen supply and suction apparatus).
2. Treat the woman respectfully and with kindness and introduce yourself.
3. Allow the woman to lie down comfortably.
4. Tell the woman (and her support person) what is going to be done, listen to her and respond attentively to her questions and concerns.
5. Provide continual emotional support and reassurance, as feasible.
6. Measure and record baseline pulse rate and blood pressure.

Inserting the LMA

1. Lubricate both surfaces of the LMA with KY jelly or xylocaine jelly.
2. Check the cuff of the LMA.
3. Put 10 cc of air in the LMA to slightly inflate the cuff making it rounded.
4. Position the patient supine without a pillow.
5. Hold the head of the patient slightly extended with the non-incubating hand.
6. Open the mouth of the patient with your left hand fingers or ask assistant to hold the jaw open.
7. Insert the lubricated LMA as far back as possible into the mouth with the open side of the cuff facing up, keeping it in the midline.

8. Hold it at that position with your left hand and inflate the cuff with 20-30 ml of air or as required.
9. Connect the LMA with an Ambu bag and inflate the lungs gently.
10. Visually check the movement of the chest with each respiration.
11. Auscultate the lungs to check for adequate air entry to both the lungs.
12. Connect the LMA to ventilation apparatus or allow spontaneous respiration.

Name of the student

Enrollment number and year
Address