CVT III & IV SEMESTER SYLLABUS

I Introduction to Healthcare Delivery System in India

1. Introduction to healthcare delivery system a. Healthcare delivery system in India at primary, secondary and tertiary care b. Community participation in healthcare delivery system c. Health system in developed countries. d. Private Sector e. National Health Mission f. National Health Policy g. Issues in Health Care Delivery System in India

2. National Health Programme- Background objectives, action plan, targets, operations, achievements and constraints in various National Heath Programme.

3. Introduction to AYUSH system of medicine a. Introduction to Ayurveda. b. Yoga and Naturopathy c. Unani d. Siddha e. Homeopathy f. Need for integration of various system of medicine

4. Health scenario of India- past, present and future

5. Demography & Vital Statistics Demography – its concept Vital events of life & its impact on demography g. Significance and recording of vital statistics h. Census & its impact on health policy

6. Epidemiology

i. Principles of Epidemiology

j. Natural History of disease

k. Methods of Epidemiological studies

l. Epidemiology of communicable & non-communicable diseases, disease transmission, host defense immunizing agents, cold chain, immunization, disease monitoring and surveillance.

II Applied Anatomy and Physiology related to Anesthesia Technology -I

1. Respiratory System

1. Structure and function of the respiratory tract in relation to anesthesia.
2. Nose: Role in humidification
3. Pharynx: Obstruction in airways
4. Larynx: Movement of vocal cords, cord palsies, trachea & bronchial

1. Tree – vessels, nerve supply, respiratory tract, reflexes,
2. Bronchospasm.

5. Alveoli- Layers, surfactants.
6. Respiratory Physiology
7. Control of breathing.
8. Respiratory muscles - diaphragm, intercostals.
9. Lung volumes – dead space, vital capacity, FRC etc.
10. Pleural cavity – intra pleural pressure, pneumothorax.
11. Work of breathing – airway resistance, compliance.

12. Respiratory movements under anesthesia.
13. Tracheal tug – signs, hiccup.
14. Pulmonary Gas Exchange and acid base status :
15. Pulmonary circulation - Pulmonary oedema, Pulmonary hypertension,
16. Hypoxic pulmonary vasoconstriction.
17. Pulmonary function tests.
18. Transfer of gases – oxygen & carbon dioxide.
19. Acid base status, definitions, acidosis types, alkalosis types, buffers in the body.
20. Oxygen : Properties, storage, supply, hypoxia.
21. Respiratory failure, type, clinical features, causes. 2. Cardiovascular System

1. Anatomy – Chambers of the heart, major vasculature. Coronary supply, innervations. Conduction system.
2. Cardiac output- determinants, heart rate, rhythms, preload, after load. Coronary blood flow & myocardial oxygen supply electrophysiology.
3. ECG - arrhythmias cardiovascular response to anesthetic & surgical procedures.
4. Hypotension – causes, effects, management.
5. Cardio pulmonary resuscitation.
6. Myocardial infarction, hypertension.

III Applied Anatomy and Physiology related to Anesthesia Technology -II

1. Fluid and Electrolytes :
   - Body fluids – Composition.
   - Osmolaltiy.
   - Water, sodium and potassium balance.
   - I.V. Fluids – composition & administration.
   - I.V. Cannulation

2. Blood Transfusion :

   - Blood grouping, Cross matching.
   - Transfusion indications, hazards.
   - Blood products – storage, administration.
   - Plasma volume expanders.

3. Nervous System : Cerebro spinal fluid – circulation, composition, raised intracranial pressure, methods of reduction. Anatomy of spinal cord and vertebrae.

4. Reproductive System : Physiological changes in pregnancy and labour.

5. Liver: Anatomy, portal circulation, functions of liver. Jaundice – types and clinical features. 6. Kidney : Anatomy, functions, renal failure

IV Pharmacology related To Anaesthesia Technology

The objective of this subject is to provide training in general pharmacology with special emphasis on common drugs used, routes of administration, types of formulations, dose and frequency of administration, side effects and toxicity, management of toxic effects, drug interactions, knowledge of chemical and trade names, importance of manufacturing and expiry dates and instructions for handling of drugs.

1. Antisialagogues

2. Atropine, Scopolamine, Glycophyrrolate.

3. Sedatives / Anxiolytics

4. Diazepam, Phenergan, Lorazepam, Chloropromazine, Droperidol.

5. Narcotics

6. Morphine, Pethidine, Antiemetics, Methoclopramide, Ondanseteron.

7. Antacids

8. Na citrate, Gelusil, Mucaine gel.

9. H2 Blockers:Cimetidine, Ranitidine, Famotidine

10. Induction Agents: Intravenous and Inhalational (Barbiturates, Benzodiazepines, Ketamine, Propofol, Etomidate, Halothane, Sevoflurane and Desflurane).

11. Muscle Relaxants :Depolarising and Non depolarising muscle relaxants 36

12. Narcotics – Morphine,Pethidine, Fentanyl, Sufentanyl, Alfentanyl, Fortwin.

13. Inhalational Gases: 02, N20, Air

14. Agents - Ether, Halothane, Isofluranes.

15. Reversal Agents :Physostigmine, Neostigmine, Atropine, Glysopyrrolate, Nalorphine, Naloxone, Flumazenil (Diazepam).

16. Local Anaesthetics :Xylocaine, Preparation, Local – Bupivacaine – Topical, Prilocaine – Jelly, Emla – Ointment, Etidocaine.

17. Emergency Drugs: - Adrenaline : Mode of administration, dilution, dosage, effects, Isoprenaline. - Atropine, bicarbonate, calcium, ephedrine, xylocard, other ionotropes: dopamine, dobutamine, amrinone. - Aminophylline, hydrocortisone, antihistaminics, potassium.

A) Cardiovascular drugs. a. Antihypertensives b. Antiarrhythmics c. Beta – Blockers d. Ca – Channel blockers e. Vasodilators: nitroglycerin & sodium nitroprusside

B) Respiratory system -Bronchodilators, respiratory stimulants, Bronchiolytic agents.

C) Renal system -Diuretics, furosemide, mannitol

D) Obstetrics -Oxytocin, methergin

E) Miscellaneous: Antibiotics, pencillins, aminoglycosides, cephalosporins

F) IV fluids, various preparations: Crystalloids and Colloids

G) Heparin, protamine, insulin analgesics, NSAIDS.

V Community Medicine

1. Concepts in Community Medicine

a. Determinants and Dimensions of Health.

b. Natural History of Disease

c. Multi – factorial causation of disease

d. Host, agent, environment relationship

e. Primary, secondary and tertiary levels of prevention with examples related to few diseases of national importance.

2. Model of transmission of disease a. Air – borne, vector and vehicle transmission b. Methods of control with examples for control of each mode.

3. Disinfection Common infections, Disinfection, Disinfestations and Sterilization at the health centre level.

4. Hospital Waste Management Disposal of wastes in Hospital and Primary Health Centre

5. Health services Brief description of organization of health services at the centre and state levels.

6. Primary Health Care a. Definition, components and principles of primary health care. b. Millennium Development Goals.

7. Primary Health Centre The functions, staffing pattern and the role of paramedicals in primary Health Centre.

8. Nutritional Health: Vitamins and Minerals protein Energy malnutrition obesity & Nutritional Assessment.

9. Epidemiology of Communicable and Non communicable disease polio, measles, Tuberculosis, Leprosy cholera, Tetanus, Vector bone diseases, Obesity, CAD, DM, HTN, Cancers & Accidents.

10. National Programmes of Health and disease eradication / control

a.Health Programmes:

i. Family Welfare Programme

ii. National Programme for water supply and sanitation.

iii. Nutritional Programmes.

iv. Immunization and universal immunization programme.

b. Disease Eradication programme: Leprosy & Guinea worm, polimyclitis.

c. Disease control programmes : Tuberculosis, Malaria, Filaria, S.T.D, Goitre, Cholera and other diarrhoeal diseases and National Programme for preventation of blindness including trachoma, vector bone disease.

11. Demography & Population control a. The factors influencing population growth, death rate, birth rate Age pyramid and methods of contraception. b. Sources of Health information – Census, SRS

12. Environmental sanitation

a. Water borne diseases, Methods of water purification and disinfection, collection of water samples, their transport and bacteriological analysis.

b. Methods of excreta disposal and solid waste disposal.

Teaching Learning Activities :

The course content in Community Medicine will be covered by:

1. Interactive Lectures

2. Group Discussions

3. PracticaL

4. Demonstrations

5. Field Visits

6. Seminars

7. Assignments

AOT IV SEMESTER SYLLABUS

I Principles of Nursing

Unit I :

Nursing & Nursing process: Definition, concept of Nursing, History of Nursing, Nursing process, Problems solving approach, Assessment, Diagnosis, planning, Implementation and Evaluation.

Unit II :

First aid and Nursing Emergencies: Definition, basic principles, scope and rules. Wounds, hemorrhages, shock, fracture, dislocation and muscle injuries, respiratory emergencies, resuscitation, unconsciousness, Miscellaneous conditions, burns, scalds, foreign bodies in the skin, eyes, ear, nose, throat and stomach. Frost bite, effects of heart cramps, bites and stings. Poisoning. Transporting injured persons.

Unit III :

Personal Hygiene and Health Care of skin, mouth, eyes, nails, hair. Menstrual hygiene, clothing, mental health, common health problems of poor personal hygiene.

Unit IV :

Comfort, Rest and Sleep

Unit V :

Hospital Housekeeping

Unit VI :

Health Education Introduction to principles and methods of health education. Use of audio visual aids, mass education, role of nurse in health education.

Clinical Practicals :

1. First Aid, CPR, Bandaging types.

2. Practice of various comfort devices, various positions in nursing foundation lab.

3. Health talk, preparation of 3-5 types of A.V. Aids,

4. Ward visit to monitor BMW management.

II History of Anesthesia

- First successful clinical demonstration
- Pre-historic (ether) era • Inhalational anaesthetic era
- Regional anaesthetic era • Intravenous anaesthetic era
- Modern anaesthetic era

1. Minimum standard of anaesthesia
2. Who should give anaesthesia
3. Ten golden rules of anaesthesia
4. Assess & prepare, starve, check the drugs and equipment suction, keep the airway clear, be ready to control ventilation, have a vein open, monitor pulse & BP, have someone in the room to apply cricoid pressure – if needed.

5. Pre-op preparation

6. Pre anaesthetic assessment, History –, Past history – disease / surgery / anaesth, Personal history – smoking / alcohol.

7. General physical assessment, Systemic examination – CVS, RS, CNS, P.A., Local examination.

Investigations :

1. Routine

i. Haematological – their significance,

ii. Urine,

iii. E.C.G.,

iv. Chest & X-ray

2. Special

i. Endcorine, hormonal assays,

ii. Echocardiography,

iii. Angiography,

iv. Others

3. Anesthesia risk standardization- ASA grading – I, II, III, IV.

III Principles of Anaesthesia – I

1. Medical Gas Supply Compressed gas cylinders Colour coding Cylinder valves; pin index. Gas piping system Recommendations for piping system Alarms & safety devices

2. Anaesthesia Machine Hanger and yoke system Cylinder pressure gauge Pressure regulator Flow meter assembly Vapourizers-types, hazards, maintenance, filling & draining, etc.

3. Face Masks & Airway Laryngoscopes Types, sizes Endotracheal tubes – Types, sizes, Cuff system Fixing, removing and inflating cuff, checking tube position, complications.

IV Principles of Anaesthesia – II

1. Breathing System
   - General considerations: humidity & heat
   - Common components – connectors, adaptors, reservoir bags
   - Capnography; etco

   2 • Pulse oximetry
   - Methods of humidification
   - Classification of breathing system
   - Mapleson system – A, B, C, D, E, F.
   - Jackson rees system, Bain circuit
   - Non rebreathing valves – ambu valves
   - The circle system
   - Components • Soda lime, indicators

   2. Monitoring – ECG, Temperature, Neuromuscular; Nerve stimulators; Invasive blood pressure and central venous pressure and cardiac output monitoring

   3. Oxygen delivery devices; Suction; Ambu bag; Reservoir bag.

   4. Electrical safety in theatres

   5. Endotracheal suction, Suction devices; Ambu bag; Reservoir bag.

V Profession-alism and values

1.Professional values- Integrity, Objectivity, Professional competence and due care, Confidentiality

2. Personal values- ethical or moral values

3. Attitude and behavior- professional behavior, treating people equally

4. Code of conduct , professional accountability and responsibility, misconduct

5. Differences between professions and importance of team efforts

6. Cultural issues in the healthcare environment