

1. Details of Module and its structure

| Module Detail | |
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| Subject Name | Food, Nutrition for Healthy Living |
| Course Name | Food, Nutrition for Healthy Living |
| Module Name/Title | Common Health Problems |
| Module Id | FNHL_10104 |
| Pre-requisites | General knowledge about Common Health Problems |
| Objectives | After going through this lesson, the learners will be able to understand the following : <ol style="list-style-type: none">1. Communicable or Infectious Diseases2. Non-communicable or life style diseases3. Preventive Measures |
| Keywords | Concepts: Disease, Infectious and non-infectious diseases, Prophylaxes, Immunity, Causes and preventive measures, Infectious diseases, Non-infectious diseases |

2. Development Team

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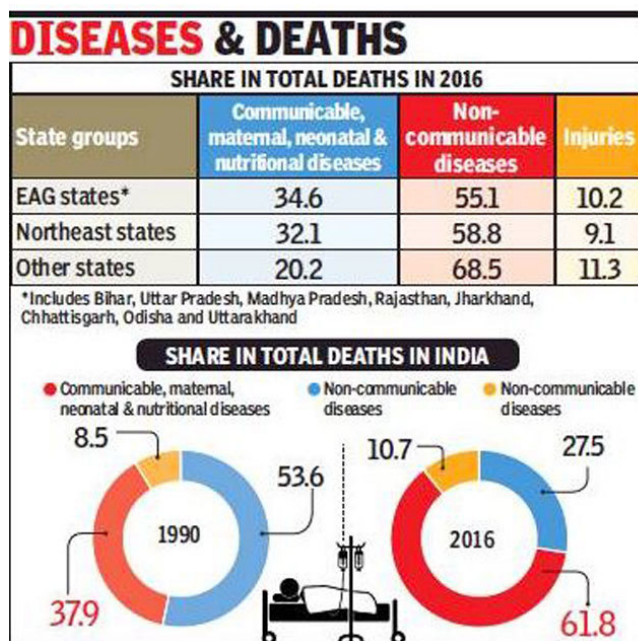
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1. Introduction

The comprehensive survey report from 1990 to 2016 from Indian Council of Medical Research (ICMR) and Public Health Foundation (PHFI) and Institute of Health Metrics and Evaluation (IHME) presented in the news paper image clearly reveals that non-communicable or lifestyle diseases like heart and chronic respiratory diseases now kill more people than communicable ones like tuberculosis or diarrhea in every state of India. Diseases and stress in life have made people not only sick, irritable, tired and less

productive but also ruined their immunity, nutritional status, quality of life, economy of the individual, society and the nation. Government of India and some other group of the people are concerned to reduce the burden of diseases and improve living standards of the people of our country. But poor sanitation, poor cleanliness, pollution, malnutrition, industrialization and urbanization and faulty life style habits are neutralizing the efforts to provide solutions to common health problems.

Common health problems may be the symptoms like headache, cold, cough, flu, aches and pain in the body which each one of use must have heard or experienced in our life time. Seasonal changes and low immunity accelerate them. Health problems can be acute or chronic depending upon the intensity or duration of disease. Some may find solution at home level and some may need health care service or hospitalization. Let us first learn the **Concept of disease**.



Disease is a state of the body characterized by disturbance and/or impairment of the normal body functions. The sick person feels weak, lethargic, irritable, less efficient and productive at work and may also show symptoms of the disease. It commonly occurs in people who have low immunity and poor nutritional status for various physical, social, economical and environmental reasons. Broadly there are two types of diseases namely Infectious or Communicable diseases and Non-communicable or Life Style diseases. Since all diseases are linked with immunity hence let's understand the basics of **Immunity**.

Immunity is our self defence system to keeps our body healthy. It strengthens us to fight the disease and keep us free from disease. The body has a system called "immune system" which is consisting of a team which plays specific roles towards fighting the disease or providing health back. Immunity is the ability of the body to fight the infection. It is the capacity of a person to resist entry of the harmful microorganisms (microbes or germs) and parasites. Microbes are invisible tiny organisms that include bacteria, fungi, and virus. The team of immune system works with specialized cells like white blood cells (WBC) which is also called leukocytes. These are of two types (1) lymphocytes and (2) phagocytes. Lymphocytes recognize and remember the microbes or substances entering the body and produce the substance against them. Phagocytes engulf and kill them. Two main players of immune system are Antigen and Antibody.

Antigens are foreign bodies which stimulate the lymphocytes to produce antibodies in the body. **Antibodies** are molecules produced by the lymphocytes in response to the specific antigens. Antibodies identify specific antigens, lock them and neutralize or kill them. Antibodies are also referred as immunoglobins.

When harmful microbes (pathogens) and their toxic substances invade our body and cause infection and disease, strong immune system helps to develop the ability to fight the infection. It varies from person to person and influenced by many factors like heredity, nutritional status and other environmental factors. Primarily there are two types of immunity

1. Innate immunity
2. Acquired immunity

Innate or natural immunity is a non-specific type of immunity hence provides general protection to the body. It is inherently present at the time of birth. Skin, mucous membranes, hydrochloric acid (HCl) in the stomach and white blood cells provide innate immunity. It is influenced by genetic or constitution of the person. It has no relationship with previous infection or vaccination.

Acquired or adaptive immunity is specific, long lasting and developed after the infection or vaccination in life. In this type the person's own cells produces the antibodies. The lymphocytes

recognize, remember and destroy antigens on next invasion in the body. It is also of two types (1) Active immunity (2) Passive immunity.

Active immunity: It is the capacity of the individual's own immune system. It is also of two types:

- **Natural Active immunity:** It is acquired from previous infection. For example if a person had measles during childhood then there is less chance to get measles later in life.
- **Artificial Active immunity:** Antigens are deliberately introduced in the body using vaccine. For example BCG vaccine is given to protect the person from tuberculosis.

Passive immunity: In this immunity antibodies are transferred from mother to the baby.

- **Natural Passive Immunity:** Antibodies are transferred from mother to her child through placenta or breast milk.
- **Artificial Passive Immunity:** Antibodies are produced by other person or animal and injected in other person, e.g. small pox

Now we will talk about two types of diseases Communicable and Non-communicable diseases.

First we will discuss the concept, causes, consequences and control measures of infectious or communicable diseases then non-communicable or life style diseases.

1. Communicable or Infectious Diseases

Communicable diseases (CCD) are infectious and are caused by transmission of specific infectious agent or its toxic product from infected person, animal to susceptible host. Some of them are small pox, malaria, Kala azar, Filaria and Japanese encephalitis and have been threat to lives for ages.). Emerging infectious diseases in past few years are HIV/AIDS; SARS (severe acute respiratory diseases), influenza, hepatitis, Japanese encephalitis, Leptospirosis, swine flu (H1N1), Dengue, Chikunguya etc. In 2011 Malaria cases were 1.31 million and in 2013 only 0.88 million and deaths due to malaria dropped from 754 to 440 as NATIONAL VECTOR BORNE DISEASE CONTROL PROGRAMME report 2014.

Communicable diseases such as diarrhoeal diseases, lower respiratory infections, and tuberculosis, and road injuries and suicides were also in the top 10 causes of death. The death rates from diarrhoeal diseases and tuberculosis were also higher in the least developed states and had a 12-fold and seven-fold variation in rates, respectively, between states.



Infectious agents can be microorganisms like bacteria, parasites, fungi, viruses and parasites. Disease causing microorganisms are referred as pathogen or germs. They enter the healthy body, multiply and cause symptoms of the disease depending upon the immunity level of the individual

and other environmental factors. The susceptible host (human, animal or object) can hold the germs for certain period of time with or without symptoms. The gap of time between entry of the germs in the body and appearance of symptoms of the disease is called incubation period. This period can vary from diseases to disease. Transmission of infectious agent can be through touching, soil, insect bite, air-borne (sneezing, coughing, and spitting), and transfusion of blood, kissing, sexual contact, placenta and breast feeding. It can also be by contamination of water, fluids, food, unclean hands, fomites (inanimate objects such as comb, towel, cup, door-handles etc) and vectors (mosquitoes, flies, rats, insects etc).

The following factors increases the risk of occurrence and progression of communicable or infectious diseases:

1. Population growth and highly populated localities
2. Uncontrolled and unplanned urbanization
3. Poor living conditions and poor lifestyle of the person
4. Poor environmental sanitation- garbage on roadsides, blocked drains, excessive traffic
5. Ignorance and Illiteracy particularly low levels of health and nutrition education
6. Frequent travel here and there expose the person to pollution , infection and stress
7. Resistance in the microorganisms towards existing treatments
8. Poor immunity and poor nutritional status of people
9. Poor control over modes of spread of infectious agents
10. Poor accessibility and affordability in health care services in many areas
11. Reluctance to use preventive measure like repellent cream, sprays, coils and fumes.
12. Unhygienic conditions of preparation, serving and storing food and water, use of dirty hands, dirty utensils, linen, and surfaces
13. Non-compliance to personal hygiene- washing hands and hairs; bathing; cutting nails wearing unwashed clothes particularly undergarments
14. Susceptibility -Infants and pregnant women, older people, children playing outside
15. Season - Mansoon season, warm and humid season and stagnant

Preventive measures of Communicable diseases

1. Controlling the source of infection-
 - a. Treatment of the water to make it clean and safe for drinking
 - b. Pasteurization of milk- heating the milk
 - c. Safe disposal of human excreta and animal excreta and sewage treatment
 - d. Control of vectors development- growth of mosquito, flies

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- e. Vaccination of animals like dogs etc.
 - f. Rodent control
 - g. Hospital waste management
 - h. Disinfection of surfaces and soiled articles
 - i. Control on accumulation of water and blocked drains
 - j. Maintain cleanliness in homes, work place and other surroundings
 - k. Restrict the entry of infectious agent in living areas by using net on doors and windows and bed net while sleeping
2. Keep house, workplace well ventilated and sunlit.
 3. Wash and dry clothes and linens, utensils and containers on regular basis
 4. Wash hands thoroughly before cooking food, before eating food and after using the toilet.
 5. Maintain personal hygiene by having regular bath, keeping nails clean and cut short and washing hair regularly.
 6. Store water and all types of food items in suitable containers and at appropriate places.
 7. Wash vegetables and fruits properly with extra care. Use mild vinegar solution or warm water for few minutes.
 8. Avoid using cut fruits and vegetables kept for long, uncovered and from the market.
 9. Put food waste in dustbin with lid and empty on daily basis.
 10. Segregate the domestic waste (dry and wet) and dispose and proper place at regular basis.
 11. Keep personal belongings of the person suffering from infectious disease separate and wash using disinfectant.
 12. All children should be given complete vaccination after birth in order to protect them from many diseases.
 13. Take medical help in case of illness. Can follow traditional methods of controlling the diseases
 14. Health education- may be by using verbal and print and mass media at various levels
 15. Policy approach- making certain policy even at local levels works under good leadership e.g. cleaning the areas of living, reporting initiation of disease to health authority to prevent big outbreak of the disease
 16. Building strong immunity by healthy diet and during sickness nutritious and therapeutic diet like high energy diet in TB and liquid diet in cholera.

2. Non-communicable or life style diseases:

World Health Organization defines Non-communicable diseases NCDs as chronic diseases that don't get passed on from person to person. They are not caused by any infectious agents but our own faulty life style including eating mindlessly and doing nothing

The lifestyle is the pattern of living that we follow on regular basis –

- ✓ How we work,
- ✓ What and when we eat,
- ✓ How and when we sleep,
- ✓ How much physical activity we do and Whether we smoke or consume alcohol

using physical work. Some of them are life threatening such as cardiovascular diseases (heart attacks and stroke), chronic obstructive pulmonary disease (COPD), cancers, chronic kidney and liver diseases and diabetes. India is home to about 70 million people living with diabetes. These diseases are high in people with high per capita income. They affect different organs and systems of the body. They do not show early signs and often learned during the visit to the doctor or on prescribed tests. A person may be chronically suffer more than one diseases at the same time, e.g. Sahil is obese and also suffer from diabetes and hypertension for last 8 years and now his eyes and kidneys are also not functioning properly. NCDs not only affect the health and well being of the individuals but also the social and economic health of the whole family.

According to WHO country profile 2011 data NCDs accounts for 53% of all deaths, CVD 24%, Cancer 6 %, Respiratory diseases- 11 %, Diabetes 2 %, Other NCDs 10% and Communicable, maternal, perinatal, nutritional conditions – 37%

Every year around 5.8 million Indians die from NCDs including heart disease, lung disease, stroke, cancer, diabetes and others. India has 60 million diabetics out of 1.3 billion populations.

Number of diabetes in India is expected to be 109 million by 2035. Out of estimated population 1.5 billion. In 2015 0.9 million deaths were due to diabetes alone directly or indirectly (WHO 2016).

Obesity is one of the major cause and concern when talking of NCD. The causative and corrective measures are discussed in module on Malnutrition.

Global Nutrition Report 2017: India Carries a Serious Burden of Anemia, Obesity and Malnutrition

The Global Nutrition Report 2017 was presented at Milan in Italy recently and it emphasizes on the urgent need to integrate our actions on global nutrition if India hopes to meet its Sustainable Development Goals of Agenda 2030.

Causes of non-communicable diseases are multifactorial. Age, gender and heredity are non-modifiable factors. Some of the modifiable factors are as follows:

Poor life style – late night sleep and late awakening

1. Risk taking behaviour – indulgence in unhealthy and risky activities in spite of knowing its worse consequences, e.g. enjoying sweets in uncontrolled diabetes case; smoking; drinking; drug abuse
2. Delaying needed action (Procrastination) - keep on postponing the activity particularly which require physical labour or seeking medical help even when needed.
3. High disposable income resulting in high consumption of fast food, sweets, high energy beverages, fried food, junk food, processed and packaged foods at home and outside; use of more comfortable and easy to use gadgets for different chores and travelling
4. Air pollution – pollutants in polluted air harm the body functions including the brain.
5. Indiscriminate use of chemicals in food chain
6. Indiscriminate use of over the counter and unprescribed medicines and supplements
7. More of sitting for screen watching (TV, mobiles, internet etc.)
8. Less participation in games and sports
9. More stress in highly competitive world
10. Deficiency of nutrients due to imbalanced diet

3. Preventive Measures:

NCDs need to be first managed well with good nutrition and change in life style or living habits. Treatment is also required to avoid fluctuations and complications. Treatment in time saves life. The treatments are found and chosen from various types of medicines and therapies such as Allopathy, Homeopathy, Ayurveda, Siddha, Yoga, Aromatherapy, Diet Therapy, Naturopathy, Meditation and other local and ancient secrets. What else can be done to prevent and control onset of different types of NCDs? Some of following may be helpful.

1. Use whole grains, vegetables and whole fruits in the daily diet in appropriate proportion and also encourage children to consume them
2. Get more and more learning on food and nutrition to make good food choice and cook nutritiously.
3. Nutrition education with regard to eating adequate amount of food, nutrient rich foods, portion size, meal timings as well as foods to be included and excluded according to the onset of the diseases
4. Monitor water and sources of other fluid intake. Drink water instead of sweetened or carbonated beverages or tea or coffee.
5. Avoid eating out and giving orders for home delivery of foods.

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6. Reduced calorie rich foods intake rather consume nutrient rich and antioxidant rich foods- adding green leafy vegetables, red, yellow orange, purple coloured fruits and vegetables and some spices and herbs like basil, mint, coriander are good sources of nutrients and antioxidants.
 7. Focus on building immunity – strong immunity prevents severity of the diseases.
 8. Be cautious for food adulteration, contamination and indiscriminate use of chemicals in food.
 9. Avoid long hours of sitting in front of screen, desk or bed.
 10. Move your legs, arms and body through walking, yoga, physical exercises.
 11. Focus on breathing and other relaxation techniques like meditation, music, fine arts etc.
 12. Reduce use of motor vehicles, escalators and increase walk and climbing stair case.
 13. Reduce indulgence in parties, late nights, smoking, alcohol and drug.
 14. Regularly monitor and record body weight, other parameters as per disease.
 15. Regular visit to doctor or health professional help in better management of the disease.
 16. Parents should be more careful and be the role model for children with NCDs.
 17. Maintain cordial relationships and behaviour in the family environment.

4. Summary

Sustainable Development goals also target to prevent and control non-communicable diseases (NCDs) such as cancer, cardiovascular disease, diabetes and chronic respiratory disease. NCDs may also increase the risk of disability like blindness in uncontrolled diabetes for long period. Infectious diseases and NCDs are not separate challenges now. NCDs are more preventable illness and low productivity may lead to disability and mortality if not taken care properly in time. Burden of diseases of both infectious diseases and NCDs is attributable to social, economic, environmental and political factors worldwide. Behavioural risk forces increase the susceptibility to disease and lead to poor health outcomes.