ANDHRA PRADESH PARA MEDICAL BOARD

HYDERABAD

(Established Under the Andhra Pradesh Para Medical Board Act, 2006)

******

Syllabus for

DIPLOMA IN MULTIPURPOSE HEALTH ASSISTANT (MALE) COURSE

(TWO YEARS COURSE)

B.N.S. Kumar
Secretary

In view of representation from the Faculty in Government colleges, in State of AP.

The Syllabus for the 1st year in all Para medical courses is modified accordingly the

modified Syllabus for 1st year is kept on website.

DIPLOMA IN MULTIPURPOSE HEALTH ASSISTANT (TWO YEARS COURSE)	
Syllabus for First Year	
Paper-I	**BASIC HUMAN SCIENCES** A) Basics of Anatomy B) Basics of Physiology C) Basics of Bio-chemistry D) Basics of Bio-statistics
Paper-II	**PHYSICAL SCIENCES** A) Basics of Pathology B) Basics of Blood Banking C) Basics of Microbiology D) Basics of Central sterilization.
Paper-III	A) Hospital awareness, B) Familiarization of different tables/tubes in surgical dept. Surgical Awareness, Preparation of patient for surgery. C) Patient related services. D)Communication & Computer Skills Audio And Visual Aids

DIPLOMA IN MULTIPURPOSE HEALTH ASSISTANT MALE
(TWO YEARS COURSE)

Syllabus for Second Year

Paper-I	A) Health Problems, Problems of Old Age, Disabilities, Basic Medical Care Treatment of Minor Ailments, and Animal Bite. B) First Aid and Emergency Care, Drugs used in Preventive Medicine, C) Mental Diseases, Occupation Diseases, Communicable Diseases, Non Communicable Diseases, Diseases due to Natural Disasters. D) Nutrition, Nutrition Education, Sterilization, Disinfection, Disinfections, Antiseptics.
Paper-II	A) Health Education, Introduction to Public Health, PH Administration, Charter of Citizen's Health Rights, B) Public Health Programmes in India. Maternal and Child Health and Immunization, C) Factors Affecting Health of the individual, Reports on Health Problems. Community Health, Family Planning & Welfare, National Health Programmes D) Awareness of HIV, Yoga & Nature Cure, Indian System of Medicine Medicinal Plants & their uses,
Paper-III	A) Environmental Sanitation, Hygiene, Bio Medical waste management. B) Health Information & Communication of Health Statistics, & Health Survey, Censes C) Public Health Acts, List of visits. D) Instrumentation Study, Instrument Measurement & Critical Care Equipment

DIPLOMA IN MULTIPURPOSE HEALTH ASSISTANT MALE
(TWO YEARS COURSE)

Practicals

Practicals	**1.** Labeled Diagrams of different organs and bones vivo. **2.** Collection of sample, Hb Estimation, TLC and DLC, RBC Count, Peripheral blood film-staining and study of Malarial Parasite. **3.** Laboratory management- Sample Collection, Labeling, Transport. **4.** Staining-Type of Staining, Principal, Procedure and Interpretation.

1st YEAR

PAPER-I

Basics of Anatomy & Physiology

Basics of Anatomy

1. Introduction to Human Anatomy
2. Cell- Tissues Properties, Different Tissues
3. Digestive System & Hepatobiliary System
4. Respiratory System
5. Cardio Vascular System
6. Lymphatic System
7. Bones and Joints
8. Nervous System
9. Endocrine System
10. Sense Organs
11. Excretory System
12. Reproductive System

Basics of Physiology

1. Introduction to Human Physiology
2. Blood
3. Cardio Vascular System
4. Lymphoid System
5. Digestive System
6. Respiratory System
7. Nervous System
8. Endocrine System
9. Excretory System
10. Reproductive System
11. Sense Organs

Basics of Bio – Chemistry

1. Introduction to Basics of Bio-chemistry including code of ethics for Medical Lab Technicians and Medical Lab Organization.

2. Reception, Registration and bio-chemical parameters investigated.

3. Glassware and plastic ware used in a bio-chemical laboratory.

   a. Glassware:
   1) Types of glass and composition.
   2) Types of glassware used, their identification, application & uses.
   3) Cleaning, drying, maintenance and storage of glassware.

   b. Plastic ware: Brief outline

4. Instrumental methods of Bio-chemical analysis.

   a. Colorimetry :

   Visual and photoelectric methods, instrumentation, principle & laws involved construction, operation, care and maintenance, applications.

   b. Spectrophotometry

   Principle and theory, types, construction, & applications

5. Basic lab operations like

   a. Separation of solids from liquids

   1. Centrifugation: Principle, Different types of centrifuges care and maintenance, applications.
   2. Filtration using funnel.
   3. Weighing : Different types of balances used, care and maintenance.
   4. Evoporation
   5. Distillation
   6. Refluxing
   7. Drying different salts and dessicotion.

6. Water Chemicals and related substances
    a. Purity of chemicals
    b. Corrosives
    c. Hygroscopic Subsatance

7. Prevention, Safety and first aid in lab accidents.

8. Collection of Specimens

    a. Blood: Types of Spencimens, Collection, Precations during collection processing and preservation.

    b. Urine: Types of Specimens, Collection, Precautions during collection, Processing and Preservation.

9. Urine biochemical parameters.

10. Units of measurements

11. **Solutions :** Types based on solute and solvent, Types based on method of expressing concentration, calculations.

12. **Carbohydrates:** Definitions, Biological importance, Acid value, iodine value, saponification value.

13. Amino acids and Proteins Definition, Biological importance, Classification, Qualitative tests.

14. **Diagonistic tests :** Blood sugar, Glucose tolerance test, Blood urea, Serumuric acid, Serum creatinine.

15. Vitamins and Minerals

    a. Vitamins:
    Water Soluble vitamins, Fat Soluble vitamins, Sources, Daily requirements, Deficiency diseases.

    b. Minerals :

    Sources, Daily requirements, Deficiency diseases.

Paper-II

Basics of Pathology

Introduction to Pathology in brief

1. Urine – Analysis – Physical Examination – specific gravity PH, reaction,

   colour.

   Chemical Examination – Sugar Albumin,

   bile salts,

   bile Pigments etc.

   Microscopic,

   Sediment for RBC,

   WBC,

   Epitheleal cells,

   casts,

   crystals,

   parasites.

   Preparation of Reagents, procedure and principle of tests.

2. **Sputum Analysis** – Physical Examination,
   Preparation and staining smear for Microscopic Examination.

3. **Semen Analysis** – Physical Examination Microscopy – counting,
   motility,

   staining,

   Morphology,

   abnormal and normal forms.

4. **Body Fluids** – Differential count of Peritoneal, pericardial, pleural fluids and CSF, charging chamber, Identifying and counting the cells.

Basics of Microbiology

I. Introduction to Microbiology in brief

Definition,
History

II. Microscopy

a) Principle working and maintenance of compound Microscope.
b) Principle of Flourescent microscope, Electron Microscope, Dark Ground Microscope.

History
Types of Microscope: (a) Light Microscope, (b) DGI, (c) Fluroscent, (d) Phase contrast.

(e) Electron Microscope : a). Transmision**,** b) Scanning, Principles of operational mechanisms of various types of Microscopes.

III. Sterilization and disinfection – classification and Methods of sterilization.

Sterilization: Definition, types and principles of sterilization methods:

(a) Heat (dry heat, moist heat with special reference to autoclave, (b) Radiation, (c) Filtration, efficiency testing to various sterilizers.

Antiseptics and Disinfectants :

Definition, types and properties, mode of action, uses of various disinfectants, precautions while using the disinfectants, qualities of a good disinfectants, testing efficiency of various disinfectants.

1) Principle and Methods of sterilization by heat

    a) By Dry Heat, flaming, Red Heat, Hot air oven, incineration.
    b) By Merit Heat-pasteurization, Inspissation, tyndalisation, autoclave.

2) Filtration Methods

3) Ionising Radiation – Disinfection, Mode of action and uses of important chemical disinfections – Phenol and Phenolic compounds, alcohols, halogens, dyes and acids and alkalies.

4) Gaseous Methods of sterilization.

IV. Cleaning, drying & Sterilization of Glassware disposal of contaminated material i.e. clinical infective material inoculated culture media. Handling and Disposal of Biomedical waste.

V. **Biomedical waste management in a Microbiology Laboratory :** types of the waste generated, segregation, treatment, disposal.

VI. Morphology and classification of Bacteria Sp. of cell, capsule, flagella, spore, Anaerobic Methods of cultivation of Bacteria.

Paper-III

A. Hospital Awareness

A brief idea of hospital as on organization management different units of a hospital effective communication skills, communication channel

Maintenance of records
Effective leadership
General patient care
Medical terminologies
Vital signs
Unit preparation
Transporting & Transferring patients
Sterilization Techniques
Control of infection
Medication – Oral & parenteral
Admission – Discharge procedure
Bandages

Practicals : Posted in ward & taught clinically

A. Surgical Department

Familiarization of different tubes

1. Drainage tube
2. Post Operative Exercises
3. Post OP Management of Patient
4. Shock of Management
5. Changing Surgical Dressing.

1. Preoperative preparation of patient
2. Preanesthetic preparation
3. Assisting in operation
4. Anaesthesia
5. CSSD

1. Recovery room
2. Movement of papers
3. Scheduling of theaters
4. Supplying of articles
5. Specific area practices
    a. As scrubnurse
    b. As circulating nurse

D).Communication and Computer Skills, Audio & Visual Aids.

COMMUNICATION	Process Types of communication Strategies for effective Communication Barriers of communication
SOFT SKILLS	Presentation with the use of visual aids such as power point Conversation Extempore speech, usage of effective language for communication of health work. Case studies and situational analysis Survey and Reporting
COMPUTER	Computer basic MS – Office MS – Word MS – Excel MS – Power Point
INTERNET CONCEPTS	Browsing Down- Loading Use of Slide Projector

SECOND YEAR

PAPER-I

BASIC MEDICALCARE, TREATMENT OF MINOR AILMENTS AND ANIMAL BITES.

1. **Introduction**

   Principles of medical care and treatment of minor ailments. Role and functions of the Health Workers in the health system. Resources available for treatment of minor ailments.

   Coordination -understanding referral system; seeking guidance and learning opportunities.

2. **Home nursing and elementary medical care**

   Preparing the sick unit/room at home.

   Hygiene of the patient - bath, elimination, feeding, activity, comfort measures, change of position, rest, recreation; observation of the patient-temperature, pulse, respiration, skin, elimination, general condition.

   Medication and simple treatment.

   Teaching family members to assist with care of the sick and to take home nursing responsibilities.

   First aid kit for the home; equipment and supplies tor home care; improvisations.

3. **Treatment of minor ailments**

   (1) **Examination of the patient; methods of examination;**

   taking history of the patient; specific complaints and problems, detecting minor ailments and providing treatment and care; recognition of signs of danger, complications, signs of serious illness; appropriate action to be taken for serious emergencies and critical illness.

   Health Workers role in accidents and diseases; management of accidents; management and care of the sick.

   (2) **Conditions affecting the skin - signs, symptoms and treatment** -

   i) Itching
   ii) Rashes
   iii) Patches
   iv) Scabies
   v) Lice
   vi) Ulcer
   vii) Boils
   viii) Impetigo
   ix) Swelling
   x) Pallor
   xi) Wounds
   xii) Burns
   xiii) Frostbite
   xiv) Bites
   xv) Stings

   (3) **Conditions affecting the ear and eye - signs symptoms and treatment-**

   i) Earache
   ii) Discharging ear
   iii) Foreign body in ear, eye
   iv) Jaundiced eyes
   v) Sore eyes
   vi) Blurred vision
   vii) Eye injuries
   viii) Trachoma
   iX) Dry eyes
   X) Watering eyes
   Xi) Red eyes (inflamed)

(4) **Conditions affecting the skeleton -signs, symptoms and treatment-**

I) Joint pains
ii) Swelling of joints
iii) Sprains
iv) Dislocations
v) Fractures

(5) **Conditions affecting the respiratory system - signs, symptoms and treatment-**

i) Nose bleeding
ii) Foreign body in the nose blood in sputum
iii) Sore-throat
iv) Bronchopneumonia in children
v) Common cold
vi) Cough with fever
Vii) Prolonged cough with,
Viii). Chest-injuries
ix) Chest pain
x) Shortness of breath
xi) Asphyxia
xii) Tonsillitis

(6) **Conditions affecting the digestive system -signs, symptoms and treatment**-

i) Diarrhea - mild
- severe with blood or mucus
ii) Indigestion
iii) Stomach-ache
iv) Jaundice
v) Worms-hookworm, round-worm, thread-worm
vi) Abdominal pain
vii) Abdominal distension
viii) Abdominal injuries
ix) Constipation
x) Blood in stools
xi) Sores in the mouth
xii) Gum bleeding

(7) **Conditions affecting the urinary system-signs, symptoms and treatment-**

i) Micturition :- -frequency, - painful , -retention of urine, - with blood
ii) Renal colic
iii) Enuresis
iv) Incontinence

(8) **Conditions affecting the neuromuscular system -signs,** symptoms and treatment

i) Temperature regulation
ii) Headache – mild, - moderate, -occasional, - high, - persistent, - severe
iii) Fever
iv) Backache
v) Heat stroke
vi) Heat exhaustion
vii) Convulsions
viii) Paralysis
Ix) Unconsciousness
x) Head injuries

(9) **Conditions affecting the reproductive system-signs, symptoms and treatment** -

i) Sores on the gential area
ii) Urethra! discharge
iii) Vaginal discharge
iv) Abnormal menstruation
v) Painful menstruation
vi) Prolapse
vii) Breast abscess
viii) Breast lump

4. Basic medical care

-Ailments in children; basic medical and nursing care in common disorders of
- cardiovascular system
- respiratory system
- alimentary system
- urinary system
- skeletal system
- neuromuscular system.

5. Pharmacology

Introduction to study of pharmacology; sources of drugs, drug legislation; preparation of drugs -solutions and suspensions, capsules, tablets, pills, powders, liniments, ointments, pastes, plasters, poultices, suppositories, dangers of misuse and indiscriminate use of drugs.

Weights and measures; metric system, converting from one system io another; calculation of dosages; household measures in home nursing, problems of measuring accurately teaspoon, cup, glass.

Abbreviations in common use; prescription and orders for medications.

Action of drugs -local action, systemic action; factors that ; influence action; route of administration.

Care of drugs; policies and regulations regarding administration of \ medicines; role of the Health Worker.

Classification and action of groups of drugs:

i) Analgesics
ii) Anesthetics
iii) Anticoagulants
iv) Antiemetics
v) A"tHnfect!ve"
vi) Antipyretics
vii) Antiseptics
viii) Depressants
ix) Disinfectant
x) Diuretics
xi) Haematinics
xii) Hormones
xiii) Laxatives
xiv) Sedatives
xv) Stimulants
xvi) Vitamins

Animal Bites

Dog bites typically cause a crushing-type wound because of their rounded teeth and strong jaws. An adult dog can exert 200 pounds per square inch (psi) of pressure, with some large dogs able to exert 450 psi. Such extreme pressure may damage deeper structures such as bones, vessels, tendons, muscle, and nerves. Wounds to the left arm and hip inflicted during a dog attack.

The sharp pointed teeth of cats usually cause puncture wounds and lacerations that may inoculate bacteria into deep tissues. Infections caused by cat bites generally develop faster than those of dogs.

Monkey bites have a notorious reputation based largely on anecdotal reports. Several cases of unprovoked attacks on young children and infants by domesticated ferrets have been documented.

The bites of foxes, raccoons, skunks, bats, dogs, and cats have been clearly linked to rabies exposure. Bites from large herbivores generally have a significant crush element because of the force involved.

Bites of the hand generally have a high risk for infection because of the relatively poor blood supply of many structures in the hand and anatomic considerations that make adequate cleansing of the wound difficult. In general, the better the vascular supply and the easier the wound is to clean (ie, laceration vs puncture), the lower the risk of infection.

A major concern in all bite wounds is subsequent infection. Infections can be caused by nearly any group of pathogens (bacteria, viruses, rickettsia, spirochetes, fungi). At least 64 species of bacteria are found in the canine mouth, causing nearly all infections to be mixed. Common bacteria involved in bite wound infections include the following:

- **Dog bites**
  - *Staphylococcus* species
  - *Streptococcus* species
  - *Eikenella* species
  - *Pasteurella* species
  - *Proteus* species
  - *Klebsiella* species
  - *Haemophilus* species
  - *Enterobacter* species
  - DF-2 or *Capnocytophaga canimorsus*
  - *Bacteroides* species
  - *Moraxella* species
  - *Corynebacterium* species
  - *Neisseria* species
  - *Fusobacterium* species
  - *Prevotella* species
  - *Porphyromonas* species

- **Cat bites**
  - *Pasteurella* species
  - *Actinomyces* species
  - *Propionibacterium* species
  - *Bacteroides* species
  - *Fusobacterium* species
  - *Clostridium* species
  - *Wolinella* species
  - *Peptostreptococcus* species
  - *Staphylococcus* species
  - *Streptococcus species*

- **Herbivore bites**
  - *Actinobacillus lignieresii*
  - *Actinobacillus suis*
  - *Pasteurella multocida*
  - *Pasteurella caballi*
  - *Staphylococcus hyicus* subsp *hyicus*

- **Swine bites**
  - *Pasteurella aerogenes*
  - *Pasteurella multocida*
  - *Bacteroides* species
  - *Proteus* species
  - *Actinobacillus suis*
  - *Streptococcus* species
  - *Flavobacterium* species
  - *Mycoplasma species*

- **Rodent bites - Rat-bite fever**
  - *Streptobacillus moniliformis*
  - *Spirillum minus*

- **Primates**
  - *Bacteroides* species
  - *Fusobacterium* species
  - *Eikenella corrodens*
  - *Streptococcus* species
  - *Enterococcus* species
  - *Staphylococcus* species
  - *Enterobacteriaceae*
  - Simian herpes virus

- **Large reptiles (crocodiles, alligators)**
  - *Aeromonas hydrophila*
  - *Pseudomonas pseudomallei*
  - *Pseudomonas aeruginosa*
  - *Proteus* species

First Aid and Emergency Care

Life saving measures, management of emergency situation,
General rules for first aid , observations, examinations, tests, temperature, pulse, respirations, blood pressure, weight and height ,history taking physical examination , urine analysis, collection of specimens ,X-ray and special tests, dressing and bandages.
Mental Health: - Introduction to psychology, mental hygiene and health, self understanding and growth, mental hygiene and health in various stages of life.
Mental illness: normal and abnormal behavior, education

1. **Promoting safety consciousness.**
   Safety measures in the school, playgrounds, streets, institutions.
   Safety on the job - farm and factory.
   Prevention of accidents - common sense measures and observation of few simple rules.
2. **Injuries to bones, joints**
   First aid measures for injuries to upper extremities-First aid measures for injuries to lower extremities.
   First aid measures for injuries to skim rib injuries, injury to pelvis.
   First aid measures for spinal injuries, multiple fractures, crush injuries.
3. **First aid in wounds and haemorrhage**
   Wounds - types, principles of wound care, immediate care.
   Haemorrhage- types, control of bleeding, pressure points, bleeding from special regions and cavities-, nose, stomach, lungs, kidney, bowel, gums, ear. internal bleeding.
4. **First aid in poisons bites and stings foreign bodies**
   Swallowed poisons Snake bite Foreign bodies in
   Inhaled poisons Dog bite - eye
   Injected poisons Rabies - ear, nose, throat
   Insect bites - stomach
   and stings.
5. **First aid in unconsciousness**
   Loss of consciousness
   Heat stroke
   Fainting
   Stupor
   Coma
   Convulsions
   Hysteria
   Asphyxia - drowning, strangulation, choking;
   - causes, types, signs and symptoms;
   - artificial respiration.

6. **Thermal, electrical and chemical injuries**

   Burns and scalds -first aid treatment for critical burns; burns caused by strong acids, alkalis; moderate burns; minor burns and scalds.

   Electric shock - first aid measures.

7. **Emergency care/disasters and first aid**

   Types of disasters; Health Workers' responsibilities; aspects of disaster relief work.

   Principles of preserving life and health in emergencies. To community (or safety of water supply, food, safe disposal of waste, health protection measures including immunization, management of emergency childbirth.

8. **First aid procedures, supplies and equipment**

   Application of bandages, slings, dressings, splints.

   Transport of casually, stretchers, lifting -and carrying injured persons, blanKei lift and other improvisations.

   First aid supplies, first aid kit.

Drugs used in preventive medicine

In addition to a healthy lifestyle, preventive medications can help people avoid many illnesses and conditions. A consumer-directed health (CDH) plan that includes preventive medications can help support the goal of ongoing good health.

This list provides examples of your plan's preventive medications. The medications are categorized based on the medical conditions that they are used to prevent. This is not an all-inclusive list; only examples of medicines in each category are listed. Coverage prior to the deductible being met may not be provided for every dosage form of a listed medication. Please check with your plan administrator if you have questions. This list is periodically reviewed and updated to ensure that the drugs listed meet the criteria for inclusion.

Medications on this list that are not covered under the plan are not eligible for the preventive medication program.This list includes medications sometimes used for prevention and sometimes for treatment.

Preventive Medications List

ANEMIA IN CHILDREN

FERROUS SULFATE LIQUID DROPS FOR INFANTS (SUCH AS FE'R-IN-SOL)

ASTHMA

SINGULAIR *MONTELUKAST* ACCOLATE *ZAFIRLUKAST* ZYFLO CR *ZILEUTON*

BONE DISEASE AND FRACTURES

FOSAMAX, FOSAMAX PLUS D *ALENDRONATE* FORTICAL, MIACALCIN *CALCITONIN* XGEVA *DENOSUMAB* BONIVA *IBANDRONATE* EVISTA *RALOXIFENE* ACTONEL *RISEDRONATE* RECLAST *ZOLEDRONIC ACID*

BREAST CANCER RECURRENCE

TAMOXIFEN, ARIMIDEX, ANASTROZOLE, AROMAS IN, EXEMESTANE, FEMORA LETROZOLE

CANCER TREATMENT, SIDE EFFECTS FROM

ARANESP *DARBEPOETIN ALFA* EPOGEN, PROCRIT *EPOETIN ALFA* NEUPOGEN FILGRASTIM DEPO-PROVERA MEDROXYPROGESTERONE MESNEX *MESNA* NEULASTA *PEGFILGRASTIM* LEUKINE *SARGRAMOSTIM*

CAVITIES

PROVIDENT

SODIUM FLUORIDE **COLONOSCOPY PREPARATION**
COLYTE, GOLYTELY, HALFLYTELY, NULYTELY, TRILYTE, MOVIPREP *POLYETHYLENE GLYCOL* VISICOL, OSMOPREP, SUPREP *SODIUM PHOSPHATE SALTS*

ESTROGEN REPLACEMENT AND OTHER HORMONES
PREMARIN *CONJUGATED ESTROGEN TABLETS* PREMPRO, PREMPHASE *CONJUGATED ESTROGEN/ MEDROXYPROGESTERONE* ESTRACE *ESTRADIOL* TABLETS CLIMARA *ESTRADIOL TRANSDERMAL*

ESTRADERM *ESTRADIOL TRANSDERMAL* VIVELLE DOT *ESTRADIOL TRANSDERMAL* DIVIGEL *ESTRADIOL, GEL* EVAMIST *ESTRADIOL, TRANSDERMAL SPRAY* COMBIPATCH *ESTRADIOL/NORETHINDRONE, TRANSDERMAL* MAKENA *HYDROXYPROGESTERONE CAPROATE* PROVERA *MEDROXYPROGESTERONE* CRINONE, PROMETRIUM *PROGESTERONE* CENESTIN *SYNTHETIC CONJUGATED ESTROGENS, A* ENJUVIA *SYNTHETIC CONJUGATED ESTROGENS, B*

GOUT

ZYLOPRIM, ALLOPURINOL, COLCRYS, *COLCHICINE* GUM DISEASE,
ARESTIN, MINOCYCLINE

HEART DISEASE AND STROKE

BLOOD THINNER MEDICINES:
ASPIRIN, 81 MG OR 325 MG HEPARIN
AGGRENOX: - ASA/DIPYRIDAMOLE
PLAVIX: - CLOPIDOGREL
FRAGMIN; - *DALTEPARIN*
LOVENOX: - *ENOXAPARIN*
ARIXTRA: - *FONDAPARINUX*
EFFIENT: - *PRASUGREL*
XARELTO; - *RIVAROXABAN*
BRILINTA: - TICAGRELOR, *COUMADIN, JANTOVEN*

WARFARIN
CHOLESTEROL LOWERING MEDICINES

VIRUS
AMANTADINE, ZOVIRAX, ACYCLOVIR, FAMVIR, FAMCICLOVIR, FOSCAVIR, FOSCARNET CYTOVENE, GANCICLOVIR, TAMIFLU, OSELTAMIVIR, VALTREX, VALACYCLOVIR VALCYTE, VALGANCICLOVIR, RELENZA, ZANAMIVIR

KIDNEY DISEASE, HIGH PHOSPHATE LEVELS
PHOSLO, PHOSLYRA *CALCIUM ACETATE* FOSRENOL *LANTHANUM* RENVELA, RENAGEL *SEVELAMER*

NAUSEA AND DIZZINESS
PROCHLORPERAZINE
PROMETHAZINE
EMEND
APREPITANT
ANZEMET
DOLASETRON
MARINOL
DRONABINOL
SANCUSO
GRANISETRON
ANTIVERT
MECLIZINE
OBESITY: - DIETHYLPROPION
XENICAL: - ORLISTAT
BONTRIL *:* - PHENDIMETRAZINE, adipex-p, ionamin, PHENTERMINE

PREGNANCY BIRTH CONTROL MEDICINES TAKEN BY MOUTH BIRTH CONTROL DEVICES: DIAPHRAGMS, SKIN PATCH SYSTEMS, INJECTABLE BIRTH CONTROL, INTRAUTERINE SYSTEMS, AND IMPLANTS
SMOKING-CESSATION THERAPY
ZYBAN
BUPROPION
NICOTROL, NICOTINE PRODUCTS, *CHANTIX, VARENICLINE* **ULCER DISEASE**

MISCELLANEOUS AGENTS:
PYLERA
BISMUTH/METRONIDAZOLE/
TETRACYCLINE
CARAFATE
SUCRALFATE
PROTON PUMP INHIBITORS:
NEXIUM, ESOMEPRAZOLE, PREVACID, LANSOPRAZOLE, PROTONIX, PANTOPRAZOLE ACIPHEX, RABEPRAZOLE
VACCINES
VACCINES:
DIPHTHERIA, PERTUSSIS,TETANUS, HAEMOPHILUS INFLUENZAE B, HEPATITIS A AND B, HUMAN PAPILLOMAVIRUS, INFLUENZA, MEASLES, MENINGOCOCCAL, MUMPS, PNEUMOCOCCAL, POLIOVIRUS, ROTAVIRUS, RUBELLA, AND VARICELLA
VITAMINS OR MINERALS, LOW LEVELS OF
CALCIUM
FOLIC ACID, 0.4 TO 0.8 MG IRON
MAGNESIUM MULTIVITAMIN PRODUCTS POTASSIUM BICARBONATE/CITRIC ACID POTASSIUM CHLORIDE PRESCRIPTION PRENATAL VITAMINS VITAMINS: A, B, Bi, B6, B*12*, D, K ZINC

BIO-MEDICAL WASTE MANAGEMENT

At present with advancement of medical science most of the hospitals/nursing homes are now equipped with latest instruments for diagnosis and treatment of various diseases.

One of the most important aspect associated with hospitals is the safe management of the wastes; generated from these establishments, which contains human anatomical wastes blood, body fluid, disposable syringe, used bandages, surgical gloves, Blood bags intravenous tubes etc.

The Bio-medical waste generated from various sources has become a problem and much attention is being given worldwide to find out solution of this problem.

The main concern lies with the hospital waste generated from large hospitals/nursing homes as it may pose deleterious effects due to its hazardous nature. Bio-medical wastes, if not handled in a proper way, is a potent source of diseases, like AIDS, Tuberculosis, Hepatitis and other bacterial diseases causing serious threats to human health. Owing to the discussed potential threats this waste needs prime attention for its safe and proper disposal.

STANDARDS OF MICRO WAVING

1. Microwave treatment shall not be used for cytotoxic, hazardous or radioactive wastes, contaminated animal carcasses, body parts and large metal items.
2. The microwave system shall comply with the efficacy test/ routine tests and a performance guarantee may be provided by the supplier before operation of the unit.
3. The microwave should completely and consistently kill the bacteria and other pathogenic organisms that is ensured by approved biological indicator at the maximum design capacity of each microwave unit. Biological indicators for microwave shall be Bacillus Subtitles spores strips with at least 1×10^4 spores per millilitre.

STANDARDS FOR DEEP BURIAL

- A pit or trench should be dug about 2 meters deep. It should be half filled with waste, and then covered with lime within 50 cm of the surface, before filing the rest of the pit with soil.
- It must be ensured that animals do not have any access to burial sites. Covers of galvanised iron/wire meshes may be used.
- On each occasion, when wastes are added to the pit, a layer of 10 cm of soil shall be added to cover the wastes.
- Burial must be performed under close and dedicated supervision.
- The deep burial site should be relatively impermeable and no shallow well should be close to the site.
- The pits should be distant from habitation, and sited so as to ensure that no contamination occurs of any surface water or ground water. The area should not be prone to flooding or erosion.
- The location of the deep burial site will be authorised by the prescribed authority.
- The institution shall maintain a record of all pits for deep burial.

A time limit has been defined by Govt. of India for installation of treatment facilities for Bio-medical waste as shown below:

Mental Diseases

Introduction
Normal and abnormal behaviour.
Causes of abnormal behaviour - intrinsic factors and extrinsic factors; predisposing and precipitating factors.
Observation of significant behavioural changes -
where - clinics, health centres, home visits, schools;
how -observation, listening, talking to people, other methods.

Resources and facilities for prevention and early detection of mental illness

- Family health care services;
- Maternal and child health services;
-School health services;
- Primary Health Centre facilities;
- Community;
- Health Workers as a resource.

Basic skills - human relations Skills; skills in forming effective interpersonal relationship, communication skills-verbal and non-verbal.
Responsibilities of Health Worker, individual, family and community, for prevention, early detection, care and acceptance.

Prevention of mental illness
Recognizing problems of adjustment in various life stages:
- childhood
- adolescence
- adulthood
- old age
- stress, strains, and crisis
- situation in each stage.

Understanding adjustment reactions - constructive behaviour, psychosomatic behaviour, emotional nervous behaviou, destructive behaviour.
Caring for people with problems
Childhood problems -e.g. fears, nightmares, learning difficulties, destructive ways.
Problems of adolescence -depression, aggressive ways, individual and group delinquency. .
Problems of adults - family life adjustment problems, marital adjustment problems, occupational maladjustments.
Problems of old age - problems of economic insecurity; retirement, dependence, ageing and diminished vigour.

Observation of individuals with deviant behaviour patterns - withdrawal patterns
- aggressive patterns- patterns indicating anxieties, depression - projective patterns.

Early detection of mental disorders
Recognizing signs and symptoms related to:
- disturbances of thinking, delusions, fantasies, incoherent speech, irrelevant talk, phobias, obsessions;
- disturbances of consciousness; confusion, stupor, delirium, coma and sleep disturbances - insomnia;
- disturbances of orientation, disorientation in relation to time, place and person;
- disturbances of memory, amnesia;
- disturbances of emotions, hallucinations, illusions, depression. anxiety, hostility, mood swings;
- disturbances of other aspects of behaviour - over-activity. hypo activity, compulsive activity;
- disturbances of personality - problems related to family life, life pattern, work, personal and social relations;
- disturbances of intelligence - retarded behaviour in children.

Mental diseases
Behavior indicating - Psychosomatic diseases, drug dependence, drug addiction, neurotic diseases, psychotic diseases, organic brain diseases, mental retardation, personality-disorders.
Basic therapies.
Principles of after-care and supervision,

Psychiatric emergencies, principles of first aid and emergency care, preventive aspect of psychiatric emergencies,
Legal aspects.

Occupational diseases

An **occupational disease** is any chronic ailment that occurs as a result of work or occupational activity. It is an aspect of occupational safety and health. An occupational disease is typically identified when it is shown that it is more prevalent in a given body of workers than in the general population, or in other worker populations. The first such disease to be recognized, squalors of the scrotum was identified in chimney boys by Sir Percival Potts in 1775. Occupational hazards that are of a traumatic nature (such as falls by roofers) are not considered to be occupational diseases.

Under the law of workers' compensation in many jurisdictions, there is a presumption that specific disease are caused by the worker being in the work environment and the burden is on the employer or insurer to show that the disease came about from another cause. Diseases compensated by national workers compensation authorities are often termed occupational diseases. However many countries do not offer compensations for certain diseases like musculoskeletal disorders caused by work.Therefore the term work-related diseases is utilized to describe diseases of occupational origin. This term however would then include both compensable and non-compensable diseases that have occupational origins.

Contents

Examples

Some well-known occupational diseases include:

Lung diseases

Main article: Occupational lung disease

Occupational lung diseases include asbestosis among asbestos miners and those who work with friable asbestos insulation, as well as black lung (coal worker's) among miners, silicosis among miners and quarrying and tunnel operators and by sinuses among workers in parts of the cotton textile industry.

Occupational asthma has a vast number of occupations at risk.

Bad indoor air quality may predispose for diseases in the lungs as well as in other parts of the body.

Skin diseases

Occupational skin diseases and conditions are generally caused by chemicals and having wet hands for long periods while at work. Eczema is by far the most common, but urticaria , sunburn and skin cancer are also of concern.[1]

High-risk occupations include:[1]

- Hairdressing
- Catering
- Healthcare
- Printing
- Metal machining
- Motor vehicle repair
- Construction

Other diseases of concern

- Carpal tunnel syndrome among persons who work in the poultry industry and information technology.
- Computer vision syndrome among persons using information technology for hours.
- Lead poisoning affecting workers in many industries that processed or employed lead or lead compounds

Communicable Disease

Introduction to communicable diseases

Terminology; prevalence of communicable diseases.
Modes of disease transmission; general measures for prevention and control of communicable diseases^-
- controlling source of infection
- blocking channels of transmission
- protection of susceptible.

Understanding role of Health Worker, family, community, individual and public health authorities In relation to specific measures - notification, isolation and quarantine, disinfection and education of public; vector control,

Immunity and immunization

Purpose, types, effects.
National immunization schedule for prevention of major communicable diseases BCG, DPT, Polio, Measles and Typhoid vaccines.
Immunization reactions -precautions to be taken; use of safe techniques and sterile equipment; testing for sensitivity reactions; emergency treatment for anaphylactic shock; methods of immunization and related technique.

Care and treatment of patient with infection

Recognition of signs and symptom? - common signs and symptoms of infection -fever, pulse changes, urinary signs, respiratory changes, gastrointestim I signs snd symptoms.
Principles of care and treatment - rest, diet, fluids, hygienic care; medications and treatment; observation of patients; measures for prevention of spread of infections.
Home care of a sick patient -individual articles tor hygienic care, food and fluids; hand washing facilities; protection of clothes, safe disposal of excreta; safe disposal of contaminated material, e.g. garbage; safe, handling of equipment and supplies.

Disinfection and sterilization

Disinfection, disinfectants, sterilization. Antiseptics, deodorants, detergents.
Natural agents-physical agents, chemical agents.
Effective disinfection by liquid chemical agents - halogens, coal tar disinfectants, detergents, oxidizing agents, heavy metals, miscellaneous agents; techniques; precautions.
Effective disinfection by solid chemical agents-bleaching powder, lime, other disinfectants; techniques; precautions.
Effective disinfection by gaseous agents - formalin.
Disinfection of water, excreta. "* Health teaching aspects.

Specific communicable .diseases and infections .

- Prevention-and control, incubation: - period, care in specific communicable diseases and infections.

1) Malaria
2) Filariasis
3) Dengue
4) Kalaazar
5) Tuberculosis
6) Leprosy
7) Typhoid
8) Smallpox
9) Chickenpox
10) Measles
11) Mumps
12) Diphtheria
13) Pertussis
14) Cholera
15) Infectious hepatitis
16) Dysenteries
17) Acute gastro-enteritis
18) Amoebiasis
19) Worm infestation
20) Conjunctivitis Threadworm
21) Other gastro-intestinal
22) Tetanus
23) Influenza
24) Encephalitis
25) Rabies
26) Plague
27) Trachoma Hookworm, Roundworm

NUTRITION

Relation of nutrition to health; relation of other factors. importance to nutritional status and health, e.g. infections. Classification and functions of foods -body building, eneryielding, and protective foods.
Nutrients - carbohydrates, proteins, fats, vitamins, mineral functions, sources and daily requirements of each; color requirements; water and cellulose.

Nutritive value of foodstuffs

Cereals Pulses Fats & oils
Vegetables Milk & milk products Sugar

Fruits, Eggs, Meat & fish Condiments
Spices
Beverages
Enriching subsistence diets with locally available foodstuffs.

The balanced diet

Definition; factors to be considered in planning meals; improvement of diets; selection of foods; cultural factors; nutritional requirement for special groups; vulnerable groups; improving maternal nutrition and child nutrition. Modified diets-liquid, bland, soft. full.

Preparation and preservation of foods

General principles of cooking; methods of cooking; effects cooking on nutrients and common foodstuffs. Preservation of foods-household methods Food hygiene-simple household measures.

Guttural factors in nutrition

Foods fads, food habits.
Food adulteration practices injurious to health.
Nutrition education - principles of imparting nutrition knowledge
Dietary survey.

Malnutrition

Malnutrition, under nutrition; causes; inter-relationship of facto leading to malnutrition, e.g. infections, worm infestations. Deficiency diseases in the country including vitamin deficiency protein-energy malnutrition, goitre.

Practicals

Treatment of Minor Ailments at affiliated hospitals.

Home Nursing.

First Aid Bandages, Sings, bleedings point and areas hemorrhages.

Training in Nutrition, Nutritional Survey, and balanced diet.

Visit of T.B. hospital /sanatorium.

PAPER –II

Introduction to Public Health

Concept of public health, health problems and responsibilities of health workers.

Ethics and behavior of health workers.

The health team.

Public health services

Principles of organizing care in the home, health agencies, clinics, schoc :s, hospitals.

Principles of organizing care according to degree of 'wellness' or 'illness'.

Principles of organizing care according to needs of the patient seriously ill, chronically ill, moderately ill, and terminally ill.

Principles of organizing care according to patient groups: age groups,-children and adolescents adults and the elderly-.

Health or medical problems,

e.g. patient with fever

unconsciousness.

patients for surgery.

Public health laboratories

Concept of public health, health problems and responsibilities of health workers.

Ethics and behavior of health workers.

The health team.

Family health care

The family as an integral unit of the health services.

The family as the focus of Health Workers' attention' in health and family matters.

Family health as it relates to

— income

— illiteracy of members

— Cultural patterns of society.

School health services

Objectives of school health services.

Components of a comprehensive school health programme — health appraisal of school children; prevention of communicable diseases; early detection and attention to defects; healthful school environment; nutritional services — food supplements; health education including nutrition education and population education; school health records; first aid. And emergency care; treatment of minor ailments.

Role of Health Worker in school health programme as co-ordinator, educator, organizer, counselor, interpreter, serving as a liaison between school, home and community.

PUBLIC HEALTH ADMINISTRATION

Organization of National Health Care Services.

System of National Health Care Services

Sub Center:

a) Primary Health Care
b) Community Health Care
c) Specialization Health Intuitions.

Health services in India before independence

Health services in India after independence

Current status of India.

Central, State and Local organizations in India.

Relation with other departments

International organizations and their cooperation in the field of Health. (WHO, UNICEF, UNDP (United Nation Development Programme) Voluntary Agencies in Health Programmes.

Operation Aspects of National Health Programs-

d) Family Welfare Program
e) Maternity &
f) child Health Service
g) National Malaria Eradication program.
h) National Filarial Control program
i) National Leprosy program
j) Diarrheas Disease Control program
k) STD Control program
l) Goiter Control program
m) Blindness Control program
n) Universal Immunization program

PUBLIC HEALTH PROGRAMMES IN INDIA

Course Content

1. Public health programmes

Rural development - concept and organization.
Progress of health activities under developmental programmes;
health centre concept - definition, organization and functions; role
of health centre in health programmes; role of Health Workers in a
Primary Health Centre.
Maintenance of supplies and equipment and other facilities, records
and reports.
Health records, family care records, medical records.
Use of diaries by Health Workers.
Understanding the system of reporting and recording.
Referral system.

2. Organization and structure of health services and related welfare services.

Health services at Central, State, District. Taluk, Tehsil and village level.
Multipurpose Workers Scheme, Health Scheme Training programme
Rural Health Services- Primary Health Centres and schemes.
Urban health services- health, units in Corporations and municipal
boards; organization of health services.
Supplemental health services -indigenous medical practitioners;
traditional heaters; private practitioners.
Voluntary health agencies.
International agencies-WHO. UNICEF, FAO.
Community development programmes and health structure and activities at block level.
Social Welfare services and programmes.

3. Health planning and programmes

Five Year Plans - health sub-sectors in five year plan, implementation of health plans at village, district, State and National levels.
Major health programmes related to:
Malaria, Filariasis, Tuberculosis, Leprosy. Trachoma, STD, general diseases. Goitre, water supply and sanitation, family welfare and nutrition programmes.
Role of Health Worker in implementing national health plans anr4 programmes.
identifying functions of Health Workers in relation to major national health plans and programmes-Health Worker's responsibilities at village level and subcentre level in implementation of health plans and programmes.
Cooperation and coordination with members of health team, social welfare team, village community and community development team.

National health programmes

National health programmes

Needs, Aims, plan of operation, methods, achievements. Shortfalls, reasons thereof and of recurrence, special importance of
Surveillance and epidemiological investigation, measures to improve performance, role of health education; differences between control and eradication programmes.

1. National Malaria Eradication Programme
2. National Leprosy Control Programme.
3. National Tuberculosis Control Programme
4. National Filariasis Control Programme
5. Cholera Control Programme
6. STD Control Programme
7. Trachoma control Programme
8. Goitre Control Programme.
9. National Rural Health Mission (NRHM): incorporating AYUSH, IPHS and PRI
10. National Urban Health Mission (NUHM)
11. Reproductive and Child Health Programme (RCH)
12. National Vector Borne Disease Control Programme (NVBDCP)
13. National AIDS Control Programme (NACP)
14. Integrated Disease Surveillance Project (IDSP)
15. Integrated Child Development Services (ICDS)
16. National Water Supply and Sanitation Programme
17. National Cancer Control Programme
18. National Programme for Control of Diabetes, Stroke and Cardiovascular Diseases
19. National Mental Health Programme
20. National Programme for Control of Blindness (NPCB)
21. National Iodine Deficiency Disease Disorder Control Programme

Awareness of HIV

Fighting AIDS

At the end of 2011, an estimated 34 million people were living with HIV worldwide, with two- thirds of them living in sub-SaharanAfrica. This reflects the continued large number of new HIV infections and a significant expansion of access to antiretroviral therapy, which has helped reduce AIDS-related deaths, especially in more recent years.

The number of people dying of AIDS-related causes fell to 1.7 million in 2011, down from a peak of 2.2 million in the mid-2000s; in 2012 alone 700,000 AIDS related deaths were averted.

HIV treatment

It is estimated that at least 8 million people in low- and middle-income countries are currently receiving HIV treatment, reflecting an increase of 63 percent from 2009 to 2011. Ten low- and middle-income countries (including Cambodia, Rwanda, Swaziland, Zambia and Namibia, among others) have achieved universal access, defined as extending coverage to at least 80 percent of those in need of treatment.

Worldwide, there were more than 500,000 fewer deaths in 2011 than there were in 2005, and the number of AIDS-related deaths declined bynearly one-third during that time.

International efforts as channeled through the Global Fund have been critical; by end 2012 Global Fund-supported programs had provided 1.7million HIV-positive pregnant women with treatment to prevent transmission to theirchildren, 250 million HIV testing and counseling sessions, the purchase and distribution of 4.2 billion condoms, and more than 19 million basic care and support services have been provided.

HIV prevention

However, HIV continues to spread - in 2011, 2.5 million people were newly infected with HIV. Although this number remains sobering, it is also important to note that 25 countries have seen their numbers of new infections drop by 50 percent or more, and that half of the infections averted worldwide were among newborns, demonstrating that it is possible to eliminate new infections in children.

In countries with generalised epidemics, a combination of behavior changes, including reductions in numbers of sexual partners, increases in condom use, and delayed age of first sex, have reduced new infections in several countries. However, some regions are seeing

their rates of infection grow significantly. For example, the number of new infections in the Middle East and North Africa region has grown by more than 35 percent. And Eastern Europe is seeing infection rates climb, particularly among most-at-risk populations.

New tools for prevention are being implemented, as can be seen by large-scale circumcision campaigns, particularly in sub-Saharan Africa.

The increase in coverage of antiretroviral treatment will also aid in slowing new infections. Studies have shown that putting a person on treatment as soon as they are diagnosed can reduce the risk of transmission of the virus by up to 90 percent.

Challenges to reversing the spread of HIV

Thirty years after AIDS was first reported, HIV continues to spread. Existing prevention efforts, although improving, are often insufficiently comprehensive or inadequately tailored to local epidemics.

Epidemiological surveillance systems at the country level also need to be strengthened, particularly where there are key populations at higher risk of HIV infection. For example, studies in Eastern Europe and Central Asia show that many people who inject drugs actively avoid seeking health services due to the risk of ostracism or fears that their health providers will report them to law enforcement authorities. Such obstacles limit individuals' access to basic health services as well as treatment for HIV.

Greater political commitment to implementing evidence-informed programs is also needed if progress is to be made in achieving the Millennium Development Goals.

HIV and human rights

The Global Fund is committed to fighting for the rights of people directly or indirectly affected by HIV and AIDS through the programs it supports in 151 countries. It works to ensure that these programs address the needs of the poorest, at-risk and marginalized groups.

YOGA AND NATURE CURE

Yoga:

Introduction.
Importance.
Pranayama and its importance.

Asanas:

a) Salabhasan.
b) Bhujangasan.
c) Seershasan.
d) Comuwhasan.
e) Suryasan.
f) Padmasan
g) Matyasana. Etc.

NATURE CURE:

Introduction.
Importance.
Nature Cure for common diseases like Cold,
Cough Fever and Headache etc.
Medicinal Plants:
a) Introduction.
b) Importance.
c) Application etc.
Ayurvedic Medicines
(As applicable to Public Health;
Asogaraj guggul.
Thriphala Churna.
Gandhak Rasayana etc.

Homeo Medicines.
(as applicable to preventive medicine)
Belladonna
Arnica. Naxuomica etc...

Indian system of medicine

Indian System of Medicine: Ayurvedic, Unani, Siddha, Indigenous systems of medicine, Traditional systems of medicine

Introduction

It is a well-known fact that Traditional Systems of medicines always played important role in meeting the global health care needs. They are continuing to do so at present and shall play major role in future also. The system of medicines which are considered to be Indian in origin or the systems of medicine, which have come to India from outside and got assimilated in to Indian culture are known as Indian Systems of Medicine. India has the unique distinction of having six recognized systems of medicine in this category. They are- Ayurveda, Siddha, Unani and Yoga, Naturopathy and Homoeopathy.

Though Homoeopathy came to India in 18th Century, it completely assimilated in to the Indian culture and got enriched like any other traditional system hence it is considered as part of Indian Systems of Medicine. Apart from these systems- there are large numbers of healers in the folklore stream who have not been organized under any category.

Treatment aspects

The treatment lies in restoring the balance of disturbed humors (doshas) through regulating diet, correcting life-routine and behavior, administration of drugs and resorting to preventive non-drug therapies known as 'Panchkarma' (Five process) and '*Rasayana'* (rejuvenation) therapy. Before initiating treatment many factors like the status of tissue and end products, environment, vitality, time, digestion and metabolic power, body constitution, age, psyche, body compatibility, type of food consumed are taken in to consideration.

Types of Treatment

The treatments are of different types- a- *Shodhana* therapy (purification treatment), b- *Shamana* therapy (palliative treatment), *Pathya Vyavastha* (prescription of appropriate diet and activity), *Nidan Parivarjan* (avoidance of causes and situations leading to disease or disease aggravation), *Satvajaya* (psychotherapy) and *Rasayan* (adaptogens- including immunomodulators, anti-stress and rejuvenation drugs) therapy. *Dipan* (digestion) and *Pachan* (assimilation) enhancing drugs are considered good for pacifying the vitiated doshas (humors).

This therapy is supposed to dissolve the vitiated and accumulated doshas by improving the *agni* (digestive power) and restoring the deranged metabolic process. In severe conditions the above therapy has to be supplemented with purificatory processes like Panchakarma. In this therapy initially the accumulated vitiated dosha is liquefied by

resorting to external and internal oleation of the patient; followed by sudation (*swedhana*) and elimination of vitiated dosha through emesis (V*amana*) or purgation *(Virechana*), *Basti* (*enema*- evacuating type) and *Nasya* (nasal insufflation).

Shodhana therapy provides purificatory effect through which therapeutic benefits can be derived. This type of treatment is considered useful in neurological and musculo-skeletal disorders, certain vascular or neuro-vascular states, respiratory diseases, and metabolic and degenerative disorders. *Shamana* therapy involves restoring normalcy in the vitiated doshas (humors). This is achieved without causing imbalance in other doshas. In this use of appetizers, digestives, exercise and exposure to sun and fresh air are employed. In the *Pathya Vyavastha* type of treatment certain indications and contraindications are suggested with respect to diet, activity, habits and emotional status. In *Nidan Parivarjan* type of treatment the emphasis is on avoiding known causes of the disease by the patient. In *Satvavajaya* type of treatment the emphasis is on restraining the mind from the desires for unwholesome objects and Rasayana therapy deals with the promotion of strength and vitality.

Medicinal Plants and Their Uses, Visits to the respective fields

LIST OF IMPORTANT MEDICINAL PLANTS AND THEIR USES

NB: (Fam - Family, T – Tree, H – Herb, C – Climber, S- shrub)

Plant	Common name / Maturity period	Botanical Name or Family	Parts Used	Average Price(Rs. / Kg)	Medicinal Use
	Amla (T)After 4th year	Emblica officinalis Fam - euphorbiaceae	Fruit	Rs 15 – 45/kg	Vitamin – C, Cough , Diabetes, cold, Laxativ, hyper acidity.
	Ashok (T)10 years onward	Saraca Asoca Fam : Caesalpinanceac	Bark Flower	Dry Bark Rs 125/kg	Menstrual Pain, uterine, disorder, Deiabetes.
	Aswagandha (H), One year	Withania Somnifera Fam: Solanaccac	Root, Leafs	Rs 140/ Kg	Restorative Tonic, stress, nerves disorder, aphrodiasiac.
	Bael / Bilva (T)After 4-5 year	Aegle marmelous Fam: Rutaccac	Fruit, Bark	Fruit – Rs 125 / kg Pulp – Rs 60 / Kg	Diarrrhoea, Dysentry, Constipation.
	Bhumi Amla (H), with in one year	Phyllanthous amarus Fam : euphorbiaccac	Whole Plant	Rs 40 / Kg	Aenimic, jaundice, Dropsy.
	Brahmi (H) Indian penny worth/one year	Bacopa,Monnieri Fam: Scrophulariaccac	Whole plant	Rs 20 per kg	Nervous, Memory enhancer,mental disorder.
	Chiraita (high altituted) with in one year (H)	Swertia Chiraita Fam : Gentianaccac	Whole Plant	Rs 300-350 / per kg	Skin Desease, Burning, censation, fever.
	Gudmar / madhunasini, after Four year (C)	Gymnema Sylvestre Fam: Asclepiadaccac	Leaves	Rs 50 – 75 per kg	Diabetes, hydrocil, Asthama.
	Guggul (T)after 8 years	Commiphora Wightii Fam: burseraccac	Gum rasine	Rs 80 – 100 per kg	Rheuma tised, arthritis, paralysis, laxative.
	Guluchi / Giloe (C)With in one year	Tinospora CordifoliaFam	Stem	Rs 20 – 25 per kg	Gout, Pile, general debility, fever, Jaundice.
	Calihari / panchanguliaGlori Lily Five years	Gloriosa superba Fam: Liliaccac	Seed, tuber	Rs 60	Skin Desease, Labour pain, Abortion, General debility.

	Kalmegh/ Bhui neem (H) with in one year	Andrographis PaniculataFam : scanthaccac	Whole Plant	Rs 12 - 20	Fever, weekness, release of gas.
	Long peeper / Pippali (C) after two to three years	Peeper longum Fam : Piperaccac	Fruit, Root	Rs 100 – 150 per kg Root – 150 per kg	Appetizer, enlarged spleen , Bronchities, Cold, antidote.
	Makoi (H)Kakamachi/ With in one year	Solanum nigrum Fam: Solanaccac	Fruit/whole plant	Rs 40 per kg Seed – 200 per kg	Dropsy, General debility,Diuretic, anti dysenteric.
	Pashan Bheda / Pathar Chur (H)One year	Coleus barbatus Fam : Lamiaccac	Root	Rs 40-50 per kg	Kidny stone, Calculus.
	Sandal Wood (T)Thirty years onward	Santalum Album Fam: santalinaccac	Heart wood , oil	Rs 350 per kg	Skin disorder, Burning, sensation, Jaundice, Cough.
	Sarpa Gandha (H)After 2 year	Ranwolfia Serpentina Fam: apocynaccac	Root	Root – Rs 60 per kg Seed – Rs 300 per kg	Hyper tension, insomnia.
	Satavari (C)After 2-3 year	Asparagus Racemosus Family: liliaccac	Tuber, root	Rs 20 – 50 per kg	Enhance lactation, general weekness, fatigue, cough.
	Senna (S)With in 1 year	Casia augustifolia Fam: Liliaceae	Dry Tubers	Rs 500/kg seed Rs1200/kg dry	Rheumatism, general debility tonic, aphrodisiac.
	Tulsi (perennial) Each 3 months	Ocimum sanclum Fam: Lamiaccac	Leaves/Seed	Leaves Rs 10/kg	Cough, Cold, bronchitis,expectorand.
	Vai Vidanka (C), 2nd year onward	Embelia Ribes Fam: Myrsinaccac	Root, Fruit, Leaves	Rs 40-50 per kg	Skin disease, Snake Bite, Helminthiasis.
	Pippermint (h) Perennial	Mentha pipertia Fam:Lamiaccac	Leaves, Flower, Oil	-	Digestive, Pain killer.
	Henna/Mehdi (S) 1/25 years	Lawsennia iermis Fam: lytharaceae	Leaf,Flower, Seed	L – 50 /kgPowder-Rs75 perkg	Burning, Steam, Anti Imflamatary.

	Gritkumari (H) 2nd-5th yr	Aloe Verra Fam: Liliaceae	Leaves	Fresh L-Rs 5 kgJuice 90 Per Kg	Laxative, Wound healing, Skin burns & care,Ulcer.
	Sada Bahar (H) Periwinkle/Nyantara	Vincea rosea/ catharanthusRoseus Fam :apocyanace	Whole Plant	R-Rs50 per kgL-Rs 25S-Rs 10 kg	Leaukamia, Hypotensiv, Antispasmodic , Atidot.
	Vringraj (H)	Eclipta alba Fam: Compositae	Seed/whole	Powder-Rs 60/kg	Anti-inflamatory, Digestive, hairtonic.
	Swet chitrak Perennial (h)	Plumbago Zeylanica Fam: Plumbaginaceae	Root, Rootbar	-	Appetiser, Antibacterial, Aticacer.
	Rakta Chitrak (H)	Plumbago Indica Fam : plumbaginaceae	Root, Root bar	-	Indyspeipsia, colic, imflammation, cough.
	Kochila (T)15 yrs	Strychinos nuxvomica Fam: loganiaceae	Seed	-	Nervous, Paralysis, healing wound.
	Harida (T)	Terminalia Chebula Fam: Combretaceae	Seed	Rs. 80 per K Powder	Trifala, wound ulcer, leprosy, inflammation, Cough.
	Bahada (T)	TerminaliaBellerica Fam:comretaceae	Seed, Bark	Fruit – Rs 20/k Powder-Rs 100/k	Cough, Insomnia, Dropsy, Vomiting, Ulcer, Trifala.
	Gokhur (H) CrawlingPuncture Vine/1 yr	Tribulus Terrestris Fam: Lygophyllaceae	Whole Plant	Plant-Rs 10/K Fruit –Rs 15/k	Sweet cooling, Aphrodisiac, appetizer, Digestive, Urinary.

Practicals

Visit of Municipality, inspect on of slums.

Visiting of Slaughter House.

Participation in all National Health Programmes (Particularly Family Welfare and Universal Immunization Programme)

Visit of PHC/sub centre

Visit of schools in the school health programme.

Study of health hazards in rural areas and their prevention.

PAPER - III

ENVIRONMENTAL SANITATION

Problems in rural and semi-urban areas.

Soil Sanitation. Classification of soil. Classification from the view point of importance in Public Health. Reason for the excessive moisture in the soil. Reclamation of land. Soil, bacteria and parasites. Soil and Health. Study on insecticides, pesticides and disinfections. Sterilization & disinfection of different Articles. Various spraying equipments.

AIR: Concepts and importance of adequate ventilation. Types of ventilation. Natural ventilation. Mechanical ventilation. Indicators of air pollution. Process air purification and disinfection. Green house effect, types of ventilation, thermal comfort, air temperature humidity, radiation, evaporation and their measurements. General principles of healthful housing sites, orientation, foundation, roofs, damp proofing of structures, ventilation, lighting, sleeping rooms, kitchen, bathroom and washing platforms, overcrowding and consequences, drainage, godowns, a sanitary house, a sanitary cowshed.

Safe water

Safe and whole some water, Sources of water, various uses of water and its need. Water borne diseases, conservation source of water, quality of water, public health aspect of very hard water, Steps of disinfection of well. Physical, chemical and biological standard for portable water sources and nature of pollution of water in large scale and small scale. Process of disinfections of water in large and small scale provisions for sanitary wells and tube wells, plumbing system and its maintenance. Water supply and storage system at the community and domestic level.

A sanitary well, changing an old insanitary well into a sanitary well, other impurities in water, hard and soft water, provision of safe water from ponds, tanks, etc.

Chlorination of drinking water and other methods of purification of drinking water, safe preservation of drinking water, preservation and use of bleaching powder,

Excreta disposal:

Human excreta as source of infection, Sewage are liquid waste containing human excreta. Diseases transmitted through human excreta. Soil pollution. Water pollution Food contamination, Faucal - borne disease due to unsanitary disposal. Different types of latrines in use Principal of construction of sanitary latrines and their use, especially berg hole, dug well, RCA and septic tank latrine. Sewage system or water carriage system. What is sewage? Why sewage purification is required. Sewer appurtenances, house drain. Street sewers or municipal sewers. Sewage forming land treatment. Sewage disposal by Biogas plant or gobar gas plant. Methods of disinfection of sewage. Sanitary practices of sewage farming.

SOLID WASTE DISPOSAL: Sanitary method of disposal of solid waste. Classification of solid waste in the community. Polluting affect of different types of solid waste, system of collection of solid waste from the houses and street, sanitary transportation of solid waste, sanitary process of disposal of solid waste such as composting, sanitary land filling, incineration.
Public health aspect of refuse collection and disposal, safe collection of refuse, various methods of safe disposal of refuse, animal dung in rural areas.

Manure and compost pits.

DISPOSAL OF THE DEAD BURIAL AND CREMATION GROUND AND MASS CAUALTY DISPOSAL: - Disposal of dead- Human. Burning or cremation. Requirement for a burning ground. Disposal of dead bodies and maintenance of their records
Public health aspects of various methods of disposal of dead bodies, selection of site of cremation or burial, disposal of carcasses.

Disposal of liquid waste:
Public health importance of waste water and sullage.
Diseases favored by improper disposal of waste.
Various methods of disposal of liquid waste, construction of soakage pits, seepage pits and kitchen gardening. Hygienic method of disposal of liquid waste. Health hazard related to accumulation of liquid waste or in sanitary drainage system. Construction and maintenance of sanitary sewerage system .Use of different types of traps, pollution of water sources from sewerage and its disinfection.

Control of insects, rodents and stray dogs:
Insects as carriers of diseases and diseases transmitted; insects and rodents; life history of fly, mosquito, bed-bug, tick, mite, flea, rat, cockroach, etc. and their control. Insecticides and their safe use, rat control, different methods of rat destruction, control of stray dogs.

Food sanitation:
Food as carrier of diseases.
How to preserve food and milk from getting contaminated; food poisoning; new dangers of contamination of food, food grains, fruits, vegetables from insecticides, fungicides, preservatives and artificial manure, etc.
Measures to be taken to protect food.
Toxic foods like kesaridal, argemone oil; education to people about food contamination.

Personal hygiene: Definition, care of body and its cleanliness, exercise, unhygienic habits, eating and drinking, use of tobacco, smoking, alcoholism and drug addiction, sleep, care of bowels, clothing, posture, etc.

Sanitation of places Measures at public gathering:

Diseases likely spread in places of public gatherings.

Sanitary measures to be taken in fairs, Festivals, melas, bazaars, markets, worship places, and other places of public gatherings to prevent sanitation crisis for food, water supply, disposed of community waste, outbreak of epidemics.

Minor sanitary engineering:

Different types of drains suitable for rural areas, pavement of lanes, bricks, cement, mortal, qualities of bricks, sand.

Construction of sanitary well, improvement of old sanitary wells. Construction of urinals and latrines, soakage pits.

Construction of cheap and safe ventilation for rural areas.

Practical demonstration required:

A sanitary well; soakage pits; different types of sanitary latrines suitable for rural areas; compost pits; smokeless chulah; gobar gas plant (if possible);a ventilated house; paved lanes; different types of drains for rural population; a washing platform; bathroom; a sanitary cowshed; a rat proof godown; larvae of flies and mosquitoes and their breeding places.

Practical field training:

Chlorination of a well; constructing a sanitary latrine, a soakage pit, a compost pit. A smokeless chulah; education and motivation to people for the same; disinfection of excreta, vomit and fomites of patients suffering from infectious diseases.

OCCUPATIONAL HEALTH: Industrial hygiene- workers health protection- occupational risk factors and safety measures- control of dust and other hazardous substance- safety measure for occupational risk factor- legislative provisions- benefits to employees

Incorporation of Municipal Rules and Regulation in Sanitation, Knowledge of General Safety, Occupational health and hygiene.

HYGIENE

Introduction to hygiene and healthful living

Concepts of health and disease.
Factors influencing health and healthful living.
Health habits and practices - recognizing positive and negative practices in the community.
Scientific principles related to maintenance of ~ normal circulation
- normal respiration
- normal digestion and elimination
- normal sensory functions
- normal skeletal alignment, joint function and motor functions.

Physical health

Skin care, cleanliness, clothing; care of the hair, prevention of pediculosis.
Dental care and oral hygiene.
Care of hands, hand washing, care of nails.
Hygiene of elimination,
Menstrual hygiene.
Posture, prevention of postural defects; exercise, rest, relaxation and sleep.
Care of the face, footwear; care of eyes, nose and throat,
Food values - nutritious diet, selection, preparation and handling of food.
The health examination; health record; immunity and infections; immunization;

detection and correction of defects; prevention and early treatment of common ailments - common colds, indigestion, headache.

Health in the home

The home as a center for healthful living.
Household measures for disposal of refuse, waste; latrines and sanitation; ventilation.
Safety in the home; common home hazards.
Sanitation in animal sheds; insects and pests.

Mental hygiene and health

Introduction,

Factors contributing to mental health.
Characteristics of mentally healthy person.
Developmental tasks, basic needs.
Emotional stability.

Mental hygiene and health in infants.

Ensuring mentally healthy growth in infants.
Need for comfort, security, protection.
Mental hygiene approach to some problems - feeding, weaning. thumb-sucking, toilet-training.

Mental hygiene and health in early childhood

Ensuring mentally healthy, growth in early childhood; need for security, affection, love, play, constructive activities, adventure. Mental hygiene approach to common problems - negativism, temper tantrums, sleep disturbances. bedwetting, aggressiveness; fears, over-submissiveness.

Mental hygiene and health in later childhood

Ensuring mentally healthy growth in later childhood; need for friendship, games and play, affection; encouraging self-expression; recognition; respecting individual differences. Mental hygiene approach to some problems - speech problems. reading difficulties, learning problems, day dreaming.

Mental hygiene and health in adolescence.

Ensuring mentally healthy growth in adolescence; need for security, recognition, understanding, acceptance; preparation of girls for menstruation; sex education; developing vocational goals; hobbies; discussions and conversation; adventures, organized games; dependence-independence conflict. Mental hygiene approach to some problems - truancy, rebellious behaviour, aggression.

Mental hygiene and health in adulthood

Ensuring mental health in adulthood; need for self-realization; satisfactions on the job; recognition; social relationship; marriage, marital life, parental responsibilities. Mental hygiene approach to some problems-job dissatisfaction, marital problems, failures in achievement of aspirations.

Mental hygiene and health in old age

Ensuring mental health in old age; need for preparation for retirement; economic insecurities; loss of role status related to job and earnings; adjustments in relation to physical condition. Mental hygiene approach to some problems - developing interests, keeping active participation in community life and family affairs.

Communication Skills, Computer Skills and Audio-Visual Aids

Communication Elements of communication - sender, message, receiver; channels of communication. Factors influencing communication-factors related to message, sender, receiver, situation; barriers to communication, establishing effective communication, channels for health work

Distortions, misinterpretations, traditional and modern channels; types of communication - verbal and non-verbal, formal and informal, two-way and one-way, face-to-face communication and mass communication; communication patterns in groups.
Evaluating effects of communication -simple tools and methods; informal techniques.

Communication skills for health work
Basic skills for communication; human relations skills; listening skills; writing skills; drawing skills,
Communication for health work through - talks, broadcasts, role-play, group discussions, demonstrations, puppet shows, plays.
Communication within health team; oral and written reports; accuracy - of records and reports; use of language that is effective, concise; communication and learning.
Communication with members of the community -approaches, problems.

Introduction to audio-visual aids
Audio-visual aids in health education programmes. Classification of audio-visual aids, e.g. graphic aids, projected aids.
Purposes, limitations of audio-visual aids; sources of audio-visual aids - free materials and inexpensive materials.

Selection and utilization of audio-visual aids
Selecting suitable aids for health work; criteria for selection; audience category, purpose, situation or setting; Health Workers' skills, resources and facilities available.
Effective use of audio-visual aids in terms of purpose of educational effect;
Providing information; creating awareness; developing or changing attitudes; developing skills or abilities; learning how to use audio-visual aids that are commonly available.

Preparation of audio-visual aids for health work

Basic skills/competencies-simple drawing, lettering, coloring; preparation and use of low-cost graphic aids and 3-dimensional aids; flash cards; bulletin boards; low-cost models, khadigraphs, graphs and charts, pamphlets and leaflets, flip charts, picture scroll box roller, blackboard.Use of slide projector; interpreting message conveyed by mass media; use of traditional vehicles of communication for village health work.

Health Information & Communication of Health Statistics

HEALTH STATISTICS

Course Content

1. Introduction

Statistics, vital statistics, health statistics, sources of vital and health statistics - census; registration of births, deaths and marriages; notification of infectious diseases; records of health centre and hospital; health surveys.

Uses of statistics in community health - illustrations regarding use Of statistics.

Definitions -rates; ratio; frequency distribution; arithmetic mean; and the range.

Calculations.

Collection of statistical data -factors to be considered.

Role of Health Workers in participating in data collection procedures.

2. Health and vital statistics

Definition and uses of -birth rate, death rate, specific death rate, maternal morbidity rate, infant mortality rate, neonatal mortality rate, perinatal mortality rate, expectation of life at birth, prevalence rate, incidence rate, general fertility rate.

Measurements affecting health - nutrition data, housing data, data on social, economic and environmental factors.

Measurements related to services - preventive services, promotive. Services and curative services.

Graphic representation of data; diagrammatic representation of data.

3. Vital statistics registration procedures

existing system of registration; defects in the present system. Registration Act; birth and death certificates.

Specific methods to improve the system of registration of vital events.

Role of Health Workers in maintaining complete records of vital events.

Interpretation and use of statistical information.

HEALTH STATISTICS: To enable the student to have understanding of the terms like statistics and Bio- statistics and their applications and relation to public health - rates and ratio- averages: mean, medium and mode- deflation of common rates-Various types of presenting data. Presentation of data, Necessity of sampling, Types of sampling methods, Analysis of data. Interpretation of data. Morality statistics, Morbidity statistics, Tabulation of Data Histogram, Ogive, pie Chart, Bar chart.

HEALTH SURVEY

a) Registration of birth, death and mortality
b) immunization process

Public Health Acts

PUBLIC HEALTH ACTS: Collection and dispatch of food samples for analysis and preparation of papers for legal proceeding. Performance of simple household tests to identify adulteration in Milk, ghee, oil, sugar, tea, etc. Acquaintance with the registration, reporting and documentation process for implementation of different acts.

The new Public Health Act is the first significant overhaul of the Health Act since 1893. Parts of the Health Act were updated by the Drinking Water Protection Act (2001) and the Food Safety Act (2002). This new Act will combine and update key provisions of the existing Health Act with the Venereal Diseases Act and the Public Toilet Act. Other important legislation that supports public health activities are the Tobacco Control Act and the School Act.

The Public Health Act provides the Minister, public health officials, regional health authorities, local governments, and others with important tools available in other jurisdictions such as up-to-date information gathering abilities, modern inspection and ordering abilities and other measures necessary to respond to public health emergencies.

The Public Health Act is a product of extensive stakeholder consultations. Significant changes to the new Act include:

- The modernization of powers and duties of public health officials for communicable disease prevention and control, environmental health hazard response, chronic disease and hazard prevention, and public health emergency response; e.g. updated inspection powers, powers to issue orders, quarantine and isolation provisions.
- Improved health monitoring abilities such as being able to require the reporting of indicators of hazardous environmental exposures e.g. blood levels of lead and mercury;
- The ability of health officers to order groups of people to take prevention measures to control a health hazard. Previous to this new provision, each individual affected by a health hazard had to be issued a separate and unique order. After the SARS outbreak, public health officials identified the need for more effective management strategies to cope with groups of potentially infected people;
- Ability to require public health planning;
- New powers to regulate operations, activities or conditions that could pose a health hazard or a threat to long-term population health;
- Provisions that ensure administrative fairness;
- Strengthened relationships with and clarification of responsibilities of local governments regarding public health; and
- Modernization of enforcement, sentencing, and penalty provisions.

The new Public Health Act reflects and supports many of key public health objectives raised by the Conversation on Health, such as more proactive measures to promote health and prevent disease and injury. The Conversation noted a strong desire for better environmental protection, better availability of immunizations, and a need to strengthen the public health system's ability to address infectious disease outbreaks.

Issues raised in the Conversation on Health addressed by the Public Health Act are:

- Health protection and environmental health issues. The Public Health Act will allow development of mandatory reporting provisions in addition to those currently in place for communicable diseases to ensure that necessary information is collected for public health interventions and monitoring the health of the public. These provisions will allow for monitoring of body levels of pollutants (e.g. lead, mercury) and contribute to preventing the potential negative health effects associated exposure to environmental contaminants and poisonings.

- The Act provides health officials the authority and tools to prevent and control the spread of disease and other health hazards by allowing for preventive interventions (e.g. vaccination, ordering examinations and quarantine). The Act strengthens the inspection and enforcement powers of health officials which enable them to monitor and ensure compliance with the Act, enter places, engage the assistance of peace officers, and obtain warrants and court orders. During a public health emergency, such as a pandemic flu outbreak, public health officials have additional authority to respond immediately to protect the public from significant harm.
- Health Promotion. The Public Health Act allows the minister to require development of public health plans. The purposes of public health plans could include: promoting and protecting the health and well being of British Columbians, identifying the needs of specific populations (i.e. aboriginals, new immigrants), addressing mental health and substance use issues, and preventing and mitigating the adverse affects of diseases, disorders, disabilities, and injuries.
- **PUBLIC HEALTH ACTS**:-
- Indian Epidemic Diseases Act.
- Purification of Air and Water Pollution Acts.
- Prevention of Food adulteration Act.
- Birth and Death Registration Act.
- N.T.P ACT.
- Suppression of immoral Traffic Act (SITA).
- Municipal and local body Acts related to housing, sanitation etc.
- Factory Act and Employees State Insurance Act.

Practicals

Preparation of Health records.
Visits of Festivals and Fairs.
Visiting of Sewerage board.
Visit the Milk project.
Visit of vegetable market and meet market.
Visit of Cinema theatres.
Visit of Water purification plant.

LIST OF VISITS DURING THE TWO YEARS COURSE STUDY

1. Practical Training in Immunization.
2. Practical training in Communicable disease clinic.
3. Treatment of Minor Ailments at affiliated hospitals.
4. Practical Training in Home Nursing.
5. Training in Vital Statics, training in Health records.
6. Training in Festivals and Fairs.
7. Training in Industrial Hygiene.
8. Visit of Super Specialty Hospitals.
9. Practical Training in First Aid Bandages, Sings, bleedings point and areas hemorrhages.
10. Visit of Municipality, inspect on of slums.
11. Inspection of Hotels, Lodges.
12. Visiting of Slaughter House.
13. Visiting of medical college, museums.
14. Visiting of Sewerage board.
15. Training in Nutrition, Nutritional Survey, and balanced diet.
16. Participation in all National Health Programmes (Particularly Family Welfare and Universal Immunization Programme)
17. Practical Training Laboratory Work: Sterilization, preparation of disinfectant solutions etc.
18. Practical Training in Specimen collections.
19. Practical Training in Blood, H. B., R. B - C., W. B. C., E. S. R., M. P., and F. P. Septum AF.B. Motion, cysts, Vova. Urine, albumin, sugar, microscopic.
20. Visit of milk project.
21. Visit of vegetable market and meet market.
22. Visit of Cinema Theatres.
23. Visit of PHC' sub centres.
24. Visiting ware houses.
25. Visit of schools in the school health programme.
26. Study of health hazards in rural areas and their prevention.
27. Visit of water purification plant.
28. Visit of T.B. Hospital/ sanatorium.