CURRIULUM

FOR

2 YEARS POST MATRIC

DIPLOMA OF

ANESTHESIA TECHNICIAN

2021

PUNJAB MEDICAL FACULTY

LAHORE, PAKISTAN

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Preface

At the national and international level, Anesthesia has been recognized as a critical part of essential surgical care in dire need of dedicated and organized training. Development of a two years Anesthesia Diploma is a part of ongoing efforts to train multifaceted AHPs to assist in all aspects of anesthesia care in Pakistan and also provide training and employment opportunities to our youth.

Focus of the new curricula would be on integration of tasks and multi-skilling of students. Thus there would be a common knowledge base for all courses in the form of a *Core Course* which would provide insight into essential technical knowledge besides providing base for development of the education for Allied Health Sciences up to post graduate level.

The goal of this document has been to outline a common body of knowledge that is essential for entry-level surgical technicians. Combined with the Core Course it will provide a broad knowledge base for the technicians and provide opportunities for practical skill development in the relevant field. This needs based curriculum places practical skills development at high priority. Content and apprenticeship experiences is designed to sequentially develop, apply, critically analyze, integrate, synthesize and evaluate concepts and theories in the performance of surgical procedures.

There will be two papers to assess the knowledge gained and two practical / viva examination to assess the concepts and skills. The papers are:

1. **Paper-I:** Operation Theater Management; Equipment & Devices; Sterilization & Disinfection.
2. **Paper-II:** Anesthesia

GENERAL OUTLINE

Aim of this curriculum is to develop students with the relevant professional knowledge, skills and techniques to enable them to apply their acquired expertise for efficient health service delivery. At the end of training the student should be able exhibit the following general and specific competencies:

A. General Learning Objectives

1. Act upon his/her job description ethically keeping in mind the requirements of community and people at large.
2. Demonstrate empathy and humane approach towards communities and exhibit interpersonal behavior in accordance with the societal norms and expectations.
3. Demonstrate sufficient understanding of basic sciences related to the technology and be able to integrate such knowledge in his/her work.

B. Specific Learning Objectives

The job of Anesthesia is preparation, maintenance, and provision of anesthesia related equipment and supplies, assistance to anesthetist during surgical procedure. Upon completion they will be able to:

BASICS:

1. Introduction of basic human anatomy and physiology as per matriculation standards.
2. Knowledge in detail of asepsis, infection, disinfection.
3. Use of different anti-septic chemotherapeutic agents (which material is to be used for sterilization).
4. Anesthesia and use of anesthetic agents, machines.
5. Pre & postoperative care management in theatre transportation and on arrival to recovery area.
6. Cardiopulmonary resuscitation
7. Intravenous fluids, infusion set up.
8. Setting up pressure transducer
9. Vasopressor, anesthesia related drugs
10. Forced air warmer, fluid warmer
11. Indications of blood transfusion, checking blood products
12. Duties of Anesthesia technician
13. Fluids, infusions, transfusions (Chemistry, indication & complications)
14. Pain Control techniques, drugs
15. Consent; patient rights
16. Ethics; Professionalism

SPECIAL (SECTION-II)

1. Perform Safety checklist of anesthesia equipment and ventilators.
2. Use & care of electronic equipment.
   i. Anesthesia machine/workstation
   ii. Suction machines
   iii. Cardiac monitors
   iv. Pulse oximeter
3. Awareness & handling of surgical and anesthesia instruments, rubber goods and how to sterilize them.
4. Instrument identification and care (introduction, sterilization, cleanliness after use, how to pack them again) e.g.
   i. Bronchoscope (Flexible)
   ii. Video Laryngoscope
5. Patient positioning
6. Preparation & organization of anesthesia drug and airway trolleys
7. Assisting difficult airway
8. Difficult airway algorithm
9. Recognizing Respiratory distress
10. Recognizing Local Anesthesia toxicity
11. Epidural trolley set up
12. Crisis management in Anesthesia, team approach
13. Cardiac/Transplant

PRACTIAL

I. Identification and proper use of Equipment

- **a.** Oral & Nasal Airways, face mask
- **b.** ETT types, indications, choosing appropriate size
- **c.** Laryngoscope types, choosing appropriate size
- **d.** LMA, various supraglottic devices, indications
- **e.** Proper use of Stylet, bougie, tube exchanger, Video Laryngoscope
- **f.** Fiberoptic bronchoscope, parts, sterilization
- **g.** Check O_2 cylinder and flow meter
- **h.** Check Ambu bag
- **i.** Check Suction Machine
- **j.** Check laryngoscope change battery
- **k.** Check recovery room airway & drug trolley
- **l.** Other:
  - i. Maggill's forceps
  - ii. Nasogastric Tube
  - iii. Foley's catheter
  - iv. Intra-venous cannulae
  - v. Nelaton's Catheter
  - vi. Tracheostomy tube
  - vii. Surgical Gloves
  - viii. BP Cuff

I. Organize and maintain Medication Trolley

1. Organize drawers
2. Maintain inventory

II. Intra-venous Fluids

A. Various types, appropriate fluid, Fluids-5% D/W

- NaCl
- D/S
- Ringers

B. Setting up infusion set

C. Assist in IV placement and secure IV

III. Infusion

A. Vasoactive infusion preparation

B. Use of infusion pumps

IV. Time out/ WHO Surgical Checklist

V. STERILIZATION & Disinfection

1. Identification + use of different Antiseptic Solutions, e.g Pyodine, Spirit, Cidex, Savalon etc.

2. Sterilization of anesthesia related equipment including fiberoptic bronchoscope

3. Principles of sterile technique, purpose

VI. Procedure

1. Sterile Technique, gown glove; Setting up sterile tray

2. Central venous line sizes, assist placement

3. Check correct placement of endotracheal tube

4. Setting up for Radial & femoral arterial lines

5. Pressure transducer setup

6. Assist in Difficult airway

7. Assist Fiberoptic Nasal & Oral intubation & Video Laryngoscope

C. Distribution of Training Time:

The two years' program would be divided in three distinct parts (Papers). There will be a "Core Course" which would be common for all technologies. The examination for this component will be taken at the end of first academic year. The teaching for specific aspect of this technology will be divided in two sections; examination for these will be held at the end of second academic year- however, teaching for specific techniques will start from the first year.

A typical training day for students at training institutions routinely comprises of five hours. Keeping a generous allowance of holidays and weekends, an academic year for students would be 200 days. Therefore, 1000 teaching hours would be available in 12 months. In the new scheme of studies, for the Core Course the proportion of classroom teaching and practical training (applied learning activities) would be 60:40; whereas this proportion for the specific techniques would be 40:60 and the time allocations for dividing teaching time between various topics, units and sub-units will be done accordingly as depicted below:

Core Course	**500 Hours**
Section I (Paper-I)	**750 Hours**
Section II (Paper-II)	**750 Hours**
Total	**2000 Hours**

The marks distribution for this diploma would be:

Subject	**Marks**
First Year	
Core Course	100
Viva	100
Second Year	
Section-I	**100**
Section-II	**100**
Practical/Viva Section I	**100**
Practical/Viva Section II	**100**
Total	**600**

D. Essential Teaching Requirements:

I. Training requirements/instructional methodologies (Process)

a. Teaching staff will give in-service training as recommended by PMF from time to time.

b. Teachers will use a combination of interactive programmed instructions (non-IT), class teaching with exercises using audiovisual aids, mini-lectures, group discussions, simulations and case studies as instructional/teaching methodologies.\

c. IT will be employed for teaching where necessary.

d. A combination of English and Urdu languages will be used as medium of instruction.

e. Teachers will encourage students to ask questions; they will encourage debate and discussion in class to inspire and hone thinking skills of students. Students will be given the opportunity to engage in activities that promote divergent thinking skills. Students will be encouraged to work independently, as well as in small groups and as a whole class, to form creative associations of ideas across discipline lines.

II. Practical learning component:

As prime objective of the training program is to develop practical skills, an extended clinical attachment is its essential part. The student will rotate amongst various sections including different operation theaters and his/her attendance will be recorded on a logbook to be signed by supervisors. Teachers will ensure that students are given chance to practice activities under supervision that are relevant to the topic being taught in class in order for them to develop relevant practical skills.

The detail of specifications for the institution imparting education according to the new scheme of studies. Including the facilities for practical attachment, is available in "New Affiliation Criteria" for such institutions.

E. Organization of Units of Curriculum:

The different units presented in the subsequent sections would comprise of the following components, not essentially in the sequence depicted below:

a. Learning Focus (contents, hours, weight & age for assessment)

b. Rationale

c. Scope

d. Learning Objectives (aims and learning outcomes)

e. Practical Learning Component (where applicable)

F. Revisions and Updating of Curriculum:

The curricula are ever evolving organic documents. Regular reviews and revisions are, therefore, essentially required to keep them in pace with modern need, topics that are required now might outlive their utility in a few years. Updating curricula therefore forms the basis for quality teaching as well as professional competence of technicians. This would be ensured by technology-wise panels of experts notified by the Health Department.

SECTION I

(Paper I)

UNIT 1: OPERATION THEATER

UNIT 2: MANAGEMENT EQUIPMENT & DEVICES

UNIT 3: STERILIZATION AND DISINFECTION

Unit I

Operation Theater Management

1. **Rationale:**

   The Anesthesia Technician has a very significant role in management of operation room. He should have knowledge of various administrative procedures for smooth functioning of operation department.

2. **Scope:**

   The content will prepare student in the issues related to care of OT before, during and after a surgical procedure. The focus would also be on development of correct attitudes in OT and on economizing OT resources.

3. **Learning Objectives:**

   After completing this section, the students will be able to:

   i. Understand the organization and functioning of Operation Theater.
   ii. Appropriately administer Operation Theater and manage its resources.

OPERATION THEATER MANAGEMENT

LEARNING FOCUS

i.	Introduction to Operating Department	**10 hours**
ii.	Organization and design: the operation room suite, single and multiple theatre units	**08 hours**
iii.	The surgical team: required attributes; OT etiquette and protocols	**08 hours**
iv.	Duties of Anesthesia Technician	**10 hours**
v.	Admission & transfer procedure	**10 hours**
vi.	Essential documentation: informed consent forms	**06 hours**
vii	AGS	**10 hours**
viii	Humidity and heating requirements	**06 hours**
ix	Electrical and fire safety	**08 hours**
x	Prevention of physical, electrical, chemical injuries/hazards to patient	**08 hours**
xi	Tissue Disposal	**08 hours**
xii	Economizing theater resources	**08 hours**
xiii	Class room Teaching	**100 hours**
xiv	Practical Attachments	**150 hours**
xv	Total Teaching	**250 hours**
xvi	Weightage for assessment	**35%**

Unit 2

Equipment and Devices

1. **Rationale**

   The Anesthesia Technician has the responsibility of handling and maintaining various equipment available in the operation theater. He must, therefore, possess knowledge and skills to manage such equipment and devices.

2. **Scope:**

   The content will provide a thorough understanding of the machinery employed in OT; this will also include maintenance and minor repairs of this machinery.

3. **Learning Objectives:**

   After completing this section, the students will be able to:

i. Conduct a comprehensive and appropriate equipment check.

ii. Identify and take appropriate action when confronted with equipment-related malfunctions and maintain service records.

Equipment and Devices

Learning Focus

i.	Electro-medical/electrosurgical equipment used in O.T. Use and care of electronic equipment – grounding system	**12 hours**
ii.	Monitoring equipment: cardiac monitors, pulse of oximeter	**10 hours**
iii.	Defibrillators + AED	**12 hours**
iv.	Fiber-optic endoscopy: introduction, types, procedures and care of instruments	**10 hours**
v.	Operating microscopes: principle, parts, use and care	**06 hours**
vi.	Gas cylinders, medical gas pipeline system & manifold room	**10 hours**
vii	Suction machines	**05 hours**
viii	Handling, fixing and troubleshooting of equipment.	**10 hours**
Class Room Teaching		**75 hours**
Practical Attachments		**125 hours**
Total Teaching		**200 hours**
Weightage for assessment		**25%**

UNIT 3

STERILIZATION AND DISINFECTION

1. Rationale:

Maintaining utmost asepsis is the foundation of modern surgery. The Anesthesia Technician should be well versed with different techniques for maintaining an infection free OT environment and ensuring sterilization of instruments used during the surgical processes.

2. Scope:

The content will cover the concepts of infection, cross-infection and asepsis. The student will build upon the knowledge gained during the core course and will be enabled to employ different sterilization and asepsis techniques in appropriate manners.

3. Learning Objectives:

After completing this subsection, the students will be able to:

i. Taking precautions to prevent the spread of infection
ii. Ensuring the cleaning of the Operation Theatre prior to operations
iii. Cleaning, packing, sterilization, maintenance and storage of instruments and other equipment used in Operation Theatre.
iv. Manage sterile stock.

Sterilization and Disinfection

Learning Focus

i.	Definition of cross infection; modes and types	**10 hours**
ii.	Principles of microbial control: prevention of cross infection to the patient and surgical team	**12 hours**
iii.	Definition of sterilization, disinfection, antiseptic, aseptic, carrier	**10 hours**
iv.	Environmental disinfection: cleaning and disinfection of Operating Room	**12 hours**
v.	Detergents, types and uses	**10 hours**
vi.	Scrubbing and its methods	**12 hours**
vii.	Handling of infectious hospital waste	**16 hours**
viii.	Self-protection; gown, gloves, shoes, dress	**18 hours**
Class Room Teaching		**100 hours**
Practical Attachments		**200 hours**
Total Teaching		**300 hours**
Weightage for assessment		**40%**

SECTION 2

(Paper-II)

Unit 1	**General Principles of Anesthesia**
Unit 2	**Equipment**
Unit 3	**Procedures**

UNIT 1: General Principles of Anesthesia

1. Introduction of basic human anatomy and physiology as per matriculation standards.
2. Knowledge in detail of asepsis, infection, disinfection.
3. Methods of sterilization of different materials used in surgery and anesthesia.
4. Use of different anti-septic chemotherapeutic agents (which material is to be used for sterilization)
5. Anesthesia and use of anesthetic agent's machines.
6. Pre and postoperative care management in theatre transportation and on arrival to recovery area.
7. Cardiopulmonary resuscitation
8. Intra-venous fluids, infusion set up.
9. Setting up pressure transducer
10. Vasopressor, anesthesia related drugs
11. Forced air warmer, fluid warmer
12. Indications for blood transfusion, checking blood products
13. Duties of Anesthesia Technician
14. Fluids, infusions, transfusions (Chemistry, indication and complications)
15. Pain Control techniques, drugs
16. Consent; patient rights
17. Ethics; Professionalism

Special (Section II)

1. Perform safety checklist of anesthesia equipment and ventilators.
2. Use and care of electronic equipment
3. Anesthesia machine/workstation
4. Suction machines
5. Cardiac monitors
6. Pulse oximeter
7. Awareness & handling of surgical and anesthesia instruments, rubber goods and how to sterilizer them.
8. Bronchoscope (Flexible)
9. Video laryngoscope
10. Different operative positions on the operating tables and positioning of light.
11. Patient positioning
12. Preparation & organization of anesthesia drug and airway trolleys
13. Assisting difficult airway
14. Difficult airway algorithm
15. Recognizing Respiratory distress
16. Recognizing local anesthetic toxicity
17. Epidural trolley set up

18. Crisis management in anesthesia, team approach
19. Cardiac/Transplant
20. Drug Cart Management
21. Use and maintain for control drugs
22. Sterilization of Anesthesia Equipment

CLASS ROOM TEACHING:	**90 hours**
PRACTICAL TEACHING:	**165 hours**
TOTAL:	**250 hours**
WEIGHT AGE:	**35%**

UNIT 2 EQUIPMEN T

I. IDENTIFICATION AND PROPER USE OF EQUIPMENT

(a) Oral & Nasal airways, face mask
(b) ETT types, indications, choosing appropriate size
(c) Laryngoscope types, choosing appropriate size
(d) LMA, various supraglottic devices, indications
(e) Proper use of Stylet, bougie, tube exchanger, Video Laryngoscope
(f) Fiberoptic bronchoscope, parts, sterilization
(g) Check O_2 cylinder and flow meter
(h) Check Ambu Bag
(i) Check Suction Machine
(j) Check laryngoscope, change battery
(k) Check recovery room airway & drug trolley
(l) Other:
- **(i)** Maggill's Forceps
- **(ii)** Nasogastric Tube
- **(iii)** Foley's Catheter
- **(iv)** Intra-venous cannulae
- **(v)** Nelalton Catheter
- **(vi)** Tracheostomy Tube
- **(vii)** Surgical Gloves
- **(viii)** BP Cuff

II. Organize & maintain Medication Trolley

1. Organize drawers
2. Maintain inventory

III. Intra-venous Fluids

A. Various types, appropriate fluid, Fluids -5% D/W
- NaCl
- D/S
- Ringers

B. Setting up infusion set
C. Assist in IV placement & secure IV

IV. Infusion

a) Vasoactive infusion preparation

b) Use of infusion pumps

V. Time out/WHO Surgical Checklist

VI. STERILIZATION & Disinfection:

1. Identification + use of different Antiseptic Solutions e.g Pyodine, Spirit, Cidex, Savalon etc.
2. Sterilization of anesthesia related equipment including fiberoptic bronchoscope.
3. Principles of sterile technique, purpose.

CLASS ROOM TEACHING:	100 hours
PRACTICAL TEACHING:	200 hours
TOTAL:	300 hours
WEIGHTAGE:	45%

UNIT 3: Procedure

1. Sterile Technique, gown glove: Setting up sterile tray
2. Central venous line sizes, assist placement
3. Check correct placement of endotracheal tube
4. Setting up for Radial & femoral arterial lines
5. Pressure transducer setup
6. Assist in Difficult airway
7. Assist Fiberoptic Nasal & Oral intubation & Video Laryngoscope

CLASS ROOM TEACHING:	70 hours
PRACTICAL TEACHING:	130 hours
TOTAL:	200 hours
WEIGHTAGE:	20%

PRACTICAL ATTACHMENT

The extensive internship will reinforce the classroom learning and enable the student to understand how to handle the workload in different disciplines of surgical technology.

It is this aspect of the course that will determine the level of professionalism students will display after employment. This period will be interspersed with learning of theory.

During the two year of this program the students will be placed in different operation theaters and related sections on a roster basis to gain practical experience in relevant areas under supervision of tutor technicians and the surgical instructors. If a particular specially is not available in the hospital, collaboration with other hospitals will be sought to provide adequate experience to students.

RECOMMENDED REFERENCE BOOKS

1. Morgan and Mikhail's Clinical Anesthesiology
2. MGH Textbook of Anesthetic Equipment
   By Sandberg, Urman and Ehrenfeld

SECTION 2

(Paper-II)

Unit 1 **Patient Care**

Unit 2 **Anesthesia Assistance**

Unit 1
Patient Care

1. Scope

The content provides basic knowledge of common surgical conditions. It also gives understanding of care of patient before, during and after the procedure. Special emphasis would be on first aid management and emergency lifesaving procedures.

2. Learning Objectives:

After completing this unit, the students will be able to:

i. Understanding the common surgical conditions
ii. Manage wounds and apply dressings
iii. Provide first aid and emergency basic life care

Patient Care

Learning Focus

i.	Introduction, sign, symptoms and first aid management of: • Hemorrhage • Burns • Shock	**15 hours**
ii.	Special precautions in handling patients with sepsis, blood borne infection – Hep. B, HCV, HIV etc.	**15 hours**
iii.	Post-op care of patient • Position • Monitoring • Recovery • Transportation • IV line & drain care	**15 hours**
iv.	Blood Transfusion: Blood storage, grouping, cross matching, blood products etc; common blood reactions	**15 hours**
v.	Fluids, infusions (chemistry, indication and complications)	**15 hours**
vi.	Basic Lift Support Protection and maintenance of patient airway • Natural or artificial respiration • Assisted by emergency oxygen • The movement of blood through the beating of heart • The emergency measure of CPR • Automated external defibrillator or AED	**15 hours**
Class Room Teaching		**90 hours**
Practical Attachments		**160 hours**
Total Teaching		**250 hours**
Weightage for assessment		**35%**

Unit 2

Anesthesia Assistance

1. Rationale:

Being a member of multi-disciplinary anesthesia team, the technician is to provide assistance to the anesthetist.

2. Scope:

Content will cover the basics of anesthesia techniques. Students will be acclimatized with anesthesia related gadgetry and their skills will be developed for assisting the anesthetist. However, the actual administration of anesthesia will be out of bond for the technicians.

3. Learning Objectives:

After completing this unit, the students will be able to:

i. Identify and understand the use of anesthetic equipment
ii. Be aware of various types of agents and drugs used during anesthesia
iii. Caring for patient and assisting the anesthetist during procedures.

Anesthesia Assistance

Learning Focus

i	Introduction of Anesthesia Technology-types of anesthesia	**10 hours**
ii	Role of Anesthesia Care Team- specific duties of Anesthesia Technician	**04 hours**
iii	Anesthetic agents, types and uses	**12 hours**
iv	Types & use of sedative, hypnotic, pre-anesthetic and other groups of drugs??	**06 hours**
v	Patient preparation before anesthesia	**06 hours**
vi	Stages of anesthesia; patient management during anesthesia	**08 hours**
vii	Anesthesia machine- parts, block diagram etc.	**08 hours**
viii	Emergency intubation equipment and techniques	**05 hours**
ix	Set-up and use of complex anesthesia equipment	**05 hours**
x	Maintenance of anesthesia equipment for proper functioning	**06 hours**
Class Room Teaching		**70 hours**
Practical Attachments		**130 hours**
Total Teaching		**200 hours**
Weightage for assessment		**25%**

PRACTICAL ATTACHMENT

The extensive internship will reinforce the classroom learning and enable the student to understand how to handle the workload in different disciplines of anesthesia and surgery. It is this aspect of the course that will determine the level of professionalism students will display after employment. This period will be interspersed with learning of theory.

During the two year of this program the students will be placed in different operation theaters and related sections on a roster basis to gain practical experience in relevant areas under supervision of tutor technicians and surgical instructors. If a particular specially is not available in the hospital, collaboration with other hospitals will be sought to provide adequate experience to students.

On the availability of the following sections, the student will get a rotation amongst them.

- General Surgery
- Minor OT
- Emergency
- Obstetrics & Gynecology
- ENT/ Ophthalmology
- Orthopedics
- Anesthesia
- ICU
- Sub-specialties

Students will maintain a record of their attachment in the “Practical Note Books” (one for each section), the last portion of which would be designed as a “Log Book” which shall be a work dairy and record. Special mention shall be made of the procedures, if any, conducted by the candidate. This dairy shall be scrutinized and certified by the Head of the Department and Head of the Institution, and presented in the practical/viva examination.

The scope of practical attachment would be:

A. IDENTIFICATION OF INSTRUMENTS AND PREPARATIONS OF TROLLEYS

i. Emergency:

1. Laparotomy Set
2. Thoracotomy Set
3. Suprapubic Cystostomy
4. Chest Intubation
5. Venesection
6. Appendectomy
7. Fracture
8. Burr Hole
9. Wound Debridement

ii. Elective

1. Cholecystectomy
2. Thyroidectomy
3. Herniotomy + Herniorraphy
4. Mastectomy
5. Nephrectomy
6. Vesicolithotomy
7. Prostatectomy
8. S.M.R
9. Tonsillectomy
10. Mastoidectomy
11. Cataract Surgery
12. Retinal Surgery
13. Orbital Surgery
14. Caesarian Section
15. Hysterectomy
16. Dilation and Curettage
17. Haemorrhoidectomy
18. Fistulectomy
19. Joint Replacement
20. Spinal + Epidural Block
21. Laparoscopic Surgery (Trolley)

B. IDENTIFICATION OF MATERIALS

1. Identification of different suture material
    - Plain and chronic catgut
    - Prolene
    - Vicryl
    - Pollydioxanone
    - Silk

- Nylon

2. **Different Type of Fluids**
    - **Isotonic Fluids -5% D/W**
        - NaCl
        - D/S
        - Ringers
    - **Plasma Expander**
        - Haemaccel
        - Getatundin
        - Albumin
3. **Hypodermic needles, syringes and cannulas**
4. **Appliances**
    - Endotracheal Tubes
    - Airway
    - Ambu Bag
    - Maggil's Forceps
    - Nasogastric Tube
    - Foley's Catheter
    - Intra-venous cannulae
    - Nelaton's Catheter
    - Tracheostomy Tube
    - Surgical Gloves
    - Proctoscope
    - Sigmoidoscope

C. STERILIZATION & ANTI SEPSIS:

Identification + use of different antiseptic solutions e.g pyodine, spirit, cidex, savalon etc.

D. BASIC HANDLING OF MACHINES INSTRUMENTS

Anesthesia Instruments

- Ventilator
- Diathermy
- Suction
- Monitors

Delicate Instruments

- Procotoscope
- Sigmoid scope
- Gastro scope
- Colonoscopy
- Bronchoscope

- Cystoscope
- Laparoscope

E. (I**) Identification and proper use of equipment**

(a) Oral & Nasal Airway's face mask
(b) ETT types indications, choosing appropriate size
(c) Laryngoscope types, choosing appropriate size
(d) LMA, various supraglottic devices, indicators
(e) Proper use of Stylet, bougie, tube exchanger, Video Laryngoscope
(f) Fiberoptic bronchoscope, parts, sterilization
(g) Check O_2 cylinder and flow meter
(h) Check Ambu bag
(i) Check Suction machine
(j) Check laryngoscope, change battery
(k) Check recovery room airways & drug trolley
(l) Other:

(i) Maggill's Forceps
(ii) Nasogastric Tube
(iii) Foley's Catheter
(iv) Intra-venous cannulae
(v) Nelaton's Catheter
(vi) Tracheostomy Tube
(vii) Surgical Gloves
(viii) BP Cuff

(II) Organize and maintain medication trolley

1. Organize drawers
2. Maintain inventory

(III) Intra-venous fluids

(a) Various types, appropriate fluid, fluids -5% D/W
- NaCl
- D/S
- Ringers

(b) Setting up infusion set
(c) Assist in IV placement and secure IV

(IV) **Vasoactive infusion preparation**

(a) Vasoactive infusion preparation
(b) Use of infusion pumps

(V) **Time out/WHO surgical Checklist**

(VI) STERILIZATION & Disinfection

1. Sterilization of anesthesia related equipment including fiberoptic bronchoscope.
2. Principles of sterile technique, purpose.

(VII) Procedure:

1. Sterile technique, gown glove; setting up sterile tray.
2. Central venous line sizes, assist placement
3. Check correct placement of endotracheal tube
4. Setting up for radial & femoral arterial lines
5. Pressure transducer setup
6. Assist in difficult airway & assist fiberoptic nasal & oral intubation; video laryngoscope.

RECOMMENDED BOOKS

1. Handbook of Operation Theatre Techniques: Publisher, Jaypee
2. Operating Room Technique – Berry and Kohn's Publisher: Mosby Elsevier Health Science
3. Operating Room Technique – Raymond John Brigden
4. The Operating Room Aide; Publisher: Career Pub
5. Surgical Nursing and Technique: A book for nurses, dressers, house Surgeons-Charles Plumley: Childe
6. Morgan & Mikhail's Clinical Anesthesiology
7. MGH Textbook of Anesthetic Equipment by Sandberg, Urman & Ehrenfeld
8. Standards for Perioperative Autologous
   Blood Collection by AABB -5th Edition (2013)

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