## Course Structure

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## Course Contents

**VPH- 601 ELEMENTS OF VETERINARY PUBLIC HEALTH (1+1)**

**Objective**
To acquaint students with basics of veterinary public health.

**Theory**

UNIT I
The purposes and scope of veterinary public health; veterinary interests in public health, principal functions and fields of activity of public health veterinarians.

UNIT II
Definition of veterinary public health administration; organisation, administration and implementation of veterinary public health services and programmes.

UNIT III
Public health team, administration and functions; place of veterinarian in the public health team; veterinary public health agencies and institutions in India and abroad.

**Practical**
Collection of information about set up of veterinary public health in different countries.

**Suggested Readings**
Schwabe CW. 1969. *Veterinary Medicine and Human Health*. Williams & Wilkins.
Objective
To impart knowledge about importance and characteristic features of bacterial and rickettsial pathogens of public health significance.

Theory
UNIT I
Importance of microbes in relation to veterinary public health; cultural, biochemical and other identification characters; ecology, transmission and survivability of bacteria in nature.

UNIT II
Description of *Bacillus, Listeria, Mycobacterium, Clostridium, Staphylococcus, Enterococcus, Brucella* and *Leptospira*

UNIT III
Description of *Vibrio, Salmonella, Escherichia, Campylobacter, Yersinia, Lactobacillus, Pseudomonas* and *Micrococcus*.

UNIT IV
Description of *Coxiella, Rickettsia* and *Chlamydia*.

Practical
Isolation and identification methods for important bacterial and rickettsial agents of public health significance from host, vehicle and environment.

Suggested Readings

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Objective
To impart knowledge about importance and characteristic features of viral, fungal and parasitic pathogens of public health significance.

Theory
UNIT I
Systematic study of viral agents of Japanese encephalitis, encephalomyelitis, rabies, influenza, KFD, Rift valley fever, and enteroviruses; their morphological and other characters, ecology, transmission and survivability in nature.

UNIT II
Description of fungal agents of public health importance belonging to genera: *Aspergillus, Penicillium, Fusarium, Mucor, Histoplasma, Microsporum, Trichophyton* and *Sporotrichum*.

UNIT III
Description of parasites of public health importance: *Taenia, Echinococcus, Trichinella, Toxoplasma, Diphyllobothrium, Fasciola*, and *Cryptosporidium*.

Practical
Isolation and identification methods for important fungal, viral and parasitic agents of public health significance from host, vehicle and environment.

Suggested Readings
**Objective**
To impart knowledge of epidemiology, prevention and control of important zoonotic diseases.

**Theory**

**UNIT I**
Concept and classification of zoonoses; comprehensive description of etiology, host range, epidemiology, diagnosis and management of zoonotic diseases.

**UNIT II**
Bacterial diseases: anthrax, brucellosis, tuberculosis, salmonellosis, yersiniosis, leptospirosis, listeriosis, plague, tularemia, glanders, malidiosis, staphylococcosis, streptococcosis, tetanus, botulism, infections due to *Clostridium perfringens*, *E. coli*, *Aeromonas hydrophilla*, *Bacillus cereus*, *Vibrio parahaemolyticus*, cat scratch disease, chlamydiosis, Lyme disease, borreliosis (relapsing fever).

**UNIT III**
Detailed description of viral zoonoses: food-borne viruses viz. rota, tickborne encephalitis, FMD, hepatitis A & E, Norwalk, entero, parvo, adeno, cytomegaloi, astro, calci and corona viruses, influenza, rabies, vector-borne viruses viz. Japanese encephalitis, Kyasanur forest disease, chickengunya, Crimean-Congo haemorrhagic fever, dengue fever, West-Nile viruses, yellow fever, rift-valley fever, equine encephalitis, louping ill, and some rare and potential zoonotic viruses such as Newcastle and pox viruses.

**UNIT IV**
Q fever and other rickettsiosis, fungal infections viz. dermatophytosis, blastomycosis, coccidiiodomycosis, cryptococcosis, histoplasmosis, aspergillosis, candidiasis, rhinosporidiosis and sporotrichosis. Attributes and impact of parasitic zoonoses; description, etiology, host range, epidemiology, diagnosis and disease management of echinococcosis, taeniasis and cysticercosis, toxoplasmosis, trichinelliosis, cryptosporidiosis, dracunculosis, fasciolopsiosis, sarcocystosis, liver fluke diseases, cutaneous and visceral larva migrans, schistosomiasis, leishmaniasis, trypanosomosis.

**Practical**
Isolation and identification of zoonotic agents, diagnostic procedures of zoonotic diseases.

**Suggested Readings**

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**Objective**
To acquaint the students about principles of food hygiene and quality improvement practices.

**Theory**

**UNIT I**
Relation between veterinary public health and food hygiene; concept of food hygiene, impact of environmental sanitation and other factors on food quality.

**UNIT II**
Food spoilage, safety and preservation methods.

**UNIT III**
Microbiological standards and quality control (biological and other indicators of hygienic quality and spoilage) of foods to prevent food-borne infections.

**UNIT IV**
General principles of prevention of food-borne illnesses, GMP, HACCP, risk analysis.

**Practical**
Procedures of evaluation of hygienic/microbiological quality of raw and processed foods especially of animal origin by detection of biological and other indicators.

**Suggested Readings**
VPH-606 FOOD-BORNE INFECTIONS AND INTOXICATIONS (2+1)

Objective
To impart knowledge about major illnesses due to foods.

Theory
UNIT I
Food-borne bacterial infection and intoxications due to *Salmonella*, *Campylobacter*, *Clostridium*, *Staphylococcus*, *Listeria*, *Vibrio*, *E. coli*, *Bacillus cereus*, bacterial toxins.

UNIT II
Food-borne viral infections: infectious hepatitis, poliomyelitis, gastroenteritis etc, natural toxic substances in foods.

UNIT III
Health problems due to food additives, biocides, bacterial toxins.

UNIT IV
Heavy metals, antibiotics, hormones etc. in food.

Practical
Detection and quantitation of food-borne pathogens, toxins, antibiotics, pesticides and additives in foods.

Suggested Readings

VPH-607 MEAT AND MILK HYGIENE (2+1)

Objective
To educate regarding general methods of food hygiene.

Theory
UNIT I
Principles of food hygiene with special reference to foods of animal origin, human health and economics, nature and problem of food supply in India.

UNIT II
Meat hygiene and public health, abattoir hygiene.

UNIT III
Milk hygiene and public health, in place cleaning.

UNIT IV
Egg, food legislation, meat and milk adulteration.

Practical
Milk and meat inspection, quality control tests of meat, milk and fish.

Suggested Readings

VPH-608 ENVIRONMENTAL POLLUTION AND SAFETY (3+1)

Objective
To impart education about pollutants in the environment and control.

Theory
UNIT I
Introduction to environmental hygiene, environment and health, microbial aspects of pollution.

UNIT II
Soil pollution, air pollution, water pollution and health.

UNIT III
Genetic risk from environmental agents, health problems from nuclear energy and radiation pollution, environmental estrogens and pesticidespollution.
UNIT IV
Dissemination of excreted pathogens, animal-waste and human risk, principles of safe disposal of waste.

UNIT V
Heavy metals, pesticides, veterinary drug residues and human health.

Practical
Determination of potability of drinking water, estimation and detection of pathogenic microbes in water, air, soil, animal products, sewage, and animal waste, inspection of sewage and waste disposal plants/sites.

Suggested Readings

VPH-609 FISH, FISH PRODUCTS AND SEAFOOD HYGIENE (1+1)

Objective
To impart knowledge regarding fish hygiene and fish borne diseases

Theory
UNIT I
Fisheries and resources, fish preservation, hygienic quality control

UNIT II
Hygienic disposal and utilization of byproducts of fish, hygienic handling, transportation and marketing of fish.

UNIT III
Fish borne diseases in relation to human health.

Practical
Study of physical and biological indicators of wholesome fish to determine hygienic status of raw and processed fish. Residue analysis in fish.

Suggested Readings

VPH-610 BIOTERRORISM AND DISASTER MANAGEMENT (1+1)

Objective
To update knowledge of disaster, biological weapons, biological hazards and remedial measures bioterrorism and biomedical hazards and their prevention

Theory
UNIT I:
Natural and man made disaster, impact analysis and classification of disaster scale, essential preparations to manage disaster, role and sequence of emergency medical services by veterinarians.

UNIT II
Effect of natural disasters like floods, prolonged draughts, forest fires, earthquakes, sunami and tidal damages, storms etc. on animal population both domestic and wild, post-disaster disease susceptibility, emergency control and remedial measures.

UNIT III
Biomedical hazards and biosafety, occupational health risk management. Major agents and their characteristics which have been used in the past and those which can be used in future as biological weapons.

UNIT IV
Biological weapons, hazard analysis and combating bioterrorism. Bioethics and social ethics, advisory role of veterinarians.

Practical
Detection of biohazards during disaster, detection and characterization of various organisms used as biological agents, use of disinfectants for their destruction.

Suggested Readings