



Indira Gandhi National Open University
SCHOOL OF HEALTH SCIENCE

BNS-041

**Foundations of
Community Health**

**Non Communicable Diseases and
Management under National Health
Programmes**

4

Block

4

NON-COMMUNICABLE DISEASES AND MANAGEMENT UNDER NATIONAL HEALTH PROGRAMMES

UNIT 1

Epidemiology of Specific Non-Communicable Diseases 5

UNIT 2

Non-Communicable Diseases-1 17

UNIT 3

Non-Communicable Diseases-2 36

UNIT 4

Occupational Diseases and their Prevention 49

UNIT 5

Mental Health and Substance Abuse Disorders 61

UNIT 6

Elderly Care 76

CURRICULUM DESIGN COMMITTEE AND EXPERT COMMITTEE

Prof. (Dr.) Pity Koul
Director and Programme Coordinator

Dr. R.S Salhan
Additional DGHS (Retd.) Advisor,
NHSRC, New Delhi

Dr. R.K Srivastava
Former DGHS, Govt. of India
New Delhi

Dr. Suneela Garg
Sub Dean & Head Dept. of Community
Medicine, MAMC, New Delhi

Dr. Amarjeet Singh
Professor, Dept. of Community
Medicine PGIMER, Chandigarh

Dr. Subodh. S. Gupta
Professor, Dept. of Community
Medicine, MGIMS, Sevagram, Wardha

Mrs. Santosh Mehta
Principal, RAK College of Nursing,
Lajpat Nagar, New Delhi

Dr. Prakasamma
Former Director, National
Academy of Nursing Studies and
Woman Empowerment (ANSWER)
Hyderabad

Dr. Sushma Kumari Saini
National Institute of Nursing Education
(NINE) PGIMER, Chandigarh. (U.T)

Dr. Sanjay Rai
Associate Professor Department of
Community Medicine, AIIMS,
New Delhi

Dr. Himanshu Bhushan
Advisor, NHSRC, New Delhi

Dr. Rajni Ved
Advisor, NHSRC, New Delhi

Dr. Dilip Singh
Advisor, NHSRC, New Delhi

Dr. Vinay Bothra
Sr, Consultant, NHSRC

Dr. Sumitha Chalil
NHM, MoHFW, New Delhi

Dr. Reeta Devi
Assist. Prof. (Sr. Scale) &
programme Coordinator

Mrs. Rohini Bhardwaj Sharma
Assist. Prof. IGNOU

CURRICULUM DESIGN COMMITTEE

Prof. (Dr.) Pity Koul
Director and Programme Coordinator

Dr. R.S Salhan
Additional DGHS (Retd.) Advisor,
NHSRC, New Delhi

Dr. R.K Srivastava
Former DGHS, Govt. of India
New Delhi

Dr. Suneela Garg
Sub Dean & Head Department of
Community Medicine, MAMC,
New Delhi

Dr. Amarjeet Singh
Professor, Medicine PGIMER,
Chandigarh

Dr. Subodh. S. Gupta
Professor, MGIMS, Sevagram, Wardha

Mrs.Santosh Mehta
RAK College of Nursing, Lajpat
Nagar, New Delhi

Dr. Prakasamma
National Academy of Nursing Studies
and Woman Empowerment
(ANSWER) Hyderabad

Dr. Sushma Kumari Saini
National Institute of Nursing
Education (NINE) PGIMER,
Chandigarh. (U.T)

Dr. Sanjay Rai
Associate Professor Department of
Community Medicine, AIIMS, New Delhi

Dr. Rajni Ved
Advisor, NHSRC, New Delhi

Dr. Vinay Bothra
Sr, Consultant, NHSRC

Dr. Sumitha Chalil
NHM, MoHFW, New Delhi

Dr. Reeta Devi
Assist. Prof. (Sr. Scale)

Mrs. Rohini Bhardwaj Sharma
Assist. Prof. IGNOU

BLOCK PREPARATION TEAM

Writers

Unit-1, 2 & 3 **Dr. J.S.Thakur**
Professor, Department
of Community
Medicine PGIMER
Chandigarh

Unit-5 **Dr. Pragya Sharma**
Assoc.Prof., Dept. of
Community Medicine.
MAMC, New Delhi-2

Unit-4 **Mrs. Urmil Bhardwaj**
Assoc.Prof.Community
Health Nursing Ruffaida
College of Nursing, New
Delhi

Unit-6 **Dr. Sukhpal**
Lecturer National Institute
of Nursing Education
(NINE) PGIMER,
Chandigarh. (U.T)

Editors

Dr. Najam Khaliq
Prof. & Chairman, Department of
Community Medicine Aligarh Muslim
University, U.P

**Unit Transformation and format
editing Prof.**

(Dr.) Pity Koul
Director and Programme Coordinator

Dr. Reeta Devi
Assist. Prof. (Sr. Scale) & Programme
Coordinator

COURSE REVIEW COMMITTEE

Dr. Rajesh Kumar
Prof. & Head, Dept. of Community
Medicine, PGIMER, Chandigarh

Dr. Suneela Garg
Sub Dean & Head
MAMC, Department of Community
medicine, New Delhi

Dr. Himanshu Bhushan
Advisor, NHSRC, New Delhi

Dr. A.K. Sood
Prof. & Dean of Educations & Training,
NIHFW, New Delhi

Dr. Prabir Chatterjee
SHRC, Chattisgarh

Dr. S.B Sinha
Advisor HCT, NHSRC

Dr. M.M.Singh
Director & Professor MAMC,
Community Medicine, New Delhi

Dr. Jugal Kishore
Director Professor VMMC,
Safdarjung Hospital, New Delhi

Dr. Najam Khaliq
Department of Community Medicine
AMU, Uttar Pradesh

Dr. Dilip Singh Mairembam
Advisor, NHSRC, New Delhi

Dr. Manju Rani
WHO

Dr. Radhika Gupta
Consultant, NHSRC

Dr. Vinay Bothra
Sr, Consultant, NHSRC

Faculty SOHS, IGNOU

Prof. (Dr.) Pity Koul
Director and Programme Coordinator

Dr. Reeta Devi
Assist. Prof. (Sr. Scale) & programme
Coordinator

Mrs. Rohini Bhardwaj Sharma
Assist. Prof.

Brig.(Dr) Kanchan Sharma (Retd.)
Senior Consultant, IGNOU
R.K. Puram, New Delhi

CO-ORDINATION

Prof. (Dr.) Pity Koul
Director & Programme Coordinator
School of Health Sciences, IGNOU, New Delhi

Mrs. Reeta Devi
Asstt. Professor. (Sr. Scale) & Programme Coordinator
School of Health Sciences, IGNOU, New Delhi

PRODUCTION

Mr. T.R. Manoj
Assistant Registrar (P)
SOHS, IGNOU, New Delhi

May, 2017

© Indira Gandhi National Open University, 2016

ISBN :

All rights reserved. No part of this work may be reproduced in any form, by mimeograph or any other means, without permission in writing from the Indira Gandhi National Open University.

Further information about the School of Health Sciences and the Indira Gandhi National Open University courses may be obtained from the University's office at Maidan Garhi, New Delhi-110 068.

Printed and published on behalf of the Indira Gandhi National Open University, New Delhi by **Prof. Pity Koul, Director**, School of Health Sciences.

We acknowledge the reference of material and figures from various sources like NNF, AIIMS, WHO, UNICEF, IGNOU, Govt. of India etc.

Laser Typesetting and Printed at : Akashdeep Printers, 20-Ansari Road, Daryaganj, New Delhi-110002

BLOCK INTRODUCTION

The prevention and control of Non-Communicable Diseases (NCDs) is of highest priority as these contribute to majority of deaths in India. The four main types of non communicable diseases include cardiovascular diseases (heart attacks and stroke), cancers, chronic respiratory diseases (chronic obstructive pulmonary disease and asthma) and diabetes. The rise of NCD's has been driven primarily by four major risk factors; tobacco use, physical inactivity, the harmful use of alcohol, unhealthy diet and lifestyle. Therefore, as a mid level health care provider your major responsibility is to identify and screen various Non-communicable diseases so that you can provide primary health care, make appropriate referrals, educate and counsel the community about preventive measures, healthy diet and lifestyle. Updating your knowledge and skills about screening and management of occupational diseases, mental health problems and elderly care are also of great importance to achieve better health outcomes.

This block consist of 6 units as given below,

Unit 1 deals with epidemiology of specific Non-communicable diseases

Unit 2 explains non-Communicable diseases – 1

Unit 3 describes non-communicable diseases – 2

Unit 4 deals with occupational diseases

Unit 5 explains Mental Health and substance abuse Disorders

Unit 6 deals with care of the elderly

We hope the information provided in this block will help you gain knowledge and skills to provide an improved holistic care and services to the rural population.

We wish you to have a happy learning.

UNIT 1 EPIDEMIOLOGY OF NON-COMMUNICABLE DISEASES

Structure

- 1.0 Introduction
- 1.1 Objectives
- 1.2 Risk Factors of Non-Communicable Diseases
- 1.3 Coronary Heart Disease
 - 1.3.1 Burden of Coronary Heart Disease
 - 1.3.2 Risk factors
- 1.4 Hypertension
 - 1.4.1 Burden of Disease
 - 1.4.2 Roles of Halves
- 1.5 Cancer
 - 1.5.1 Classification
 - 1.5.2 Causes
- 1.6 Obesity
 - 1.6.1 Burden of Disease
 - 1.6.2 Risk Factors
- 1.7 Diabetes
 - 1.7.1 Types of Diabetes Mellitus
 - 1.7.2 Burden of Disease
- 1.8 Injuries and Accidents
- 1.9 Arthritis
- 1.10 Epilepsy
- 1.11 Blindness
- 1.12 Let us Sum Up
- 1.13 Model Answers
- 1.14 References

1.0 INTRODUCTION

Non-communicable diseases (NCDs), also known as chronic diseases, are not passed from person to person. They are of long duration and generally progress slowly. They often have a long asymptomatic period. The 5 common types of non-communicable diseases are coronary heart disease, stroke, cancers, chronic respiratory diseases (such as chronic obstructed pulmonary disease and asthma) and diabetes. In this unit we shall discuss about various NCDs with reference to burden, causes and risk factors. The details of the diseases and National Health Programmes are discussed in subsequent units of this block.

1.1 OBJECTIVES

After completing this unit, you would be able to:

- enumerate the important non communicable diseases; and
- describe causes and risk factors for the non-communicable diseases

1.2 RISK FACTORS OF NON-COMMUNICABLE DISEASES

The major risk factors for these non-communicable diseases are broadly categorised as given below:

- 1) Behavioural risk factors
 - Tobacco use
 - Unhealthy diet
 - Physical inactivity
 - Harmful use of alcohol
- 2) Metabolic risk factors
 - Obesity
 - Raised blood pressure
 - Raised blood glucose
 - Raised blood total cholesterol levels
- 3) Low birth weight and foetal undernutrition: lets talk about the importance of low birth weights and poor placental supply
- 4) Ongoing chronic hunger and chronic stress are important.

By eliminating common risk factors, such as unhealthy diet, physical inactivity, tobacco use and excessive use of alcohol and addressing Social determinant is possible to reduce the prevalence of these diseases.

A total of 56 million deaths occurred worldwide during 2012. Of these, 38 million were due to NCDs, principally diabetes, cardiovascular diseases, cancer and chronic respiratory diseases. Nearly three quarters of these NCD deaths (28 million) occurred in low- and middle-income countries. The leading causes of deaths due to NCDs in 2012 globally were:

- Cardiovascular diseases (46.2% of NCD deaths)
- Cancers (21.7% of NCD deaths)
- Respiratory diseases, including asthma and chronic obstructive pulmonary disease (10.7% of NCD deaths)
- Diabetes (4% of NCD deaths)

And these four major NCDs were responsible for 82% of NCD deaths.

In India, Non-communicable diseases (NCDs) contribute to around 5.87 million deaths that account for 60 % of all deaths in India.

- Coronary heart disease, Stroke, and Hypertension (45%)
- Chronic respiratory disease (22%),
- Cancers (12%)
- Diabetes (3%).

Four types of NCDs – cardiovascular diseases, cancer, chronic respiratory diseases and diabetes make the largest contribution to morbidity and mortality due to NCDs.

1.3 CORONARY HEART DISEASE (CHD)

Coronary heart disease is also known as ischemic heart disease and includes various other group of disorders as

- Stable Angina
- Unstable Angina
- Myocardial Infarction
- Sudden Cardiac Death

Myocardial infarction is specific for CHD whereas angina and sudden death are not.

1.3.1 Burden of Coronary Heart Disease

According to World Health Report, cardiovascular diseases (CVDs) will be the largest cause of death and disability by 2020 in India. In 2020 AD, 2.6 million Indians are predicted to die due to coronary heart disease which constitutes 54.1% of all CVD deaths.

1.3.2 Risk Factors

As such the etiology of CHD is multi factorial. As some of the major risk factors that impact the occurrence of CHD are modifiable and other are non-modifiable. Presence of any of the risk factor may result into the CHD.

The risk factors are classified as follows.

Non-Modifiable Risk Factors	Modifiable Risk Factors
Age	Smoking
Sex	High blood pressure
Family history	Elevated serum cholesterol
Genetic factors	Obesity
	Stress
	Sedentary lifestyle
	Diabetes

1.4 HYPERTENSION

Hypertension also known as high blood pressure (HBP), is a long term medical condition in which the blood pressure in the arteries is persistently elevated. High blood pressure usually does not cause symptoms. Long term high blood pressure, however, is a major risk factor for coronary artery disease, stroke, heart failure, peripheral vascular disease, vision loss, and chronic kidney disease.

Classification

- 1) Primary or essential hypertension – Almost 90% of all the hypertensive cases and the causes are generally unknown.

- 2) Secondary hypertension– When there is disease process or abnormality is associated with its causation as in diseases of kidney, congenital diseases of aorta and others.

1.4.1 Burden of Disease

The overall prevalence of Hypertension in India ranges between 17 to 40%.

In India, hypertension is the leading NCD risk and estimated to be attributable for nearly 10 per cent of all deaths. Adult hypertension prevalence has risen dramatically over the past three decades from 5 per cent to between 20–40 per cent in urban areas and 12–17 per cent in rural areas. The number of hypertensive individuals is anticipated to nearly double from 118 million in 2000 to 213 million by 2025.

It is estimated that

- 16 per cent of Ischaemic heart disease,
- 21 per cent of peripheral vascular disease,
- 24 per cent of acute myocardial infarctions
- 29 per cent of strokes

Are attributable to hypertension underlining the huge impact effective hypertension prevention and control can have on reducing the rising burden of cardiovascular disease (CVD).

1.4.2 Rule of Halves

The ‘rule of halves’ for hypertension states that: ‘half the people with high blood pressure are not known (“rule 1”), half of those known are not treated (“rule 2”) and half of those treated are not controlled (“rule 3”)’.

“Rule 1” portrays the status of awareness regarding the disease and the efficacy of prevailing screening programmes in diagnosing the disease early.

“Rule 2” depicts the status of treatment for hypertension among those diagnosed and the awareness about self-care in prevention of impending complications.

“Rule 3” addresses the status of adequacy in treatment for hypertension.

Risk factors for hypertension:

Non-Modifiable Risk Factors	Modifiable Risk Factors
Age	Obesity
Sex	Salt intake
Family history	Saturated fat
Genetic factors	Dietary fibre
	Alcohol
	Heart rate
	Physical activity
	Environmental stress

1.5 CANCER

Cancer is a group of diseases involving abnormal cell growth with the potential to invade or spread to other parts of the body. Possible signs and symptoms include a lump, abnormal bleeding, prolonged cough, unexplained weight loss and a change in bowel movements.

1.5.1 Classification

Carcinoma: Cancers derived from epithelial cells. This group includes many of the most common cancers and include nearly all those in the breast, prostate, lung, pancreas and colon.

Sarcoma: Cancers arising from connective tissue (i.e. bone, cartilage, fat, nerve), each of which develops from cells originating in mesenchymal cells outside the bone marrow.

Lymphoma and leukemia: These two classes arise from haematopoietic (blood-forming) cells that leave the marrow and tend to mature in the lymph nodes and blood, respectively.

Germ cell tumor: Cancers derived from pluripotent cells, most often presenting in the testicle or the ovary (seminoma and dysgerminoma, respectively).

Blastoma: Cancers derived from immature “precursor” cells or embryonic tissue.

1.5.2 Causes

The majority of cancers, some 90–95% of cases, are due to environmental factors. The remaining 5–10% are due to inherited genetics.

Common environmental factors that contribute to cancer death include tobacco (25–30%), diet and obesity (30–35%), infections (15–20%), radiation (both ionising and non-ionising, up to 10%), stress, lack of physical activity and environmental pollutants.

1) Chemicals

Exposure to particular substances has been linked to specific types of cancer. These substances are called *carcinogens*.

Tobacco smoke is a major cause of lung cancer. It also causes cancer in the larynx, head, neck, stomach, bladder, kidney, esophagus and pancreas. Tobacco smoke contains over fifty known carcinogens, including nitrosamines and polycyclic aromatic hydrocarbons.

2) Diet and exercise

Diet, physical inactivity and obesity are related to up to 30–35% of cancer deaths. Physical inactivity is believed to contribute to cancer risk, not only through its effect on body weight but also through negative effects on the immune system and endocrine system.

Some specific foods are linked to specific cancers. A high-salt diet is linked to gastric cancer. Aflatoxin B1, a frequent food contaminant, causes liver cancer. Betel nut chewing can cause oral cancer. National differences in dietary practices may partly explain differences in cancer incidence.

3) Infection

Worldwide approximately 18% of cancer deaths are related to infectious diseases. Viruses are the usual infectious agents that cause cancer.

Oncoviruses (viruses that can cause cancer) include human papilloma virus as an agent responsible for cervical cancer in females.

4) Radiation

The radiation exposure, including both ionising radiation and non-ionising ultraviolet radiation, can also contribute to invasive cancer.

Prolonged exposure to ultraviolet radiation from the sun can lead to melanoma and other skin malignancies. Non-ionising radio frequency radiation from mobile phones, electric power transmission and other similar sources have been described as a possible carcinogen by the World Health Organization's International Agency for Research on Cancer.

5) Heredity

Hereditary cancers are primarily caused by an inherited genetic defect. Less than 0.3% of the population are carriers of a genetic mutation that has a large effect on cancer risk and these cause less than 3–10% of cancer.

1.6 OBESITY

Obesity is a medical condition in which excess body fat has accumulated to the extent that it may have a negative effect on health.

People are generally considered obese when their body mass index (BMI), a measurement obtained by dividing a person's weight by the square of the person's height. Obesity increases the likelihood of various diseases, particularly heart disease, type 2 diabetes, obstructive sleep apnea, certain types of cancer, and osteoarthritis. As an overall impact obesity leads to the reduced life expectancy.

As of 2008 the WHO estimates that at least 500 million adults (greater than 10%) are obese, with higher rates among women than men.

1.6.1 Burden of Disease

Mortality

Obesity is one of the leading preventable causes of death worldwide. Grade 1 obesity (BMI 30–35) was not associated with higher mortality than normal weight, and that overweight (BMI 25–30) was associated with "lower" mortality than was normal weight (BMI 18.5–25).

A BMI above 32 kg/m² has been associated with a doubled mortality rate among women over a 16-year period. On average, obesity reduces life expectancy by six to seven years, a BMI of 30–35 kg/m² reduces life expectancy by two to four years, while severe obesity (BMI > 40 kg/m²) reduces life expectancy by ten years.

Morbidity

Obesity increases the risk of many physical and mental conditions. These co morbidities are most commonly shown in metabolic syndrome, a combination of

medical disorders which includes: diabetes mellitus type 2, high blood pressure, high blood cholesterol, and high triglyceride levels.

1.6.2 Risk Factors

- 1) **Diet:** The association between fast-food consumption and obesity becomes more concerning. Obese people consistently under-report their food consumption as compared to people of normal weight. Extra food energy comes from an increase in carbohydrate consumption rather than fat consumption. The primary sources of these extra carbohydrates are sweetened beverages. Consumption of sweetened drinks such as soft drinks, fruit drinks, iced tea, and energy and vitamin water drinks is believed to be contributing to the rising rates of obesity.
- 2) **Sedentary lifestyle:** A sedentary lifestyle plays a significant role in obesity. Worldwide there has been a large shift towards less physically demanding work, and currently at least 30% of the world's population gets insufficient exercise and are possibly due to mechanised transportation and a greater prevalence of labour-saving technology in the home. In children, there appear to be declines in levels of physical activity due to less walking and the physical education in the school based settings.
- 3) **Genetics:** Studies that have focused on inheritance patterns rather than on specific genes have found that 80% of the offspring of two obese parents were also obese, in contrast to less than 10% of the offspring of two parents who were of normal weight. Different people exposed to the same environment have different risks of obesity due to their underlying genetics.

1.7 DIABETES

Diabetes is a metabolic disease in which there are high blood sugar levels over a prolonged period. Symptoms of high blood sugar include frequent urination, increased thirst, and increased hunger. If left untreated, diabetes can cause many complications.

1.7.1 Types of Diabetes Mellitus

There are three main types of diabetes mellitus (DM):

- **Type 1 DM** results from the pancreas's failure to produce enough insulin. This form was previously referred to as "insulin-dependent diabetes mellitus" (IDDM) or "juvenile diabetes". The cause is unknown.
- **Type 2 DM** begins with insulin resistance, a condition in which cells fail to respond to insulin properly. As the disease progresses a lack of insulin may also develop. This form was previously referred to as "non insulin-dependent diabetes mellitus" (NIDDM) or "adult-onset diabetes". The primary cause is excessive body weight and not enough exercise.
- **Gestational diabetes** is the third main form and occurs when pregnant women without a previous history of diabetes develop high blood-sugar levels.

1.7.2 Burden of Disease

As of 2015, an estimated 415 million people had diabetes worldwide, with type 2 DM making up about 90% of the cases. This represents 8.3% of the adult population, with equal rates in both women and men. As of 2014, trends suggested

the rate would continue to rise. Diabetes at least doubles a person's risk of early death. From 2012 to 2015, approximately 1.5 to 5.0 million deaths each year resulted from diabetes.

The International Diabetes Federation (IDF) estimates the total number of diabetic subjects to be around 40.9 million in India and this is further set to rise to 69.9 million by the year 2025.

A study reported that diabetes control in individuals worsened with longer duration of the disease (9.9 ± 5.5 years), with neuropathy the most common complication (24.6 per cent) followed by cardiovascular complications (23.6 per cent), renal issues (21.1 per cent), retinopathy (16.6 per cent) and foot ulcers (5.5 per cent).

Check Your Progress 1

1) Enumerate five common NCDs.

.....
.....

2) List major risk factors for NCDs.

.....
.....

3) Explain rule of halves.

.....
.....

4) List the causes for cancers in general.

.....
.....

1.8 INJURIES AND ACCIDENTS

It is estimated that more than 5 million people die every year in developing countries from road traffic crashes, burns, falls, other types of unintentional injury, violence, and suicide. Millions more are disabled, temporarily or permanently, by injuries.

Injuries are the third cause of mortality among people over five years, with road traffic injuries and violence as the main causes of injury-related deaths.

1.9 ARTHRITIS

Arthritis is a form of joint disorder that involves inflammation in one or more joints. The most common form of arthritis is osteoarthritis (degenerative joint disease), a result of trauma to the joint, or with degenerative changes occurring in body with age.

Pain, which can vary in severity, is a common symptom in virtually all types of arthritis. Other symptoms include swelling, joint stiffness and aching around the joint

- Inability to use the hand or walk

- Stiffness, which may be worse in the morning, or after use
- Malaise and fatigue
- Weight loss
- Poor sleep
- Muscle aches and pains
- Tenderness
- Difficulty moving the joint

1.10 EPILEPSY

It is characterised by recurrent seizures, which are brief episodes of involuntary movement that may involve a part of the body (partial) or the entire body (generalised), and are sometimes accompanied by loss of consciousness and control of bowel or bladder function.

In 2013 about 22 million people have epilepsy and almost 80% of cases occur in the developing world.

The most common type of epilepsy, which affects 6 out of 10 people with the disorder, is called idiopathic epilepsy and has no identifiable cause.

Epilepsy is not contagious. The most common type of epilepsy, which affects 6 out of 10 people with the disorder, is called idiopathic epilepsy and has no identifiable cause.

Epilepsy with a known cause is called secondary epilepsy, or symptomatic epilepsy. The causes of secondary (or symptomatic) epilepsy could be:

- brain damage from prenatal or perinatal injuries (e.g. a loss of oxygen or trauma during birth, low birth weight),
- congenital abnormalities or genetic conditions with associated brain malformations,
- a severe head injury,
- a stroke that restricts the amount of oxygen to the brain,
- an infection of the brain such as meningitis, encephalitis,
- certain genetic syndromes,
- Brain tumor.

1.11 BLINDNESS

Visual impairment, also known as vision impairment or vision loss, is a decreased ability to see to a degree that causes problems not fixable by usual means and the blindness refers to the complete or nearly complete vision loss.

Causes of blindness in India

- Cataract–62.6%
- Refraction error–19.7%
- Glaucoma–5.8%

- Corneal pathologies–0.9%
- Others –11%

The blindness can be classified into two following types:

Curable blindness: Blindness in which the damage is reversible by prompt management e.g. cataract

Preventable blindness: Blindness that could have been completely prevented by institution of effective preventive or prophylactic measures as on early diagnosis e.g. xerophthalmia, trachoma, and glaucoma.

1.12 LET US SUM UP

Overall the non-communicable diseases are responsible for major causes of morbidity, mortality and disability globally and in India also. All these risk factors are preventable and can be addressed at the level of contact with the health care as well as the behaviour change. The chapter focuses on the burden of non-communicable diseases and their risk factors associated with them, such as tobacco use, unhealthy diet, physical inactivity and use of alcohol.

1.13 MODEL ANSWERS

Check Your Progress 1

- 1) The 5 common types of non-communicable diseases are coronary heart disease, stroke, cancers, chronic respiratory diseases (such as chronic obstructed pulmonary disease and asthma) and diabetes.
- 2) The major risk factors for these non-communicable diseases are broadly categorised as

Behavioural risk factors

- Tobacco use
- Unhealthy diet
- Physical inactivity
- Harmful use of alcohol

Metabolic risk factors

- Obesity
- Raised blood pressure
- Raised blood glucose
- Raised blood total cholesterol levels

- 3) The ‘rule of halves’ for hypertension states that: ‘half the people with high blood pressure are not known (“rule 1”), half of those known are not treated (“rule 2”) and half of those treated are not controlled (“rule 3”)’.

“Rule 1” portrays the status of awareness regarding the disease and the efficacy of prevailing screening programmes in diagnosing the disease early.

“Rule 2” depicts the status of treatment for hypertension among those diagnosed and the awareness about self-care in prevention of impending complications.

“Rule 3” addresses the status of adequacy in treatment for hypertension.

- 4) The majority of cancers, some 90–95% of cases, are due to environmental factors. The remaining 5–10% are due to inheritance.

Common environmental factors that contribute to cancer death include tobacco (25–30%), diet and obesity (30–35%), infections (15–20%), radiation (both ionising and non-ionising, up to 10%), stress, lack of physical activity and environmental pollutants.

1.14 REFERENCES

- 1) WHO. Non Communicable Diseases.
<<http://www.who.int/mediacentre/factsheets/fs355/en/>>
- 2) World Health Organization. Global status report: 2014. Geneva: World Health Organization, 2014.
<https://cspinet.org/new/pdf/who-global-status-report-on-ncds-2014__1_.pdf>
- 3) World health organization. Burden of NCDs and their risk factors in India
<http://www.searo.who.int/india/topics/noncommunicable_diseases/ncd_situation_global_report_ncds_2014.pdf>
- 4) Thakur JS. NCD Surveillance. Public health approaches to non-communicable diseases. Wolters kluwer, 2015.
- 5) National Cardiovascular Disease Database.
http://www.searo.who.int/india/topics/cardiovascular_diseases/NCD_Resources_National_CVD_database-Final_Report.pdf?ua=1
- 6) Thakur JS. A Training manual for Health Workers. CBS Publishers & Distributors Pvt Ltd, 2016.
- 7) Sailesh Mohan, Norm Campbell, and Arun Chockalingam. Time to effectively address hypertension in India. *Indian J Med Res.* 2013 Apr; 137(4): 627–631.
- 8) Kravchenko J, Akushevich I, and Manton KG (2009). Cancer mortality and morbidity patterns in the U. S. population: an interdisciplinary approach. Berlin: Springer. ISBN 0-387-78192-7.
- 9) Anand P, Kunnumakkara AB, Kunnumakara AB, Sundaram C, Harikumar KB, Tharakan ST, Lai OS, Sung B, and Agarwal BB (September 2008). “Cancer is a preventable disease that requires major lifestyle changes”. *Pharm. Res.* 25 (9): 2097–116.
- 10) “IARC classifies radiofrequency electromagnetic fields as possibly carcinogenic to humans” (PDF). World Health Organization.
- 11) Roukos DH (April 2009). “Genome-wide association studies: how predictable is a person’s cancer risk?”. *Expert Rev Anticancer Ther.* 9 (4): 389–92.
- 12) “Obesity and overweight Fact sheet N°311”. WHO. January 2015.
- 13) “WHO: Obesity and overweight”. World Health Organization.
- 14) “The top 10 causes of death Fact sheet N°310”. World Health Organization.

**Non-Communicable Diseases
and Management Under
National Health Programmes**

- 15) “Update 2015”. IDF. International Diabetes Federation.
- 16) WHO. Injuries and accidents the facts 2014.
http://apps.who.int/iris/bitstream/10665/149798/1/9789241508018_eng.pdf>
17. Global Burden of Disease Study 2013, Collaborators (22 August 2015). “Global, regional, and national incidence, prevalence, and years lived with disability for 301 acute and chronic diseases and injuries in 188 countries, 1990-2013: a systematic analysis for the Global Burden of Disease Study 2013.”. *Lancet*. 386 (9995): 743–800.
- 18) Directorate General of Health Services. Ministry of Health and Family Welfare. Government of India. National Programme for Control of Blindness 2006-07.
- 19) Park k. Park’s textbook of preventive and social medicine. Jabalpur Banarsidas Bhanot publishers, 23rd Edition, 2015.

UNIT 2 NON-COMMUNICABLE DISEASES-1

Structure

- 2.0 Introduction
- 2.1 Objectives
- 2.2 National Response to Non-Communicable Diseases
- 2.3 National Programme for the Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS)
 - 2.3.1 Diabetes
 - 2.3.2 Hypertension
 - 2.3.3 Cardiovascular Diseases
 - 2.3.4 Stroke
 - 2.3.5 Obesity
- 2.4 Blindness
 - 2.4.1 Categories of Visual Impairment
 - 2.4.2 National Programme for Control of Blindness
- 2.5 National Programme for Prevention and Control of Deafness
- 2.6 National Tobacco Control Programme
- 2.7 Thyroid Diseases
- 2.8 Injuries and Accidents
 - 2.8.1 Operational Guidelines for Trauma Care Facility on National Highways
 - 2.8.2 Risk Factors for Road Traffic Injuries
- 2.9 National Mental Health Programme
- 2.10 National Programme for Health Care of the Elderly (NPHCE)
- 2.11 Let Us Sum Up
- 2.12 Model Answers
- 2.13 References

2.0 INTRODUCTION

In the previous unit, you learnt about the epidemiology of non-communicable disease, which included burden of disease in India, cause and risk factors.

There are National Health Programmes on the non-communicable diseases and key programme is National Programme on Cancer Diabetes Cardiovascular Diseases and Stroke (NPCDCS) with objectives of risk reduction for prevention of NCDs and early diagnosis and appropriate management of these NCDs. The strategies used are health promotion for the general population and disease prevention for the high risk groups. The expected outcomes of the programme is to create awareness on healthy life styles, health promotion at school, community and work places, and management of Non-Communicable Diseases, particularly Diabetes, Cardiovascular Diseases and Stroke.

In this unit you will be study objectives and various activities carried out under national health programme and preventive measures for control of disease.

2.1 OBJECTIVES

After completing this unit, you should be able to describe:

- national health programmes related to NCDs;
- prevention, screening and management of diabetes, hypertension, cardiovascular and coronary heart diseases;
- prevention, screening and management of stroke, obesity, blindness and thyroid diseases;
- prevention, screening and management of injuries and accidents; and
- integrated management for the NCDs.

2.2 NATIONAL RESPONSE TO NON COMMUNICABLE DISEASES

There are operational guidelines for the prevention, screening and control of common non-communicable diseases (NCDs) which are a part of comprehensive primary health care being came into existence in 2016.

The World Health Organization (WHO) has included four major NCDs – Cardiovascular Diseases (CVD), such as heart attacks, Diabetes, Chronic Respiratory Diseases (Chronic Obstructive Pulmonary Diseases and Asthma) and Cancer for bigger focus. Data from community based NCD programmes in India depicts that the NCDs also account for a significant proportion of illness and deaths.

These NCDs share common risk factors and for which there are a set of similar public health approaches related to health promotion, prevention and management. Key factors linked to the onset and course of these four NCDs are :

- Tobacco use and exposure,
- Unhealthy diet,
- Physical inactivity,
- Harmful use of alcohol,
- Indoor and ambient air pollution,
- Stress,
- Poverty (as a cause and consequence),
- Poor health seeking behaviours, and
- Low access to health-care services.

Diabetes and hypertension can cause stroke, heart attack or kidney failure, and all are amenable to prevention, early detection and treatment.

2.3 NATIONAL PROGRAMME FOR THE PREVENTION AND CONTROL OF CANCER, DIABETES, CARDIOVASCULAR DISEASES AND STROKE (NPCDCS)

Let us now discuss about various guidelines and main focus of the National programme

programme for prevention and control of cancer, diabetes, cardio vascular diseases and stroke as given below:

- The main focus of NPCDCS is to enable opportunistic screening (Opportunistic screening happens when someone asks their doctor or health professional for a check or test, or a check or test is offered by a doctor or health professional) at PHC/CHC and District levels, through the setting up of NCD clinics.
- At the PHC and sub-centre levels, additional funding for glucose testing was provided for all those over 30 years of age and all pregnant women and encompassing greater outreach, better follow up through systematic monitoring and data collection to enable improved surveillance, including the use of IT for patient records, follow-up and referral Sub-centre level. Community based assessment checklist for early detection of NCDs is given in Annexure-1.
- These guidelines envisage that the risk assessment, screening, referral, and follow up for selected NCDs amongst all women and men aged 30 years and above, would be included in the set of services being offered at the HWC/SHC.

These operational guidelines are designed to help state and district programme and facility level managers and service providers to strengthen and expand risk assessment, screening and management of Hypertension and Diabetes Mellitus.

The main focus of these guidelines is on:

- Screening and diagnosing common NCDs;
- Identifying and addressing modifiable risk factors,
- Treating using standard treatment guidelines,
- Follow up
- Referring patients at appropriate level.

The guidelines are an adjunct to and build on the relevant recommendations of the NPCDCS guidelines. The roles and responsibilities of the primary health care teams are given in Annexure 2. The package of services under NPCDCS is shown in Annexure 3 (page no. 9 doc).

In urban areas, states would need to evolve strategies that combine effective outreach and facility based primary health care services to serve as a platform for the delivery of this intervention. The range of facilities and outreach mechanisms vary widely between and within states, and local, context specific mechanisms would need to evolve through a process of piloting and study before being scaled up. Existing platforms and partnerships would be strengthened to implement the intervention.

2.3.1 Diabetes

Diabetes is classified into three types namely:

- 1) Type 1 diabetes (T1DM): Usually occurs in younger people, children and adolescents. The diagnosis of T1DM can be made throughout childhood but it is more likely below 15 yrs of age. The onset is usually acute and severe and insulin is required for survival.
- 2) Type 2 diabetes (T2DM): It is the commonest type of diabetes. It usually occurs after the age of forty years but occurs frequently even at lower age among Indians.

T2DM was previously known as non-insulin dependent diabetes mellitus. The onset is usually insidious and may be mild to severe.

When is a person at high risk for diabetes?

- age of or above 30 years
- overweight (BMI is more than 23 kg/m²).
- physically inactive (exercises less than 3 times a week)
- high blood pressure.
- impaired fasting glucose or impaired glucose tolerance.
- triglyceride and/or cholesterol levels are higher than normal.
- parents/siblings or grandparents have or had diabetes.
- had diabetes or even mild elevation of blood sugars during pregnancy.

When to suspect diabetes?

- Symptoms of uncontrolled hyperglycemia: excess thirst, excess urination, excess hunger with loss of weight
- Frequent infections
- Non-healing wounds
- Fatigue
- Tuberculosis

The criteria for diagnosis of Type 2 diabetes mellitus is shown in Table 2.1.

Table 2.1: Criteria for diagnosis of T2DM using venous blood samples is by Fasting Glucose (mg/dl) and 2-hour Post-Glucose Load (mg/dl)

	Fasting Glucose (mg/dl)	2-hour Post-Glucose Load (mg/dl)
Diabetes Mellitus	>=126	>=200
Impaired Glucose Tolerance	< 110	>140 to <200
Impaired Fasting Glucose	>=110 to <126	

Source: World Health Organization and International Diabetes Federation. Definition, diagnosis and classification of diabetes mellitus and its complications. Geneva, Switzerland: World Health Organization.

Management of Diabetes

Management of T2DM should be initiated as soon as diagnosis is established even if the patient is asymptomatic. Initial assessment and management of the patients has to be carried out at Primary Health Centre and Community Health Centre (CHC) level or at secondary care level.

When to recommend hospitalisation

- Uncontrolled infection,
- Severe cellulitis,
- Unresponsive UTI or other deep seated infections including bad diabetic foot needing intravenous antibiotics,
- Recurrent UTI not responding to oral antibiotics,
- Presence of ketones in urine

Patient education on diabetes management and life style modifications is the corner stone of effective diabetes control and management and prevention of complications. The visit schedule for counselling of diabetes is shown in Table 2.2.

Table 2.2: Visit schedule for counselling

Initial Visits	Follow-up Visits
<ul style="list-style-type: none"> • What is Diabetes? • Why does it occur? • Lifestyle measures: Diet, Exercise • Detailed lifestyle advice • Use of Oral Drugs • Advice on identifying signs and symptoms of hypoglycaemia and hyperglycaemia and their management • Patient should be informed about the importance of factors other than glucose control: cholesterol, blood pressure, stopping smoking,/ tobacco, etc 	<ul style="list-style-type: none"> • Importance of glycaemic control • Prevention of complications • Foot care • Pre-conceptional counselling regarding the importance of good glucose control prior to pregnancy

Complications of Diabetes mellitus

Diabetes complications are classified broadly into two categories:

- 1) Microvascular complications includes:
 - Damage to eyes (retinopathy) leading to blindness,
 - Damage to kidneys (nephropathy) leading to renal failure
 - Damage to nerves (neuropathy) leading to impotence
 - Diabetic foot disorders (which include severe infections leading to amputation)
- 2) Macrovascular complications includes:
 - Cardiovascular diseases such as heart attack and stroke
 - Insufficiency in blood flow to legs.

2.3.2 Hypertension

Abnormally elevated blood pressure is a pathological condition which increases the work load on the heart. This condition is termed as high blood pressure or hypertension. The criteria for diagnosis of hypertensive is shown in Table 2.3.

Table 2.3: Criteria for diagnosing high blood pressure (mm of Hg)[JNC-8]

Category	Systolic	Diastolic
Normal	Less than 120	Less than 80
Pre hypertensive	120–139	80–89
Hypertensive		

Category	Systolic	Diastolic
Stage 1	140–159	90–99
Stage 2	160 or higher	100 or higher
Stage 3	180 or higher	110 or higher

Source: Paul A. James et al. 2014 Evidence-Based Guideline for the Management of High Blood Pressure in Adults Report From the Panel Members Appointed to the Eighth Joint National Committee (JNC 8)

Management of hypertension:

The Risk assessment should cover:

- 1) Assessment of medical history:
 - a) Risk factors
 - Lack of physical activity (or sedentary lifestyle).
 - Obesity or being overweight
 - Abdominal obesity (Waist circumference more than 90 cm in male and 80 cm in females)
 - High sodium intake/high salt intake
 - Excess alcohol consumption
 - b) Family history
 - c) Symptoms of consequences of hypertension
 - d) Frequent intake of pain relieving drugs (NSAIDS)
 - e) Steroid intake for asthma
 - f) Breathing difficulty particularly on exertion
 - g) Swelling of feet
 - h) Urinary difficulties, history of passing stones in the past
- 2) Physical examination:
 - a) BP measurement
 - b) Measurement of body weight and height to obtain BMI
 - c) Measurement of Waist circumference
 - d) Palpating all peripheral pulses
 - e) Auscultation for bruit (renal, carotid, abdominal and others)
 - f) Eye evaluation if ophthalmology facility is available

The management should include the following:

- Life-style management (refer to section on lifestyle modification)
- Drug Therapy

Complications of hypertension

Complications occur as a result of persistent elevation of blood pressure for a longer duration of period. The impact of raised blood pressure is on various organs of the body and can lead to organ damage.

The following are the organ-wise impact of the hypertension:

- Complications affecting the heart: Left ventricular hypertrophy, diastolic dysfunction, CHF, abnormalities of blood flow and cardiac arrhythmias.
- Complications affecting the brain: Brain infarction and Haemorrhage.
- Complications affecting the eye: Generalised narrowing of the retinal arterioles and in retina as microaneurysms, haemorrhages, hard exudates, and cotton-wool spots.
- Complications affecting kidneys: Macroalbuminuria (a random urine albumin/creatinine ratio > 300 mg/g) or microalbuminuria (a random urine albumin/creatinine ratio 30–300 mg/g).

2.3.3 Cardiovascular Diseases

Cardiovascular disease (CVD) is a class of diseases that involve the heart or blood vessels. Cardiovascular disease includes coronary artery diseases (CAD) such as angina and myocardial infarction (commonly known as a heart attack). The cerebrovascular diseases commonly known as stroke is also common.

Risk factors

Age, gender, tobacco use, physical inactivity, excessive alcohol consumption, unhealthy diet, obesity, family history of cardiovascular disease, raised blood pressure (hypertension), raised blood sugar (diabetes mellitus), raised blood cholesterol (hyperlipidemia), psychosocial factors, poverty and low educational status, and air pollution.

Coronary Heart Disease

Chest pain (angina) is the commonest symptom.

- Typical angina : Substernal pressure radiating to neck, Jaw, arm with duration <20–30 minutes which may be associated with dyspnea, palpitations, nausea vomiting and which increases with exertion, decreases with rest .
- MI : Has increased angina intensity and duration >30 min. Twenty five per cent of MIs are clinically silent.

Associated symptoms: Weakness, nausea/vomiting, sweating, apprehension, anxiety, sense of impending doom.

Features not characteristics of myocardial ischemia:

- Sharp pain brought by respiratory movement or cough
- Pain that may be localised by the tip of one finger
- Very brief episode of pain that lasts a few seconds
- Pain reproduced by movement or palpation over the chest
- Constant pain that lasts for many hours without other ischemic symptoms

2.3.4 Stroke

A stroke means that part of the brain is suddenly damaged. If an artery in the brain becomes blocked by a thrombus, it causes a stroke. If an artery in the brain leaks then too it damages the brain and causes a stroke.

Identification of an acute event

- Sudden onset of weakness of one half of body or one part of body
- Sudden onset of inability or difficulty in speech
- Sudden onset of imbalance
- Sudden onset of blindness
- Sudden onset of dizziness or spinning
- Sudden severe headache
- Sudden loss of consciousness

Management

Patients of stroke presenting within 6 hours of onset of symptoms should be referred to a secondary care for initial assessment and management. The follow-up of patients presenting with a completed stroke not requiring acute care (such as respiratory distress) can be managed at the PHC level.

2.3.5 Obesity

Overweight and obesity are defined as abnormal or excessive fat accumulation that may impair health.

- Body mass index (BMI) is a simple index of weight-for-height that is commonly used to classify overweight and obesity in adults. It is defined as a person's weight in kilograms divided by the square of his height in meters (kg/m^2).
- The criteria based on World Health Organization is given below:

Less than $18.5 \text{ kg}/\text{m}^2$ (Underweight)
$18.5 - 24.9 \text{ kg}/\text{m}^2$ (Normal)
$25.0 - 29.9 \text{ kg}/\text{m}^2$ (Preobese)
$30.0 - 34.9 \text{ kg}/\text{m}^2$ (Obese Class I)
$35.0 - 39.9 \text{ kg}/\text{m}^2$ (Obese Class II)
≥ 40.0 (Obese Class III)

However, the revised criteria for obesity for Asians based on BMI is as follows:

$< 18.5 \text{ kg}/\text{m}^2 =$ Under weight
$18.5 - 22.9 \text{ kg}/\text{m}^2 =$ Normal or lean
$23 - 24.9 \text{ kg}/\text{m}^2 =$ Overweight
$\geq 25.0 =$ Obesity

Raised BMI is a major risk factor for noncommunicable diseases such as:

- heart disease
- stroke
- diabetes;

- musculoskeletal disorders (especially osteoarthritis – a highly disabling degenerative disease of the joints);
- Some cancers (including endometrial, breast, ovarian, prostate, liver, gallbladder, kidney, and colon).

The risk for these non-communicable diseases increases, with increases in BMI.

Treatment of the overweight and obese patient is a two-step process:

- 1) Assessment requires determination of the degree of obesity and the absolute risk status.
 - 2) Management includes the reduction of excess weight by diet control and physical activity and maintenance of this lower body weight, as well as the institution of additional measures to control any associated risk factors.
- Waist circumference is the most practical tool a clinician can use to evaluate a patient's abdominal fat before and during weight loss treatment.

To measure waist circumference, locate the upper hip bone and the top of the right iliac crest. Place a measuring tape in a horizontal plane around the abdomen at the level of the iliac crest. Before reading the tape measure, ensure that the tape is not too tight, not too loose and does not compress the skin, and is parallel to the floor. The measurement is made at the end of a normal expiration.

Men who have waist circumferences greater than 90 cm, and women who have waist circumferences greater than 80 cms, are at higher risk of diabetes, dyslipidemia, hypertension, and cardiovascular disease because of excess abdominal fat. Individuals with waist circumferences greater than these values should be considered one risk category above that defined by their BMI. The relationship between BMI and waist circumference for defining risk is as defined in the Table 2.4.

Management

A combination of diet modification, increased physical activity, and behaviour therapy can be effective.

Dietary Therapy: Dietary therapy includes instructions for modifying diets to reduce weight. The diet should be low in calories, but it should not be too low (less than 800 kcal/day). In general, diets containing 1,000 to 1,200 kcal/day should be selected for most women; a diet between 1,200 kcal/day and 1,600 kcal/day should be chosen for men.

Physical Activity: Increased physical activity may help reduce body fat and prevent the decrease in muscle mass often found during weight loss. All adults should set a long-term goal to accumulate at least 30 minutes or more of moderate-intensity physical activity on 5, and preferably all days of the week.

Behaviour Therapy: Specific behavioural strategies include the following: self-monitoring, stress management, stimulus control, problem-solving, contingency management, cognitive restructuring, and social support. Behavioural therapies may be employed to promote adoption of diet and activity adjustments; these will be useful for a combined approach to therapy.

Integrated approach for the NCDs

Let us now read about Integrated approach for NCDs. In the context of NCDs, four of the most prominent chronic diseases – cardiovascular disease, cancer, chronic obstructive pulmonary disease, and type 2 diabetes – account for 80% of the NCD mortality and are linked by shared, common, and preventable biological risk factors, notably high blood pressure, high blood cholesterol, and overweight, as well as by related major behavioural risk factors: unhealthy diet, physical inactivity, and tobacco use. So the action to prevent these major chronic diseases should focus on controlling these risk factors in an integrated manner through motivation with the counselling of the patients or the high risk people.

Check Your Progress 1

1) Name four major NCDs.

.....
.....

2) List micro vascular complication of Diabetes Mellitus.

.....
.....

3) List risk factors for NCD.

.....
.....

4) Explain the Integrated approach for the NCDs.

.....
.....

2.4 BLINDNESS

Let us now go through the blindness in detail :

2.4.1 Categories of Visual Impairment

Blindness’ refers to a condition where a person suffers from any of the following conditions, namely

- Total absence of sight; or persons who does not have light perception or persons who have light perception but cannot count fingers at a distance of 1 meter even with spectacles (best possible correction)
- Visual acuity not exceeding 6/60 (Snellen’s Chart) in the better eye with correcting lenses; or
- Limitation of the field of vision subtending an angle of 20 degree or worse.

Table 2.4 : Categories of visual impairment:

Categories of Visual Impairment	Visual Acuity	
	Maximum Less than	Minimum Equal to or Better than
Low vision	1. 6/18	6/60
	2. 6/60	3/60
Blindness	3. 3/60 (finger counting at 3 meters)	1/60 (finger counting at 1 meter)
	4. 1/60(finger counting at 1meter)	
	5. No light perception	Light perception

Source: WHO. International classification of diseases, vol1, pg.242.

2.4.2 National Programme for Control of Blindness

Main causes of blindness are as follows: Cataract (62.6%), refractive error (19.70%), corneal blindness (0.90%), glaucoma (5.80%), surgical complication (1.20%), posterior capsular opacification (0.90%), posterior segment disorder (4.70%), others (4.19%). Estimated National Prevalence of Childhood Blindness /Low Vision is 0.80 per thousand.

Objectives

- To reduce the backlog of blindness through identification and treatment of blind at primary, secondary and tertiary levels based on assessment of the overall burden of visual impairment in the country.
- Develop and strengthen the strategy of NPCB for “Eye Health” and prevention of visual impairment; through provision of comprehensive eye care services and quality service delivery.
- Strengthening and upgradation of Regional Institute of Ophthalmology (RIOs) to become centre of excellence in various sub-specialities of ophthalmology.
- Strengthening the existing and developing additional human resources and infrastructure facilities for providing high quality comprehensive Eye Care in all Districts of the country:
- To enhance community awareness on eye care and lay stress on preventive measures:
- Increase and expand research for prevention of blindness and visual.

2.5 NATIONAL PROGRAMME FOR PREVENTION AND CONTROL OF DEAFNESS

There is large number of hearing impaired young and old people in India which amounts to a severe loss of productivity, both physical and economic. In an effort to tackle the high incidence of deafness in the country, in view of the preventable nature of this disability.

Objectives

- To prevent the avoidable hearing loss on account of disease or injury.
- Early identification, diagnosis and treatment of ear problems responsible for hearing loss and deafness.

- To medically rehabilitate persons of all age groups, suffering with deafness.
- To strengthen the existing inter-sectoral linkages for continuity of the rehabilitation Programme, for persons with deafness.
- To develop institutional capacity for ear care services by providing support for equipment and material and training personnel.

2.6 NATIONAL TOBACCO CONTROL PROGRAMME

Tobacco use is one of the main risk factors for a number of chronic diseases, including cancer, lung diseases, and cardiovascular diseases.

Objectives

- To bring about greater awareness about the harmful effects of tobacco use and Tobacco Control Laws.
- To facilitate effective implementation of the Tobacco Control Laws.
- To control tobacco consumption and minimise the deaths caused by it.

The various activities planned to control tobacco use are as follows:

- Training and Capacity Building
- IEC activity
- Monitoring Tobacco Control Laws and Reporting
- Survey and Surveillance

2.7 THYROID DISEASES

The thyroid hormones, triiodothyronine (T_3) and its prohormone, thyroxine (T_4), are tyrosine-based hormones produced by the thyroid gland that are primarily responsible for regulation of metabolism. T_3 and T_4 are partially composed of iodine.

Hyperthyroidism is the condition that occurs due to excessive production of thyroid hormone by the thyroid gland.

Signs and symptoms

Some of the symptoms of hyperthyroidism include:

- nervousness
- irritability
- increased perspiration
- heart racing
- hand tremors
- anxiety
- difficulty sleeping
- thinning of the skin
- fine brittle hair
- muscular weakness – especially in the upper arms and thighs.

Major clinical signs include

- weight loss (often accompanied by an increased appetite)
- anxiety

- intolerance to heat
- hair loss (especially of the outer third of the eyebrows)
- muscle aches
- weakness
- fatigue
- hyperactivity
- irritability
- high blood sugar
- excessive urination
- excessive thirst
- delirium, tremor
- pretibial myxedema (in Graves' disease)
- emotional liability
- sweating

Diagnosis

The diagnosis of hyperthyroidism is confirmed by blood tests that show a decreased thyroid-stimulating hormone (TSH) level of below 0.05 uIU/ dl and elevated T₄ and T₃ levels.

In addition to testing the TSH levels, many doctors test for T₃, Free T₃, T₄, and/or Free T₄ for more detailed results.

Hypothyroidism

Hypothyroidism, also called underactive thyroid or low thyroid, is a common disorder of the endocrine system in which the thyroid gland does not produce enough thyroid hormone.

Symptoms

- Fatigue
- Feeling cold
- Poor memory and concentration
- Constipation, dyspepsia
- Weight gain with poor appetite
- Shortness of breath
- Hoarse voice
- In females, heavy menstrual periods (and later light periods)
- Abnormal sensation
- Poor hearing

Signs

- Dry, coarse skin
- Cool extremities
- Myxedema (mucopolysaccharide deposits in the skin)
- Hair loss
- Slow pulse rate

- Swelling of the limbs
- Delayed relaxation of tendon reflexes
- Carpal tunnel syndrome
- Pleural effusion, ascites, pericardial effusion

Patients suspected of thyroid disorders should be referred to doctor for further assessment.

2.8 INJURIES AND ACCIDENTS

Let us now read the various aspects of injuries and accidents.

2.8.1 Operational Guidelines for Trauma Care Facility on National Highways

Road traffic injuries are important problem in the country. Trauma Care that if basic life support, first aid and replacement of fluids can be arranged within first hour of the injury (the golden hour), lives of many of the accident victims can be saved. The critical factor for this strategy is to provide initial stabilization to the injured within the golden hour.

Strategic activities to achieve this objective include:

- Initial stabilisation by trained manpower
- Rapid transportation, and
- Developed medical facilities to treat such cases

Road traffic accidents: Urban transport, land use patterns, and recreation areas are linked to road traffic injuries, as well as to exposure to air pollution and noise.

2.8.2 Risk Factors for Road Traffic Injuries

The important risk factors are mentioned in Box 2.1.

Box 2.1: Risk factors for road traffic injuries

- | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none">1) Alcohol intake2) Lack of body protection as helmets and seat belts3) High speeding4) Underage driving |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

There are primary and environmental factor related to road traffic accident as discussed below:

Primary factors in accidents:

Human factors:

- Age
- Sex
- Education
- Medical conditions– Sudden illness, heart attack, impaired vision

- Fatigue
- Psychological factors– Lack of experience, risk-taking, impulsiveness, defective judgement, delay in decision, aggressiveness, poor perception and family dysfunction
- Lack of body protection– Helmets and safety belts

Environmental factors:

- Relating to road– Defective narrow roads, poor lighting, lack of familiarity
- Relating to vehicle– Excessive speed, overloaded, low driving standards
- Bad weather
- Inadequate enforcement of laws
- Mixed traffic as slow and fast moving, pedestrians and animals

All these above factors increase the vulnerability and risk situation for an accident. Other precipitating factors are alcohol and drug usage as well as the traffic conditions, emotion, tensions can lead to injuries and varied accidents.

Referral and Treatment

- Those with a systolic BP of over 140 and a diastolic BP of over 90 mm of Hg, or random blood sugar of 140 mg/dl and above would be referred to a Medical officer at the nearest facility, for confirmation, conducting relevant laboratory investigations, and initiation of treatment.
- You have to follow up with the individual and with the concerned PHC to ensure confirmation of diagnosis for individuals diagnosed with positive response for the questions on carcinoma cervix/breast, epilepsy, thyroid disorders or COPD, or where a suspicious oral lesion, initiation of treatment or referral to the next level. Subsequent guidelines would deal with details on developing strategies for these and other NCDs as well.
- Once the diagnosis of HT/Diabetes is established the patient must receive at least a month's supply from the PHC. A three month supply, with the ANM/ASHA visiting the patient each month for ensuring compliance, checking on diet and life style modification, and measuring the blood pressure/ blood glucose. Alternatively, a three-month drug supply could be stocked with the ANM, to be given each month.
- The patient will need to go the PHC for the first follow up at the end of the first three months after diagnosis, and sooner if required.
- An annual specialist consultation at the nearest nodal CHC with an NCD clinic, is also recommended, based on the decision of the MO at the PHC.
- For those individuals who are already on treatment under the care of a private practitioner, they could be offered the choice of taking drugs from the public health system but these individuals would be visited regularly by the frontline workers, monitored for compliance with treatment/lifestyle changes and recorded in the health card.
- Community follow up of these individuals would be by the ASHA making visits to enable positive behaviour modifications, treatment compliance, and encouraging patients to go the sub-centre for regular check-up of BP/blood glucose.

2.9 NATIONAL MENTAL HEALTH PROGRAMME

Persons with mental illness should be treated like other persons with health problems and the environment around them should be made conducive to facilitate recovery, rehabilitation and full participation in society keeping in view the heavy burden of mental illness in the community.

Objectives:

- To ensure availability and accessibility of minimum mental health care for all in the foreseeable future, particularly to the most vulnerable and underprivileged sections of population.
- To encourage application of mental health knowledge in general health care and in social development.
- To promote community participation in the mental health services development and to stimulate efforts towards self-help in the community.

2.10 NATIONAL PROGRAMME FOR HEALTH CARE OF THE ELDERLY (NPHCE)

The programme was initiated to provide promotional, preventive, curative and rehabilitative services in an integrated manner for the elderly in various Government health facilities.

This will include health promotion, preventive services, diagnosis and management of geriatric medical problems (out and in-patient), day care services, rehabilitative services and home based care as needed.

Objectives : Main objectives of the programme are to:

- provide preventive, curative and rehabilitative services to the elderly persons at various level of health care delivery system of the country.
- strengthen referral system, to develop specialized man power and to promote research in the field of diseases related to old age.

Check Your Progress 2

1) What are the signs and symptoms of Hyperthyroidism.

.....
.....

2) Enlist risk factor for road injuries.

.....
.....

3) List activities to control tobacco use.

.....
.....

4) List objectives of National Programme for Health Care of the Elderly.

.....
.....

2.11 LET US SUM UP

The major non-communicable diseases which contribute to the majority of the burden of disease are due to epidemiological transition. For the prevention and control of NCDs a national programme on cancer, diabetes, cardiovascular diseases and stroke (NPCDCS) and related programme has been launched and now will cater the whole of the country. This unit focuses on the description of major NCDs, their prevention strategies and referral to higher centres.

2.12 MODEL ANSWERS

Check Your Progress 1

- 1) Four major NCDs are **Cardiovascular Diseases (CVD)**, such as **Heart attacks, Diabetes, Chronic Respiratory Diseases** (Chronic Obstructive Pulmonary Diseases and Asthma) and **Cancer**.
- 2) Microvascular complications include
 - Damage to eyes (retinopathy) leading to blindness
 - Damage to kidneys (nephropathy) leading to renal failure
 - Damage to nerves (neuropathy) leading to impotence
 - Diabetic foot disorders (which include severe infections leading to amputation)
- 3) Risk factors for NCDs are:
 - Tobacco use and exposure,
 - unhealthy diet,
 - physical inactivity,
 - harmful use of alcohol,
 - Indoor and ambient air pollution,
 - stress,
 - poverty (as a cause and consequence),
 - poor health seeking behaviours, and
 - low access to health-care services.
- 4) In the context of NCDs, four of the most prominent chronic diseases—cardiovascular disease, cancer, chronic obstructive pulmonary disease, and type 2 diabetes—account for 80% of the NCD mortality and are linked by shared, common, and preventable biological risk factors, notably high blood pressure, high blood cholesterol, and overweight, as well as by related major behavioural risk factors: unhealthy diet, physical inactivity, and tobacco use. So the action to prevent these major chronic diseases should focus on controlling these risk factors in an integrated manner through motivation with the counselling of the patients or the high risk people.

Check Your Progress 2

1) Signs and symptoms

Some of the symptoms of hyperthyroidism include

- nervousness

**Non-Communicable Diseases
and Management Under
National Health Programmes**

- irritability
- increased perspiration
- heart racing
- hand tremors
- anxiety
- difficulty sleeping
- thinning of the skin
- fine brittle hair
- muscular weakness – especially in the upper arms and thighs.

Major clinical signs include

- weight loss (often accompanied by an increased appetite)
- anxiety
- intolerance to heat
- hair loss (especially of the outer third of the eyebrows)
- muscle aches
- weakness
- fatigue
- hyperactivity
- irritability
- high blood sugar
- excessive urination
- excessive thirst
- delirium, tremor
- pretibial myxedema (in Graves' disease)
- emotional liability
- sweating

2) There are primary and environmental factor related to road traffic accident.

Primary factors in accidents:

- Age
- Sex
- Education
- Medical conditions– Sudden illness, heart attack, impaired vision
- Fatigue
- Psychological factors– Lack of experience, risk-taking, impulsiveness, defective judgement, delay in decision, aggressiveness, poor perception and family dysfunction
- Lack of body protection– Helmets and safety belts

Environmental factors:

- Relating to road– Defective narrow roads, poor lighting, lack of familiarity

- Relating to vehicle– Excessive speed, overloaded, low driving standards
 - Bad weather
 - Inadequate enforcement of laws
 - Mixed traffic as slow and fast moving, pedestrians and animals
- 3) Activities to control tobacco use
- Training and Capacity Building
 - IEC activity
 - Monitoring Tobacco Control Laws and Reporting
 - Survey and Surveillance
- 4) Main objectives of the programme are to:
- provide preventive, curative and rehabilitative services to the elderly persons at various level of health care delivery system of the country.
 - strengthen referral system, to develop specialised man power and to promote research in the field of diseases related to old age.

2.13 REFERENCES

- 1) Department of Health and Family Welfare. Government of India. National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Disease and Stroke (NPCDCS). Operational guidelines 2013-17(pdf)
- 2) Thakur JS. NCD Surveillance. Public health approaches to non- communicable diseases. Wolters kluwer, 2015.
- 3) National Mental Health Programme | National Health Portal of India [Internet]. Nhp.gov.in. 2016 [cited 17 September 2016]. Available from: http://www.nhp.gov.in/national-mental-health-programme_pg
- 4) National Programme for Health Care of the Elderly (NPHCE) | National Health Portal of India [Internet]. Nhp.gov.in. 2016 [cited 17 September 2016]. Available from: http://www.nhp.gov.in/national-program-of-health-care-for-the-elderly-n_pg
- 5) Directorate General of Health Services. Ministry of Health and Family Welfare. Government of India. National Programme for Control of Blindness 2006-07.
- 6) National Programme for Prevention and Control of Deafness | National Health Portal of India [Internet]. Nhp.gov.in. 2016 [cited 17 September 2016]. Available from: http://www.nhp.gov.in/national-programme-for-prevention-and-control-of-d_pg
- 7) National Tobacco Control Programme | National Health Portal Of India [Internet]. Nhp.gov.in. 2016 [cited 17 September 2016]. Available from: http://www.nhp.gov.in/National-Tobacco-Control-Programme1_pg
- 8) Department of Health and Family Welfare. Government of India. Capacity building for developing trauma care facilities on national highways. Operational guidelines.pdf.
<http://dghs.gov.in/WriteReadData/userfiles/file/Operational_Guidelines_Trauma.pdf>

**Non-Communicable Diseases
and Management Under
National Health Programmes**

- 9) World Health Organization and International Diabetes Federation. Definition, diagnosis and classification of diabetes mellitus and its complications. Geneva, Switzerland: World Health Organization.
- 10) Paul A. James et al. 2014 Evidence-Based Guideline for the Management of High Blood Pressure in Adults Report From the Panel Members Appointed to the Eighth Joint National Committee (JNC 8).
- 11) Dalle Grave R, Calugi S, Centis E, El Ghoch M, and Marchesini G. Cognitive-Behavioral Strategies to Increase the Adherence to Exercise in the Management of Obesity. *Journal of Obesity*. 2011;2011:1-11.
- 12) WHO. International classification of diseases, vol1, pg.242.
- 13) WHO. Diabetes. <http://www.who.int/diabetes/action_online/basics/en/index3.html>

UNIT 3 NON-COMMUNICABLE DISEASES-2

Structure

- 3.0 Introduction
- 3.1 Objectives
- 3.2 Cervical Cancer
 - 3.2.1 Signs and Symptoms
 - 3.2.2 Cause and Diagnosis
 - 3.2.3 Stages of Cervical Cancer
 - 3.2.4 Preventive Measures
- 3.3 Breast Cancer
 - 3.3.1 Sign and Symptoms
 - 3.3.2 Risk Factor
 - 3.3.1 Preventive Measures
- 3.4 Oral Cancer
 - 3.4.1 Signs and Symptoms
 - 3.4.2 Screening and Management
- 3.5 National Health Programme for Cancer
- 3.6 Let Us Sum Up
- 3.7 Model Answers
- 3.8 References

3.0 INTRODUCTION

The three commonly occurring cancers in India are those of the breast, cervix and oral cavity. Each of these cancers is amenable to early detection and treatment thus reducing the cancer morbidity and mortality.

3.1 OBJECTIVES

After completing this unit, you should be able to :

- enumerate common cancers in India;
- explain cause, diagnostic test of common cancers;
- identify signs and symptoms for cancers; and
- describe preventive measure and management of cancer.

3.2 CERVICAL CANCER

Cervical cancer occurs when abnormal cells develop and spread in the cervix which is the lower part of the uterus. It is the abnormal growth of cells that have the potential to invade or spread to other parts of the body. In the early stages typically there are no symptoms are seen. In the later stages the symptoms may include abnormal vaginal bleeding, pelvic pain and pain during sexual intercourse.

Human papillomavirus (HPV) infection is found to be involved in the development of more than 90% of cases but it may not be the case always. Other contributory risk factors include smoking, a weak immune system, and having many sexual partners, but these are less important.

Cervical cancer usually develops from precancerous changes over 10 to 20 years. About 90% of cervical cancer cases are squamous cell carcinomas, 10% are adenocarcinoma, and a small number are other types. Diagnosis is typically by cervical screening followed by a biopsy and then followed by imaging which determines the cancer has spread or not.

In India, cervical cancer is a common form of cancer in women. In 2012, cervical cancer is about 8% of the total cases and total deaths from cancer. India accounting to nearly 1/3rd of the global cervical cancer deaths.

3.2.1 Signs and Symptoms

The early stages of cervical cancer are usually free of symptoms. Vaginal bleeding, contact bleeding (one most common form being bleeding after sexual intercourse), or in some cases a vaginal mass may indicate the presence of malignancy. The moderate pain during sexual intercourse and vaginal discharge are also the symptoms of cervical cancer.

Symptoms of advanced cervical cancer may include:

- loss of appetite
- weight loss
- fatigue
- pelvic pain
- back pain
- leg pain
- swollen legs
- heavy vaginal bleeding
- bone fractures,
- leakage of urine or feces from the vagina.
- bleeding after douching or after a pelvic exam

3.2.2 Cause and Diagnosis

Causes

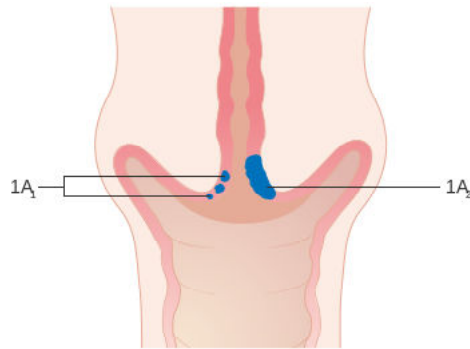
- Human papilloma virus
- Smoking
- Use of Oral contraceptives
- Multiple pregnancies

Diagnosis

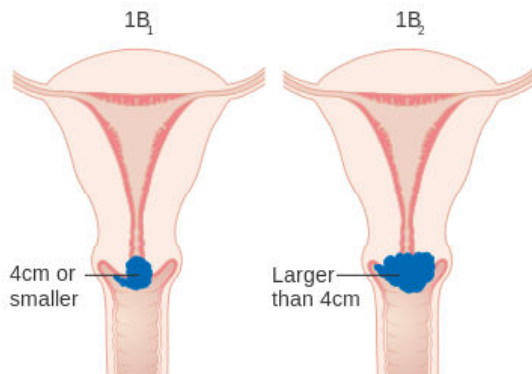
- Visual inspection by acetic acid
- Biopsy
- Precancerous lesions

3.2.3 Stages of Cervical Cancer

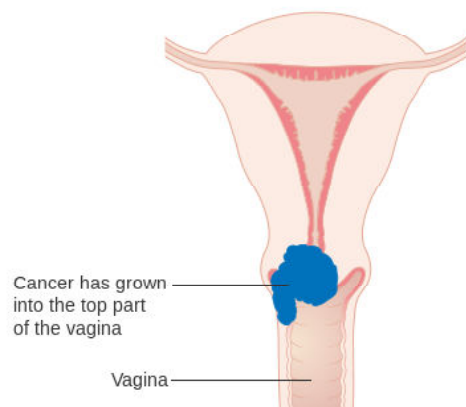
Cervical cancer is staged by the International Federation of Gynaecology and Obstetrics (FIGO) staging system based on clinical examination than surgical findings (Fig. 3.1) shows stage 1A, stage 1B, stage 2A, stage 2B, stage 3B, stage 4A and stage 4B.



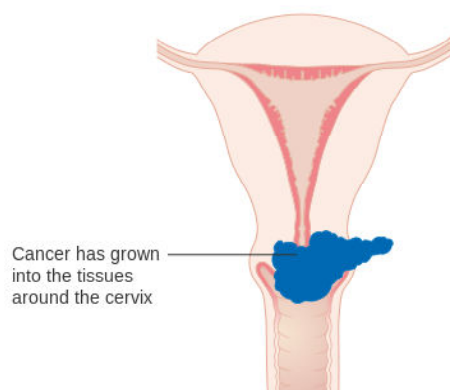
- Stage 1A cervical cancer- The cancer is limited to the area of cervix



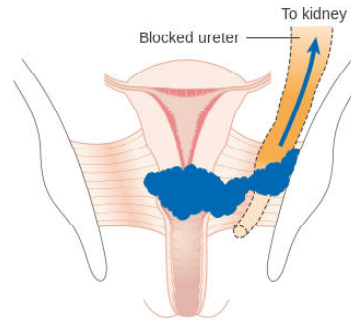
- Stage 1B cervical cancer- In 1B₁- The size is less than or equal to 4 cm and in 1B₂ the size is larger than the 4 cm.



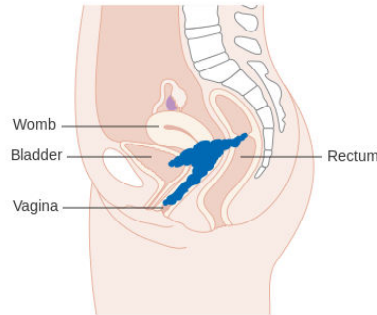
- Stage 2A cervical cancer- the cancer has grown into the top part of the vagina.



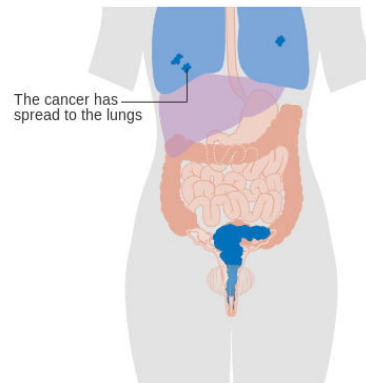
- Stage 2B cervical cancer- cancer has grown into the tissues around the cervix.



- Stage 3B cervical cancer- the cancer has blocked the ureter and descends towards kidneys.



- Stage 4A cervical cancer- cancer reaches bladder, rectum and into the adjacent organs.



- Stage 4B cervical cancer- the cancer reaches the lungs.

Fig. 3.1: Pictorial presentation of cervical cancer

3.2.4 Preventive Measures

The cervix should be checked by the visual inspection with acetic acid (VIA) Papanicolaou test, or Pap smear, for cervical cancer has been credited with reducing the number of cases of and mortality from cervical cancer.

Barrier protection

Barrier protection or spermicidal gel use during sexual intercourse decreases cancer risk and condoms offer protection against cervical cancer.

Evidence on condoms that whether they protect against HPV infection is mixed, but they protect against genital warts and other precursors to cervical cancer. They also provide protection against other STIs, such as HIV and *Chlamydia*, which are associated with greater risks of developing cervical cancer.

Vaccination

Two HPV vaccines (Gardasil and Cervarix) reduce the risk of cancerous or precancerous changes of the cervix and perineum by about 93% and 62%, respectively.

The vaccines should be stored at 2 to 8°C and must not be frozen. The dose is 0.5 ml intramuscular in deltoid. The recommended age for initiation of vaccination is 10–12 years. As of current licensing regulations in India, catch up vaccination is permitted up to the age of 45 years. Three doses at 0, 2 and 6 months are recommended with the quadrivalent vaccine (minimum interval between 1st and 2nd dose is 4 weeks and second and third dose is 12 weeks) and 0, 1 and 6 months with the bivalent vaccine. HPV vaccines can be given simultaneously with other vaccines such as Hepatitis B. Vaccine should be administered in a sitting/ lying down position and the patient observed for 15 minutes post vaccination.

The vaccines are between 92% and 100% effective against HPV 16 and 18 up to at least 8 years.

Nutrition

Vitamin A, Vitamin B12, vitamin C, vitamin E, and beta-carotene are also associated with a lower risk of cervical cancer.

Screening

The cervical cancer screening is to be by VIA and PAP smear which can be performed at any time in the menstrual cycle, including during menses, during pregnancy and at a postpartum or postabortion checkup. The steps of VIA are as

- Inspect the external genitalia
- Insert the speculum fully so that the entire cervix can be seen
- Look at the cervix and check for evidence of cancer or infection (cervicitis)
- Soak a clean swab in dilute acetic acid solution (3–5%) and apply it to the cervix
- Once the cervix has been washed with the acetic acid solution, wait at least 1 minute for it to be absorbed and any acetowhite reaction to appear as shown in Fig. 3.2.
- **Test positive**– Raised and thickened white plaques or aceto white epithelium

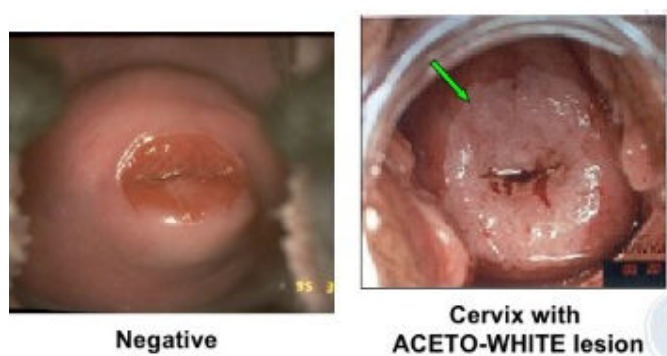


Fig. 3.2: Cervix with VIA negative and positive

Table 3.1: Shows screening and follow up process of cervical cancer. The algorithm for screening and management is shown in Fig. 3.3

Cancer Type	Age of Beneficiary	Methods of Screening	Frequency of Screening	If Positive
Cervical	30–65 years	Visual inspection by acetic acid	Once in 5 years	Referred to PHC/CHC/ DH for further evaluation and management

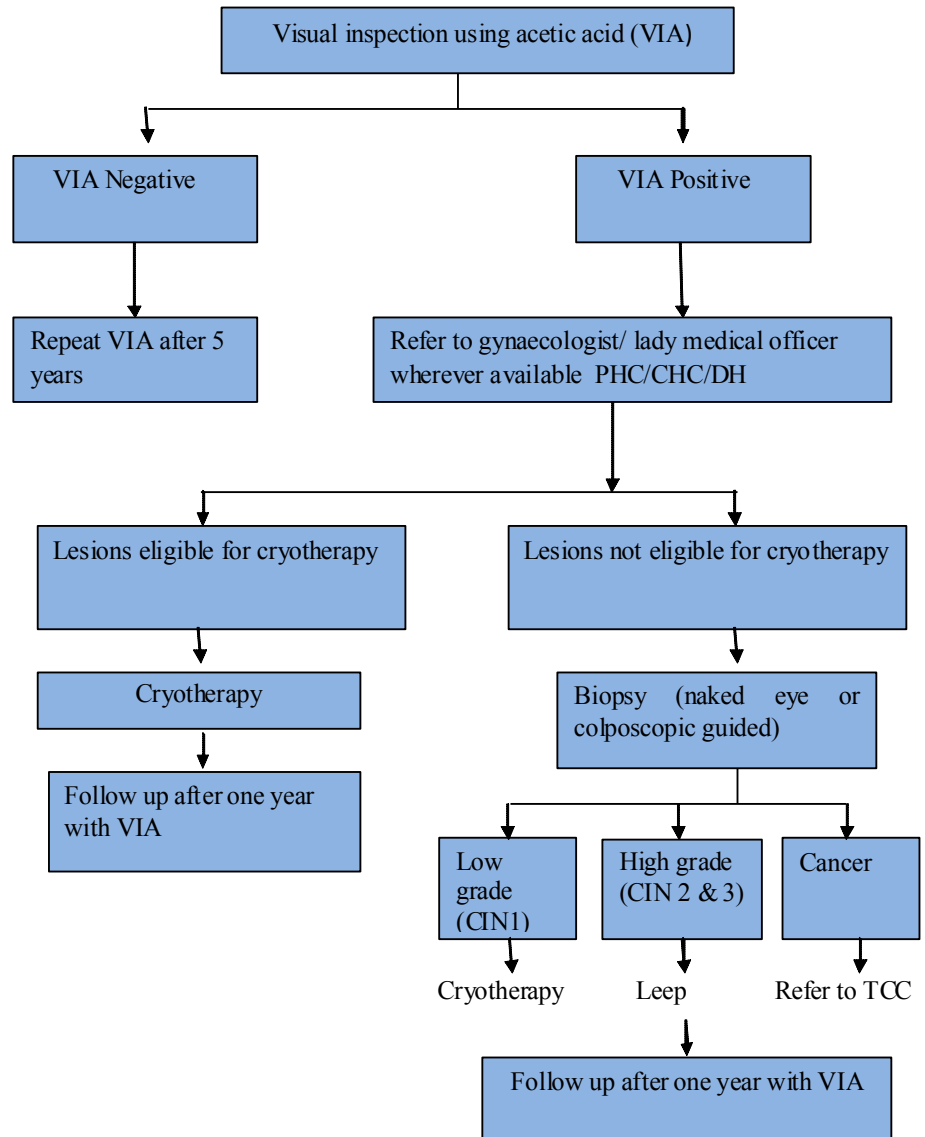


Fig. 3.3: Screening and Management algorithm for cervical cancer

Eligibility for Cryotherapy:

- The lesions should not be spread over more than 2 quadrant of cervix
- The entire lesion is located in the ectocervix without extension to the vagina and/ or endocervix
- The lesion is visible in its entire extent
- The lesion can be adequately covered by the largest available cryotherapy probe
- There is no suspicion of invasive cancer

Cryotherapy is not recommended if:

- Postcoital bleeding
- Postmenopausal bleeding

Check Your Progress 1

1) Name commonly occurring cancers in India.

.....

2) Name screening and diagnostic tests for cervical cancer.

.....
.....

3) List causes of cervical cancer.

.....
.....

3.3 BREAST CANCER

Breast cancer is cancer that develops from breast tissue. Signs of breast cancer may include a lump in the breast, a change in breast shape, dimpling of the skin, fluid coming from the nipple, or a red scaly patch of skin.

3.3.1 Signs and Symptoms

The first noticeable symptom of breast cancer is typically a lump that is different from the other breast tissue. More than 80% of breast cancer cases are diagnosed when the woman feels a lump. The earliest breast cancers are detected by a mammogram. Lumps found in lymph nodes located in the armpit scan also indicate breast cancer.

Lump may include thickening different from the other breast tissue, one breast becoming larger or lower, a nipple changing position or shape or becoming inverted, skin puckering or dimpling, a rash on or around a nipple, discharge from nipple/s, constant pain in part of the breast or armpit, and swelling beneath the armpit or around the collarbone.

Pain (“mastodynia”) is an unreliable tool in determining the presence or absence of breast cancer, but may be indicative of other breast health issues.

Most symptoms of breast disorders, including most lumps, do not turn out to represent underlying breast cancer. Fewer than 20% of lumps, for example, are cancerous, and benign breast diseases such as mastitis and fibroadenoma of the breast are more common causes of breast disorder symptoms.

3.3.2 Risk Factors

The primary risk factors for breast cancer are female sex and older age.

Other potential risk factors include genetics, lack of childbearing or lack of breastfeeding, higher levels of certain hormones, certain dietary patterns, and obesity.

Recent studies have indicated that exposure to air pollution is a risk factor for the development of breast cancer.

Lifestyle

Smoking tobacco appears to increase the risk of breast cancer, with the greater the amount smoked and the earlier in life that smoking began, the higher the risk. In those who are long-term smokers, the risk is increased 35% to 50%.

A number of dietary factors have been linked to the risk for breast cancer. Dietary factors which may increase risk include a high fat diet, high alcohol intake, and obesity related high cholesterol levels.

Genetics

Genetics is believed to be the primary cause of 5–10% of all cases. Women whose

mother was diagnosed before 50 have an increased risk of 1.7 and those whose mothers were diagnosed at age 50 or after have an increased risk of 1.4.

In those with zero, one or two affected relatives, the risk of breast cancer before the age of 80 is 7.8%, 13.3%, and 21.1% with a subsequent mortality from the disease of 2.3%, 4.2%, and 7.6% respectively.

3.3.3 Preventive Measures

Life-style

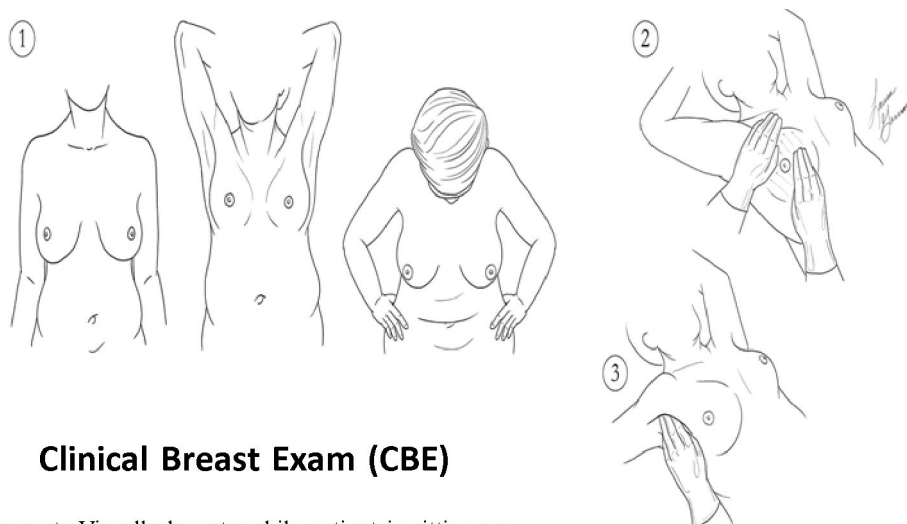
Women may reduce their risk of breast cancer by maintaining a healthy weight, drinking less alcohol, being physically active and breastfeeding their children. The benefits with moderate exercise such as brisk walking are seen at all age groups including postmenopausal women.

High levels of physical activity reduce the risk of breast cancer.

High consumption of soy-based foods may reduce risk.

Screening

The screening follows the clinical breast examination for and lump or other deformity in the breast tissue. The clinical breast examination follows the following steps in Fig. 3.4 and the screening details for CBE are given in Table 3.2 and the referral algorithm is presented in Fig. 3.5.



Clinical Breast Exam (CBE)

1. **Inspect:** Visually breasts while patient is sitting up. Specialized positions may be required to assess positive findings.
3. **Palpate Axilla:** Probe axillary region for swollen lymph nodes. Move Patient's arm from over head for easier access to this area.
2. **Palpate breasts:** Examine breasts with three finger pads, moving in vertical rows and checking for any Lumps or other irregularities.
4. **Inspect Nipples:** Grasp and compress nipple and areolar tissue between thumb and index finger. Check for discharge.

Fig. 3.4: Clinical Breast Examination (CBE)

Table 3.2: Screening and referral of breast cancer

Cancer Type	Age of Beneficiary	Methods of Screening	Frequency of Screening	If Positive
Breast	30–65 years	Clinical breast examination	Once in 5 years	Referred to surgeon at CHC/ DH for confirmation using a breast ultra sound probe followed by biopsy as appropriate

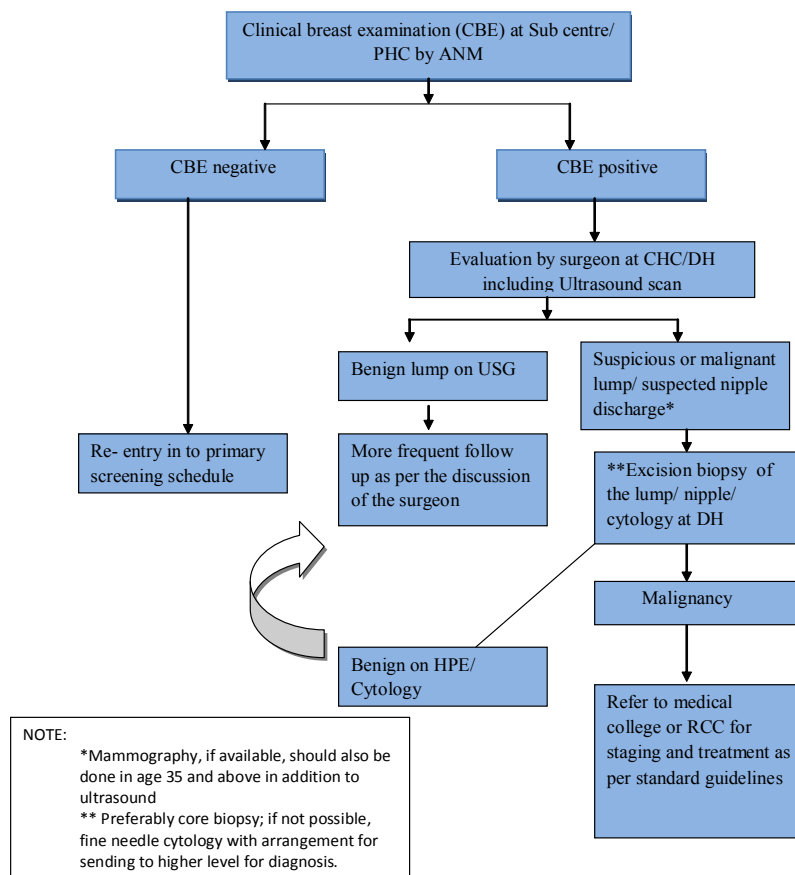


Fig. 3.5: Screening and Management algorithm for breast cancer

3.4 ORAL CANCER

Oral cancer, also known as mouth cancer and is any cancerous tissue growth located in the oral cavity.

Oral cancer is the most common form of cancer in India. 130,000 people are affected to oral cancer in India annually. The reason for this high prevalence of oral cancer in India is primarily tobacco consumed in the form of gutka, quid or snuff. In the North East India, the use of areca nut is also a risk factor for oral cancer.

3.4.1 Signs and Symptoms

Skin lesion, lump, or ulcer that do not resolve in 14 days located are on the tongue, lip, or other mouth areas

- All usually small
- Most often pale colored, may be dark or discoloured
- Early sign may be a white patch (leukoplakia) or a red patch (erythroplakia) on the soft tissues of the mouth, usually painless initially
- May develop a burning sensation or pain when the tumor is advanced
- Behind the wisdom tooth or behind the ear

Additional symptoms that may be associated with this disease:

- Tongue problems (Difficulty in Movement of tongue)
- Swallowing difficulty
- Mouth sores
- Pain and paraesthesia are late symptoms.

3.4.2 Screening and Management

The screening to be done by for any of the lesion or ulcer by the oral visual examination and if found positive for any of the above mentioned sign and symptoms the patient should be referred to higher facility. The broad overview for screening is given in the Table 3.3 and the algorithm for the referral is given in Fig. 3.6.

Table 3.3: Screening and referral of oral cancer

Cancer Type	Age of Beneficiary	Methods of Screening	Frequency of Screening	If Positive
Oral	30–65 years	Oral visual examination	Once in 5 years	Referred to surgeon/ dentist/ ENT specialist/medical officer at CHC/DH for confirmation and biopsy.

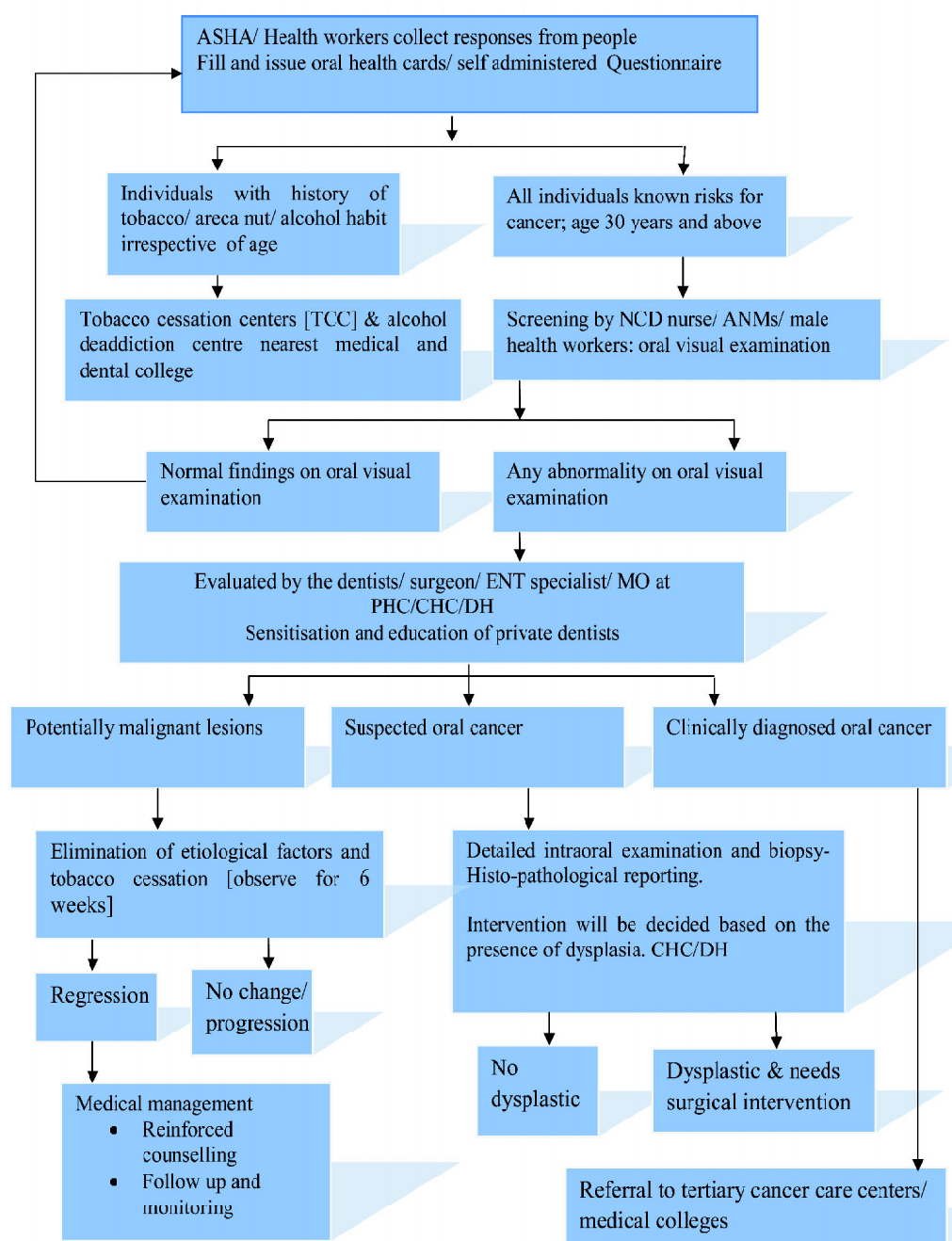


Fig. 3.6 : Screening and management algorithm for oral cancer

Check Your Progress 2

1) List risk factors for breast cancer?

.....
.....
.....

2) List Signs and Symptoms for oral cancer?

.....
.....
.....
.....

3.5 NATIONAL HEALTH PROGRAMME FOR CANCER

The National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) during 2010–11 after integrating the National Cancer Control Programme (NCCP) with National Programme for Prevention and Control of Diabetes, Cardiovascular Diseases and Stroke (NPDCS) keeping in view the needs of the society and the integration of the services provided at various health care levels.

It includes the domains of health promotion, early diagnosis, treatment and referral at various levels of health care.

- 1) Prevention through behaviour change: The major risk factors to cancer, hypertension, obesity, diabetes and cardiovascular diseases are unhealthy diet, physical inactivity, stress, consumption of tobacco and alcohol. Attempts were made to prevent these risk factors by creating general awareness about the Non Communicable Diseases (NCD) and promotion of healthy life style habits among the community through various categories of mass media (electronic and print), community education and interpersonal communication.
- 2) Early diagnosis and referral.
 - Common cancers such as oral, cervical and breast cancers can be included in the screening package, but states will need to ensure that treatment centres for patients with detected cancers are accessible and affordable.

3.6 LET US SUM UP

The three common cancers as breast, cervical and oral cancer contribute to major portion of cancers and these cancers are preventable if diagnosed early. Therefore the screening strategies for these cancers are to be taken actively up by the health care providers for further referral and management.

3.7 MODEL ANSWERS

Check Your Progress 1

- 1) Breast Cancer, Cervical and Oral Cavity.
- 2) Screening by VIA, PAP smear, Biopsy, MRI.
- 3) **Causes**
 - Human papilloma virus
 - Smoking
 - Use of Oral contraceptives
 - Multiple pregnancies

Check Your Progress 2

- 1) The primary risk factors for breast cancer are female sex and older age.
Other potential risk factors include genetics, lack of childbearing or lack of breastfeeding, higher levels of certain hormones, certain dietary patterns, and obesity.
Recent studies have indicated that exposure to air pollution is a risk factor for the development of breast cancer.
- 2) Skin lesion, lump, or ulcer that do not resolve in 14 days located:
 - On the tongue, lip, or other mouth areas
 - Usually small
 - Most often pale coloured, may be dark or discoloured
 - Early sign may be a white patch (leukoplakia) or a red patch (erythroplakia) on the soft tissues of the mouth, usually painless initially
 - May develop a burning sensation or pain when the tumor is advanced
 - Behind the wisdom tooth or behind the ear

3.8 REFERENCES

- 1) Kumar V, Abbas AK, Fausto N, Mitchell RN (2007). Robbins Basic Pathology (8th ed.). Saunders Elsevier. pp. 718–721.
- 2) Cervical Cancer Treatment (PDQ®)". National Cancer Institute. 2014-03-14.
- 3) WHO/ICO Information Centre on HPV and Cervical Cancer (HPV Information Centre). Summary report on HPV and cervical cancer statistics in India.
- 4) Thakur JS. A Training manual for Health Workers. CBS Publishers & Distributors Pvt Ltd, 2016.
- 5) International Federation of Gynaecology and Obstetrics.
- 6) National Institutes of Health, National Cancer Institute: PDQ Cervical Cancer Prevention. Bethesda, MD: National Cancer Institute.
- 7) IAPCOI. Human papilloma virus (hpv) vaccines <<http://www.iapcoi.com/hp/pdf/17>>
- 8) Cervical Cancer: Cancers of the Female Reproductive System: Merck Manual Home Edition. Merck Manual Home Edition.

- 9) Ministry of Health and Family Welfare. Government of India. Operational framework of management of common cancers 2016.
- 10) Merck Manual of Diagnosis and Therapy (*February 2003*). "Breast Disorders: Breast Cancer"
- 11) Johnson KC, Miller AB, Collishaw NE, Palmer JR, Hammond SK, Salmon AG, Cantor KP, Miller MD, Boyd NF, Millar J, and Turcotte F (Jan 2011). "Active smoking and secondhand smoke increase breast cancer risk: the report of the Canadian Expert Panel on Tobacco Smoke and Breast Cancer Risk (2009)."
- 12) Colditz, Graham A.; Kaphingst, Kimberly A.; Hankinson, Susan E.; and Rosner, Bernard (19 February 2012). "Family history and risk of breast cancer: nurses' health study". *Breast Cancer Research and Treatment*. 133 (3): 1097–1104.
- 13) Familial breast cancer: collaborative reanalysis of individual data from 52 epidemiological studies including 58,209 women with breast cancer and 101,986 women without the disease." *Lancet*. 358 (9291): 1389–99.
- 14) [Internet]. Medillsb.com. 2016 [cited 20 September 2016]. Available from: http://www.medillsb.com/images/artistimages/xlarge/8016_152849.jpg
- 15) Ken Russell Coelho. Challenges of the Oral Cancer Burden in India. *J Cancer Epidemiol*. 2012; 2012: 701932.
- 16) Department of Health and Family Welfare. Government of India. National Programme For Prevention and Control of Cancer, Diabetes, Cardiovascular Disease and Stroke(NPCDCS). Operational guidelines 2013-17(pdf)

UNIT 4 OCCUPATIONAL DISEASES

Structure

- 4.0 Introduction
- 4.1 Objectives
- 4.2 Concept of Occupational Health
 - 4.2.1 Occupational Environment
 - 4.2.2 Occupational Hazards
- 4.3 Occupational Diseases
 - 4.3.1 Pneumoconiosis and Its Prevention
 - 4.3.2 Lead Poisoning and Its Prevention
 - 4.3.3 Occupational Cancers
 - 4.3.4 Occupational Hazards of Agriculture Workers
 - 4.3.5 Occupational Dermatitis
 - 4.3.6 Accidents in the Industries
- 4.4 Preventive Measures to Combat Occupational Hazards
 - 4.4.1 Primary Prevention
 - 4.4.2 Secondary Prevention
 - 4.4.3 Tertiary Prevention
 - 4.4.4 Legislative Measures
 - 4.4.5 Engineering Measures
- 4.5 Role of Mid Level Health Care Provider in Prevention of Occupational Hazards
- 4.6 Let Us Sum Up
- 4.7 Model Answers
- 4.8 References

4.0 INTRODUCTION

In the previous unit, you have studied various non-communicable diseases. You have also studied about their prevention and control. Many non-communicable diseases like Cancers, accidents, mental health problems etc. have multiple causes. One of the cause of these diseases is occupational health hazards which is discussed in the present unit.

There are 100 million occupational injuries causing 0.1 million deaths in the world according to WHO. In India it is estimated that 17 million (17% of global burden) occupational non-fatal injuries and 45,000 fatal injuries occur each year. So our aim for occupational health will be

- To increase efficiency
- To increase production
- To decrease accidents and diseases

4.1 OBJECTIVES

In this unit you are going to study about the diseases caused by occupational health hazards. At the end of this unit, you will be able to:

- define occupational health ergonomics;
- identify factors affecting health of workers;
- enumerate occupational health hazards and occupational diseases; and
- list preventive measures and compact occupational hazards.

4.2 CONCEPT OF OCCUPATIONAL HEALTH

Occupational health is the study and prevention of environmental problems in worker population with in the work place.

Ergonomics is concerned with human engineering that means placing the work in an environment (job) which is adopted to his physiological and psychological Capacity.

The health of the worker is influenced by three factors, namely occupational (working) environment, domestic, social security and welfare measures.

4.2.1 Occupational Environment

You will appreciate that environment in which one works have a bearing influence on health of the worker by three types of interactions.

The first one is man with machine: In almost all the industries the machines are driven by power; poor installation of machines, the unguarded protruding moving parts, poor maintenance etc. results in accidents. Working for long hours result in fatigue, discomfort and decreased efficiency.

Second one is man with environment: The interaction between man and environment has an influence on his health.

The third one is man with man: The interaction between worker, his co-worker and employer. This depends on many psychosocial factors like job satisfaction, payment, welfare conditions, incentive etc. which has influence on their safety, security and mental health.

You can see in the following diagram given below that there is continues interaction between man, environment and the machine or the equipment needed for the works (Fig. 4.1)

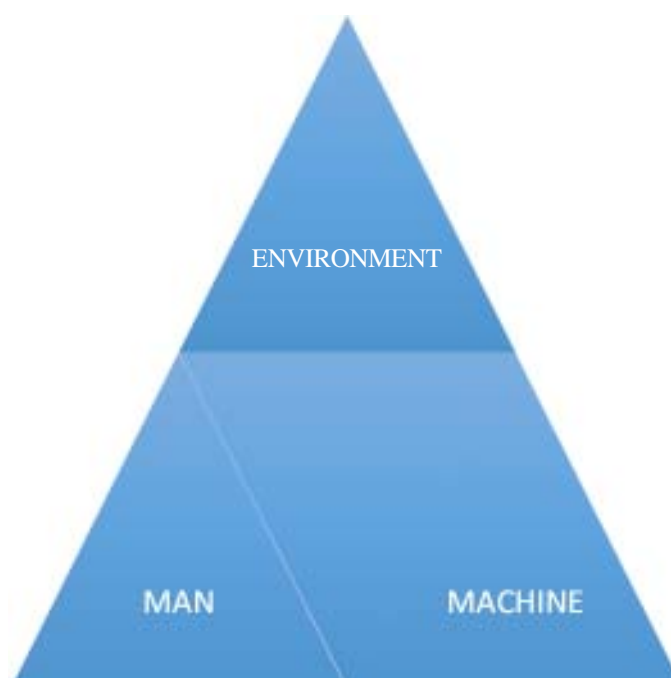


Fig. 4.1: Interaction of Man, Machine and Environment

The working environment also influence their environment and vice-versa. So that occupational environment effects their family life as well.

4.2.2 Occupational Hazards

An industrial worker is exposed to five types of hazards these are physical, chemical, biological, mechanical and psychosocial.

There are some other hazards like Cancer of skin, lungs, bladder and blood forming organs e.g. leukemia. Dermatitis eczema, folliculitis, urticarial rashes.

As you know that about 70% of our population lives in rural area and their main occupation is agriculture. Occupational health in agriculture sector is a new concept. Agriculture worker has multitude of health problems, a fact which is often forgotten because of the myth that occupational health is mainly concerned with industry.

As India’s majority of population reside in rural areas and their profession is agriculture they have problems related to this field.

So in coming text you are going to study about the occupational diseases of agriculture workers in addition to other occupational diseases.

Check your Progress 1

1) Define Ergonomics.

.....

.....

2) Name three types of interaction in work place.

.....

.....

3) Enumerate occupational hazards.

.....

.....

4.3 OCCUPATIONAL DISEASES

Occupational diseases are those which arise out of or in the course of employment. They can be grouped as follows (Table 4.1):

Table 4.1: Aetiological agents of occupational diseases

S. N.	Causative Agent	Disease Condition
1.	Diseases due to Physical Agents	
	a. Heat	Heat hyperpyrexia, heat exhaustion, heat syncope, heat cramp, burns and local effects
	b. Cold	Trench foot, frost bite, chilblains.
	c. Light	Occupational Cataract, Miner’s nystagmus

S. N.	Causative Agent	Disease Condition
	d. Pressure e. Noise f. Radiation g. Mechanical Factors h. Electricity	Caisson disease, air embolism, blast. Occupational deafness, Cancer, leukemia, aplastic anaemic, Pancytopenia Injuries and accidents Burns
2.	Diseases due to Chemical Agent a. Gases b. Inorganic dusts c. Organic dust d. Metal their compounds e. Acids, Alkalies, Pesticides	Gas Poisoning Pneumoconiosis Bagassosis Byssinosis, Tobocosis and farmers' lung Lead Mercury, Cadmium Poisoning Burns
3.	Biological Agent	Brucellosis, leptospirosis, anthrax actinomycosis, tetanus, encephalitis etc.
4.	Occupational Cancers	Cancer of skin, bladder, lungs
5.	Occupation Dermatitis	Dermatitis, eczema
6.	Diseases of Psychological Origin	Industrial neurosis, hypertension, ulcer etc.
7.	Occupational diseases of Agriculture Worker	Anthrax, leptospirosis, tetanus, tuberculosis and Q fever Accidents due to machinery used for farming, insect and snake bite, solar radiation and respiratory diseases.
8.	Occupational diseases to the Health Care Workers	Infections like HIV, hepatitis ,TB, backache, mental stress, varicose vein, sleep deprivation
9.	Occupational diseases to the Computer Professionals	Carpal turner syndrome, dry eyes, cervical spondylitis, insomnia, backache.

4.3.1 Pneumoconiosis and Its Prevention

Pneumoconiosis is also known as dust disease. There are group of diseases in the lung parenchyma occurring due to specific occupation, caused by inhalation of insoluble dust over a prolonged period of time.

As you know that there is no treatment for pneumoconiosis, the prevention is only intervention. So one need to prevent these disease to occur.

Clinically it is characterised by persistent cough, progressive breathlessness which

gradually cripples the person by reducing the working capacity due to fibrosis of lungs followed by complication like pulmonary disease and even carcinoma in some cases.

There are few factors which influence pneumoconiosis these are:

- Higher the concentration of dust greater the health hazards. The permissible limit is 200 mcg per cubic meter of air
- Composition of dust is also an important factor, more the complicated composition greater the health hazard
- Size of the dust is another important factor. Smaller the size of dust particle greater the tissue reaction
- Duration of exposure also determine the disease condition. Longer the duration of exposure greater the health hazard
- It is very important that individual response also determine the disease condition. If the health and nutrition status of an individual is better, lesser the chances of pneumoconiosis.

Table 4.2: Common Pneumoconiosis, causative agents and the industries of occurrence

Dust	Disease	Industry
Silica	Silicosis	Sand stone industry, stone quarrying and dressing, granite industry, pottery ceramics, gold, silver and mica industry
Asbestos	Asbestosis	Asbestos cement factory, fireproof textiles
Iron	Siderosis	Iron one and mines, iron and steel industries
Coal dust	Anthracosis	Coal Mines
Aluminum	Aluminosis	Aluminum Industry
Barium	Baitosis	Photography, Printing, barium diagnostic works
Beryllium Stone	Berylliosis Lithosis	Beryllium mining, manufacture of alloy. Stone Industry
Organic dusts	Cotton dust	Byssnosis Textile Industry
Sugar cane dust	Bagassosis	Cane sugar factory, paper and cardboard factories
Tobacco dust	Tobaccosis	Tobacco factories (Beedi, cigar, cigarette)
Mouldy hay Grain dust	Farmer's lung	Agriculture Industry

4.3.2 Lead Poisoning and Its Prevention

Lead Poisoning (Plumbism)

There are two sources of lead poisoning that is occupational and non-occupational.

- 1) Occupational type of plumbism is common in lead ore, glass paint, printed potteries and plumbing work industries.

- 2) Non-occupational source is by automobile exhaust, water supply through lead pipes, fruit sprayed with insecticides containing lead, children having pica (eating lead containing mud etc.)

You can diagnose the lead poisoning by doing blood and urine examination which can be summarised by the following Table 4.3.

Table 4.3: Diagnosis of lead poisoning

Specimen	Normal Level	Dangerous Level
Blood lead	25–40 mcg/10 ml	770 mcg/100 ml
Urinary lead	0.2–0.8 mcg per liter	70.8 mcg per liter
Urinary amino lenulinic acid	6 mg per liter	60 mg per liter

You need to get some other laboratory investigations like haemoglobin which will be reduced, RBC count will be bereaved along with blood and urine lead level.

As we know prevention is required to combat occupational disease, which are discussed as follows:

- Preplacement examination

Consist of thorough examination of the individual before giving the job. It includes physical examination and routine investigations including chest x-ray. The suitable job should be given depending on physical and mental abilities that is fitting the job to the worker.

- Health Education

Employees at the risk of pneumoconiosis are educated about the hazards of dust inhalation over long period of time. They are educated about the hazards of smoking as precipitating factor.

- Provision of healthy physical environment will also prevent the disease. Adequate ventilation, good housekeeping are mandatory in the industries.
- Prevention of formation of dust at the point of origin by water sprays.
- Prevention of escape of dust in the environment also is very important. If the dust formation is not possible to control; at least the escape in the atmosphere should be prevented.
- Keeping moisture content below 20 per cent and spraying 2 per cent propionic acid controls bagassosis. Dust can also be removed by special ventilator arrangements.
- This is Specific Protection: Workers can be provided by use of mask and other protective devices.
- Early diagnosis and treatment

Workers should go for periodic medical examination including x-ray chest etc. to detect the disease condition at early stage.

- Disability limitation

This consist of limiting the further disability of worker by detecting the slightest degree of disability and immediately assigning other job.

- Rehabilitation required for the workers who have become handicapped due to development of fibrosis.

Prevention of further exposure to lead must be done by changing the job and further management health care facility should be done.

4.3.3 Occupational Cancers

The most common cancers due to occupational hazards are skin, lungs, blood forming organs like bone marrow, skin, lungs, blood forming organs like bone marrow, bladder etc.

- Cancer occurs on those sites where the action of carcinogens is constant, most intense and prolonged.
- They appear after prolonged exposure for about 10–15 years.
- They can also occur after cessation of exposure.
- It is more among male than in females.
- The localisation of tumor is remarkably constant in any one occupation.
- The incidence of cancer due to occupation is much earlier than that for cancers in general.
- Maintenance of high standards of personal hygiene is very important in prevention of cancers.

4.3.4 Occupational hazards of Agriculture Workers

Occupational health in agriculture sector is new concept. You may be belonging to rural area where you might have seen lot of accidents and multitude of health problems which is actually forgotten.

The agriculture worker is exposed to following health hazards -

- Zoonotic diseases are common among agriculture workers since they come in contact with animals. They are prone to develop diseases like anthrax, brucellosis, leptospirosis, tetanus, bovine tuberculosis.
- Accidents : Accidents in agriculture industry are becoming more frequent than before as result of increasing use of agriculture machinery. Insects and snake bites are additional problem in India.
- Toxic Hazards: Chemicals are being used increasingly in agriculture either as fertilizers, insecticides. Agriculture workers are exposed to toxic hazards from these chemicals.
- Physical Hazards : The agriculture workers may be exposed to extremes of climatic conditions such as temperature, humidity, solar radiation, which is an adverse effect on their health.
- Respiratory Diseases : Exposure to dust of grains, husks, coconut fibers, tea, tobacco, cotton etc. leads to lung diseases and specifically farmer's lung.

4.3.5 Occupational Dermatitis

These include dermatitis, eczema, folliculitis, urticarial, ulcers and even cancers of the skin.

The agent factors for occupational dermatomes are :

- Physical agent : Such as heat and radiation
- Chemical agents : Acids, alkalis, dyes, solvents, grease, tar, pitch and minerals like arsenic

- Biological agents : Such as virus, bacteria, fungi and certain parasites.
- Plant products : Such as leaves, fruits, flowers, vegetables etc.
- Sensitising Agents : These agents act as allergens such as photo developing materials, formalin, insecticides etc.

4.3.6 Accidents in the Industries

Accidents are common feature in most industries. In fact some industries are known for accidents e.g. coal and other mining industries, constructions work.

There are multiple causes of accidents like physical, physiological and psychological causes.

Environmental factor also play and important role in causation of accidents in the industry e.g. unsafe machines, noise pollution, excessive light and high temperature are some of the factors.

4.4 PREVENTIVE MEASURES TO COMBAT OCCUPATIONAL HAZARDS

Let us discuss the preventive measures and the legislative, medical and engineering measures.

4.4.1 Primary Prevention

Primary prevention includes pre placement examination, which is performed for the each worker before they join the job.

Provision of healthy physical environment is a must for healthy work force.

- Building of the workplace should be safe from stress and strains of the machinery. There should be proper lightening and ventilation. The temperature of workplace must be in between 25–27°C. Measures should be taken to control the dust; by wet or oiling method, exhaust etc.

Hygiene of the work place is important, and needs proper water supply for the worker Provision of safe drinking water is equally important.

- For every 25 workers there must be one lavatory and urinal for every 50 workers.

Welfare activities like recreational facilities, lunch room, family welfare services, crèche for children of employed mothers and insurance facilities to be provided.

In specific protection like personal protective measures become a necessity to safe guard against occupational hazards. The example of personal protective measures are like use of helmets, goggles, ear plugs, respirators and immunisation against various communicable diseases etc.

4.4.2 Secondary Prevention

Early diagnosis is done by periodic examination, including laboratory investigation and radiological examination.

Prompt treatment is initiated as soon as the diagnosis is made. Personal monitoring is important whenever such hazard exist.

4.4.3 Tertiary Prevention

This includes disabilities limitation and rehabilitation. A careful attention is given to those who become physically handicapped during the course of their employment

either by accident or injury. Such persons are rehabilitated and given a suitable job, so that their psychological trauma is countered and becomes a useful person to himself, to the family and the country at large.

<p>Check Your Progress 2</p> <p>1) Name the occupational diseases of agriculture worker.</p> <p>2) Enumerate the measures to control pneumoconiosis.</p> <p>3) Lead poisoning is also known as.</p> <p>4) Enlist the occupational cancers.</p> <p>5) What are the preventive measures to combat occupational hazards?</p>

4.4.4 Legislative Measures

In India there are laws which have been framed to address the welfare of industrial workers. The laws are:

- 1) Indian factories Act, 1948
- 2) Family Pension and Deposit Linked Insurance Fund Act
- 3) Mines Act
- 4) Tea Plantation Act
- 5) Minimum age Act, 1948
- 6) Maternity Benefit Act
- 7) Laborer’s Act
- 8) Industrial Dispute Act
- 9) Employees Provident Fund Act, 1952
- 10) Employees State Insurance Act, 1923

These laws are enforced to ensure the standards and safety of the workers which an employer must comply with.

The administration of Employee State Insurance scheme under the Act is entrusted to an autonomous body called ESI corporation directly under the labour ministry and union minister for labour as the Chairman.

Benefits to Employees

- Medical benefit
- Sickness benefit
- Maternity benefit
- Disability benefit

- Dependent's benefit
- Funeral expenses
- Rehabilitation Allowance

4.4.5 Engineering Measures

- Design of building should be such to look into the safety issues of the workers. Attention should be paid to the flooring, height of the walls, ceilings, roof, doors and windows.
- Good housekeeping is another measure to ensure health safety.
- Enclosure: Enclosing the harmful material and process will prevent the escape of dust and fumes into the factory atmosphere.
- Isolation: Isolating the offensive process in a separate building to prevent workers from coming directly in contact with harmful substances.
- Local exhaust ventilation : Dust, fumes and other injurious substances can be trapped and extracted at the source before they escape into the factory atmosphere.
- Protective device: Protective devices like respirator, gas mask, ear plugs, helmet, safety shoes, aprons, gloves, gum boots, barrier creams, and goggles etc. helps reducing the occupational hazards.
- Environmental monitoring is an important aspect of occupational health. It is concerned with periodical environmental evaluation.

4.5 ROLE OF MIDDLE LEVEL HEALTH CARE PROVIDER IN PREVENTION OF OCCUPATIONAL HAZARDS

The community health officer becomes first point of contact for workers. They will readily seek advice from an approachable, assessable health care professional.

Your role can be summarised as:

- Work place surveillance and health risk identification the community health nurse in collaboration with others team members of safety office. It helps to determine whether group of workers may be suffering actual or potential work related injury or illness.
- Comprehensive interventions or programmes to control and educate workers about potential health risk and strategies to prevent them.
- Health surveillance as a part of surveillance of occupational health community health officer surveys environment and evaluate health risk for workers. Medical surveillance includes immunisation for employees who are exposed to infectious biological agents.
- Reduction of workplace injuries/ illness due to early detection of work place hazards. Develop statistics to identify significant trends in occupational illness or injuries.
- Health promotion and protection is also an important responsibility of occupational health nurse by modifying the behaviour of individual / groups and encouraging them to accept responsibility in the matters which affect their health and which can be controlled.

- Enhancement of employee's well-being by gaining knowledge of risk factors in workplace. Familiarity with community resources and skill in utilising them is also important.
- Primary care : It is the set of nursing actions which are provided to manage illness or functional challenges in workplace it is important to prevent complication, promote recovery and facilitate rehabilitation of both occupational and non-occupational illness and injuries.
- Appropriate treatment, referral and follow up to facilitate early return to workplace. Recording and reporting should be done for each step.
- Counselling : It is the process of helping employees to clarify problems and make informed decisions and choices while giving positive reinforcement. It helps to deal with crisis situation. Confidentiality should be ensured. Legal obligations should be kept in mind.
- Rehabilitation/ case management : It may be either work or non-work related. Occupational health nurse implements knowledge gained from research/ epidemiological studies within workplace and work culture.

4.6 LET US SUM UP

The modern world is heading towards industrialisation. As the size and the complexities of the industries develop health problems are envisaged.

It is imperative that the occupational health will be more important in the coming years. We need a comprehensive occupational health services in India.

However, there are various organisations active in the field of occupational health

But we need more comprehensive occupational health services to the unorganised sector as well, namely agriculture, domestic helpers and labourers etc.

4.7 MODEL ANSWERS

Check Your Progress 1

- 1) Ergonomics is concerned with human engineering placing the worker in the environment which is according to his physiological and psychological capacity.
- 2)
 - Man with machine
 - Man with environment
 - Man with man
- 3) Physical, chemical, biological and psychosocial

Check Your Progress 2

- 1) Anthrax, leptospirosis, tetanus, tuberculosis and accidents.
- 2)
 - a) Pre Placement examination
 - b) Health education
 - c) Provision of healthy physical environment
 - d) Early diagnosis and treatment
- 3) Plumbosis
- 4) Skin, lungs, blood and blood forming organs, bladder
- 5)
 - a) primary prevention
 - b) secondary prevention
 - c) tertiary prevention

4.8 REFERENCES

- 1) K. Park, Preventive & Social Medicine, 23rd edition, M/s Banarsidas Bhanot Publisher, 2015 (689,803-805).
- 2) James F. McKenzie, Robert R. Pinger & Kotecki Jerome E., An Introduction to Community Health, 4th edition, Jones & Bartlett Publisher (556-559).
- 3) Sridhar Rao, Community Health Nursing, 1st edition, AITBS Publisher, 2014, India (357-377)
- 4) Suryankantha AH, community Medicine with recent advances, 3rd edition, 2014, Jaypee Brothers Medical Publisher (213-214).
- 5) J Kishore, A Textbook for Health Workers & Auxiliary Nurse Midwife, 2nd edition (2016), Century Publications (114-198).
- 6) Janice E Hitchcock, Phyllis E. Schubert & Sue A. Thomas, Community Health Nursing caring in action , 2nd edition (2003), Thomson Delmar Learning (196, 913-14).
- 7) Dash Bijayalakshmi A comprehensive textbook of community health nursing, Jaypee brothers medical publishee, 1st edition (673-696).

UNIT 5 MENTAL HEALTH AND SUBSTANCE ABUSE DISORDERS

Structure

- 5.0 Introduction
- 5.1 Objectives
- 5.2 Mental Health
- 5.3 Common Mental Health Problems
- 5.4 Substance Use Disorders
 - 5.4.1 Alcohol Use Disorder (AUD)
 - 5.4.2 Tobacco Use Disorder
 - 5.4.3 Stimulant Use Disorder
 - 5.4.4 Hallucinogen Use Disorder
 - 5.4.5 Opioid Use Disorder
- 5.5 Mental Health Act, 2013
- 5.6 National Mental Health Programme
 - 5.6.1 Objectives
 - 5.6.2 Strategies
- 5.7 District Mental Health Programme
 - 5.7.1 Component
 - 5.7.2 Activities at District Level
 - 5.7.3 At the Taluk Hospital/Community Health Centres (CHC)
 - 5.7.4 At the Primary Health Centre Level
- 5.8 Drug Deaddiction Programme
- 5.9 Preventive and Promotive Mental Health Services
- 5.10 Screening, Management and Referral
- 5.11 Let Us Sum Up
- 5.12 Key Words
- 5.13 Model Answers

5.0 INTRODUCTION

Health is not only *physical health* but also includes maintaining harmonious relationships with other living beings and having spiritual direction and purpose. This includes living according to one's ethics, morals, and values. Thus Health has various dimensions like Physical Health, Social Health, Emotional Health, Spiritual and Mental Health, and for an individual to stay healthy, all the dimensions are equally important. It has been proposed by WHO 'that there can be no physical health without mental health'.

Mental health disorders are common in general population and usually present themselves as– worry, tiredness, and sleepless nights and may affect more than half of the adults at some time.

5.1 OBJECTIVES

After going through this unit, you will be able to:

- explain the meaning and importance of mental health;
- identify Common mental health and Substance Use Disorders in the community;
- enlist measures for prevention of common mental health disorders;
- appreciate the need for management of common mental health/substance use disorders in the patients and make adequate and timely referrals; and
- describe the role of Community Health Nurse in Prevention and Management of these disorders;

5.2 MENTAL HEALTH

As per World Health Organization (WHO), mental health is a state of well-being in which every individual realises his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community.

Mental health needs are being recognised as an integral component of practice in comprehensive primary and secondary health care. Good mental health gives a sense of well-being to a person by enhancing confidence and self-esteem. It not only enables a person to enjoy positive relationships with other people but also to use the abilities to reach their potential and deal with life's challenges.

Poverty, discrimination, malnutrition, environmental factors (including access to safe water, toilets and sanitation), exposure to violence and absence of parental figures (death, divorce or displacement) are few factors that may have a negative influence on mental health. Thus, for a person to lead a healthy life, the mind should work in harmony and maintain the internal balance and also a balance should exist between the mind and the body as well as between the mind and the surroundings. And for this, a balance of emotions (anger, fear, anxiety, rage, sadness, happiness, jealousy), thoughts (ideas, memories, intelligence) and actions (talking, playing etc) is essential.

5.3 COMMON MENTAL HEALTH PROBLEMS

Certain unpleasant and stressful encounters like poor socioeconomic status, broken family, professional difficulties can weigh heavy on the individual and hamper healthy mental functioning and may lead to divorces, suicides, depression, sleep disorders, anxiety and substance abuse. 'Stress' with advent of industrialization, change in the work culture, and eating habits has been incriminated as one of the important risk factor for lifestyle disorders like diabetes and hypertension and mental health disorders like sleep disturbances and substance use disorder (including alcoholism). Common mental health disorders you would find commonly in the community are:

a) **Depressive Disorders (Including Major Depressive Disorder)**

Depressive disorders are the most common mental health disorders that can be found in the community. The person suffering from these remains sad and irritable, feels hopeless and empty, and in some extreme conditions might have physical symptoms like non specific pains, marked loss of interest or pleasure in anything that significantly interfere with daily life present nearly every day for a period of at least two-weeks. The other presenting features may be significant weight loss or gain, inability to sleep or excessive sleep, feelings of restlessness, lethargy, feelings of worthlessness or excessive

guilt, distractibility, and recurrent thoughts of death, including suicidal thoughts or plans. *However suicidal thoughts or plans calls for an immediate attention, wherein the patient should be immediately connected/referred to a skilled, trained counselor at a local crisis centre.*

In children and adolescents, female youths have been seen to be about three times more likely to be predisposed as against males to experience depressive illness, though they might manifest it as irritability rather than a sadness.

The possible causes of depressive illness can be genetic, biological, and environmental factors. Adverse childhood experiences and stressful life experiences are known to contribute significantly to the risk.

b) **Anxiety Disorders**

The daily functioning of the individuals suffering from anxiety disorders is disturbed by excessive fear to real or perceived threat; that are difficult to control. These disorders can range from specific fears (called phobias), such as the fear of heights, flying or public speaking, to more generalised feelings of worry and tension. Anxiety disorders typically develop in childhood and persist to adulthood. Specific anxiety disorders include generalised anxiety disorder (GAD), panic disorder, separation anxiety disorder, and social anxiety disorder (social phobia). Lifetime phobias and generalised anxiety disorders are the most prevalent among adolescents between the ages of 13 and 18 and usually first appear around age 11 years.

Most of the anxiety disorders are caused by a combination of genetics, biology, and environmental factors. Adverse childhood experiences may also contribute to risk for developing anxiety disorders.

c) **Attention Deficit Hyperactivity Disorder (ADHD)**

ADHD is one of the more common mental disorders diagnosed among children and occurs four times as often among boys than girls. A child suffering from ADHD is less attentive in class and cannot focus on the task given, and/or has difficulty in controlling behaviour and is usually hyperactive. Thus usual complaints of teachers and parents of children suffering with ADHD is that they have difficulty in sitting through for completion of given task and interacting with other children. Thus these are poor performers in the school. Thus a child suffering from ADHD may have one or more of these (inattention, hyperactivity and impulsivity) in isolation or combination. Inattentive children may have trouble paying close attention to details, make careless mistakes in schoolwork, are easily distracted, have difficulty in completing home assignments as they soon get bored with the given task. These children talk excessively, run about in the class and find difficulty in sitting still. The teachers find them impatient as have trouble waiting for their turn and thus they might blurt out with premature answers to questions put forth and may interrupt conversations frequently. Adults with ADHD are often extremely distractible and have significant difficulties with organisation.

The genetic predisposition has been observed in cases of ADHD. Environmental risk factors may include low birth weight, smoking and alcohol use during pregnancy, exposure to lead, and history of child maltreatment.

d) **Bipolar and Related Disorders**

People suffering from bipolar and related disorders complain of sudden mood swings ranging from period of intense happiness and impulsiveness to extreme sadness and feeling of hopelessness. Behavioural changes like fatigue or loss of energy, sudden significant weight changes, complaining about pain, or suicidal thoughts or plans may also be associated. A family history is a strong risk factor for this condition.

e) **Disruptive, Impulse Control, and Conduct Disorders**

People suffering from these disorders usually have problem with control on their emotions or behaviour that might put them into a conflicting position with others in the family, school or neighbour. Oppositional defiant disorder and conduct disorder are the most common disorders in children in this category.

i) ***Oppositional Defiant Disorder(ODD)***

Children with ODD are usually those who have had a harsh, inconsistent or neglected childhood. Boys are more commonly affected and usually present with excessive anger/irritability, argumentative/defiant behaviour, or vindictiveness. The child may often lose their temper, frequently pick up fights and be resentful, or may easily get annoyed. These children may often refuse to comply with rules and become argumentative. They may also deliberately annoy others or blame others for their mistakes or misbehaviour. These symptoms must be evident for at least six months and observed when interacting with at least one individual who is not a sibling.

ii) ***Conduct Disorder(CD)***

The child suffering from CD has violent behaviour to the extent that it might disrupt the social norms for his age thus affecting the child or family's daily life. The primary symptoms of conduct disorder include aggression to people and animals (for example, bullying or causing physical harm), destruction of property (for example, fire-setting), deceitfulness or theft (for example, breaking and entering), and serious violations of rules (for example, truancy, elopement). Symptoms must be present for 12 months and fall into one of three subtypes depending on the age at onset (childhood, adolescent, or unspecified).

It most commonly affects children and adolescents, with increase seen as age advances from childhood to adolescence, with males affected more than females.

The children having behavioural problems and below average intelligence in infancy have higher predisposition for CD. Harsh or inconsistent child-rearing practices and/or child maltreatment, parental criminality, frequent changes of caregivers, large family size, familial psychopathology, and early institutional living are the risk factors that may contribute to developing the disorder. The community risk factors include neighbourhood exposure to violence, peer rejection, and association with a delinquent peer group. Family history of CD or any other behavioural disorders like ADHD, schizophrenia, substance use disorder increases the risk.

Usually CD co exist with other disorders like ADHD, learning disorders, and depression.

f) **Obsessive-Compulsive and Related Disorders (OCD)**

Patients suffering from Obsessive-Compulsive Disorder (OCD) have unwanted thoughts, urges, or images that persist and intrude in daily living (obsessions), or behaviours that he repeats ritualistically in order to control obsessions (compulsions). Obsessions may include persistent thoughts (e.g. dirty hands), images (e.g of horrific scenes), or urges (e.g to jump from a window) and are perceived as unpleasant and involuntary. The person thus compulsively puts efforts to prevent or reduce anxiety or distress, that are clearly excessive or unrealistic. A common example of an OCD symptom is a person who obsessively feels his hands are dirty and thus repeatedly washes his hands excessively to clean them. OCD symptoms are time-consuming and cause significant dysfunction in daily life.

OCD includes the presence of obsessions, compulsions, or both.

The disorder tends to begin usually in childhood or adolescence.

The positive family history and child maltreatment or traumatic childhood events act as predisposing factors for the disorder.

g) **Schizophrenia**

Schizophrenia is a disorder of brain in which the way a person thinks (often described as a “thought disorder”), and is characterised by a range of symptoms including:

- Delusions of false and persistent beliefs that are not part of the individual’s culture. For example, people with schizophrenia may believe that their thoughts are being broadcast on the radio.
- Hallucinations that include hearing, seeing, smelling, or feeling things that others cannot. Most commonly, people with the disorder hear voices that talk to them or order them to do things.
- Disorganised speech that involves difficulty organising thoughts, thought-blocking, and making up nonsensical words.
- Grossly disorganised behaviour.

Usually the patient has disillusionment with life, prefers to stay isolated, is not motivated and speaks infrequently.

h) **Trauma and Stress Related Disorders**

These disorders usually occur following previous exposure to a traumatic or dangerous event. The most common disorder in this category is post-traumatic stress disorder (PTSD). The patient can present with symptoms ranging from re-experiencing symptoms from the event, such as flashbacks or recurring upsetting dreams, upsetting memories, psychological disturbances, avoidance of stimuli associated with the traumatic event, mood changes, changing a personal routine to escape having to be reminded of an event, or getting tense to the extent that makes it difficult for him to complete the daily tasks. They might have increased reactivity like being excessively vigilant, easy distractibility, irritability or even self-destructive behaviour.

This can be seen in people who have gone through various traumatic events like rape, natural disasters, child abuse, car accidents etc.

5.4 SUBSTANCE USE DISORDERS

Substance use disorders are those that occur due to recurrent use of alcohol and/or drugs that cause dependence or significant social and functional impairment at work, school, or home. Some of these that are commonly seen in the community are as follows:

5.4.1 Alcohol Use Disorder (AUD)

The individuals have problem in controlling intake of alcohol and they continue to use alcohol despite personal and social problems arising out of drinking. The person develops tolerance to alcohol and drinks the amount that leads to risky situations or suffers from withdrawal symptoms (forgetfulness, tremors, inability to concentrate, delusions and hallucinations) in case of abstinence.

Excessive use of alcohol can predispose an individual for developing a variety of social and health problems besides those associated with intoxication and withdrawal.

Besides environmental factors like availability, peer pressure and maladjustment to stress, genetics has also been shown to be a risk factor for the development of an AUD.

5.4.2 Tobacco Use Disorder

Tobacco Chewing (gutka) and smoking damage nearly every organ in the human body, often predisposing to various respiratory disorders including tuberculosis, cardiovascular problems, diabetes and directly causes a variety of cancers (lung, oral cavity etc). People who do not smoke tobacco but stay near or with smokers are called passive smokers and these are also at increased risk of cardiovascular diseases, cancers like lung, oral cavity, respiratory diseases like asthma and tuberculosis, ear infections.

5.4.3 Stimulant Use Disorder

The most commonly abused stimulants are amphetamines, methamphetamine, cocaine and can be taken orally, snorted (nasally), or intravenously. These are used for increasing alertness, attention, and energy. However, these as well, increase blood pressure, heart rate, and respiration.

Symptoms of stimulant use disorders include failure to control and excessive craving till a person is able to procure, development of tolerance and thus increasing requirement over the time, interference social functioning and responsibilities and withdrawal symptoms after discontinuing use. The withdrawal symptoms include fatigue, vivid and unpleasant dreams, sleep problems, increased appetite, or irregular problems in controlling movement.

5.4.4 Hallucinogen Use Disorder

Commonly used hallucinogens are synthetic (lysergic acid diethylamide or LSD) or naturally occurring like psilocybin mushrooms, peyote. The use of these drugs can produce feelings of detachment from one's environment and oneself, and distortions in time and perception and visual and auditory hallucinations.

Symptoms of hallucinogen use disorder are same as seen with other drugs like stimulants.

5.4.5 Opioid Use Disorder

The most commonly abused drugs available over the counter are cough and cold remedies containing dextromethorphan followed by painkillers. Illegal opioid drugs such as heroin and drugs available on prescription like relievers (oxycodone and hydrocodone), oxytocin have potential for dangerous use. These are meant to reduce perception of pain but can also cause effects on brain leading to drowsiness, mental confusion, euphoria that make them likely candidate for abuse. Some people use them by snorting or injecting also for a higher response which might lead to overdose.

Symptoms of hallucinogen use disorder are same as seen with other drugs like stimulants and hallucinogens.

Co-occurring Disorders: These are the disorders that describe people that suffer with both substance use and mental disorders at the same time. E.g. alcohol abuse with depression or panic disorder.

Check Your Progress 1

1) Fill in the blanks:

- a) Symptoms of depression must be present for atleast.....
and cause significant impairment or dysfunction in daily life.
- b) Usually in children co exist with other disorders like
ADHD, learning disorders, and depression.

c) People suffering with both substance use and mental disorders at the same time are said to have.....

d) Schizophrenia is also known as.....

2) Answer the following Questions in Brief :

a) What are Post Traumatic Stress Disorders (PTSD)?
.....

b) What are withdrawal symptoms of alcohol use disorder?
.....

c) What are the health effects of Tobacco Use Disorder?
.....

5.5 MENTAL HEALTH ACT, 2013

The Mental Health Care Bill, 2013, which repeals Mental Health Act, 1987, was introduced in the Rajya Sabha on August 19, 2013. The new Bill was introduced with an aim to adequately protect the rights of persons with mental illness and promote their access to mental health care. The key features of the Bill are :

- 1) **Rights of persons with mental illness:** Every person shall have the right to access to affordable and quality mental health care and treatment from services run or funded by the government. Persons with mental illness also have the right to equality of treatment, protection from inhuman and degrading treatment, free legal services, access to their medical records, and complain regarding deficiencies in provision of mental health care.
- 2) **Advance Directive:** A mentally-ill person shall have the right to make an advance directive that states how he wants to be treated for the illness during a mental health situation and who shall be his nominated representative. The advance directive has to be certified by a medical practitioner or registered with the Mental Health Board.
- 3) **Setting up of Central and State Mental Health Authority:** Every mental health establishment has to be registered with the relevant Central or State Mental Health Authority. These are administrative bodies required to:
 - a) Register, supervise and maintain a register of all mental health establishments,
 - b) Develop quality and service provision norms for such establishments,
 - c) Maintain a register of mental health professionals,
 - d) Train law enforcement officials and mental health professionals on the provisions of the Act,
 - e) Receive complaints about deficiencies in provision of services, and
 - f) Advise the government on matters relating to mental health.
- 4) **Mental Health Review Commission and Board:** The Mental Health Review Commission is a quasi-judicial body that will periodically review the use of and the procedure for making advance directives and advise the government on protection of the rights of mentally ill persons. The Board will have the power to (a) register, review/alter/cancel an advance directive, (b) appoint a nominated representative,

(c) adjudicate complaints regarding deficiencies in care and services, (d) receive and decide application from a person with mental illness/his nominated representative/any other interested person against the decision of medical officer or psychiatrists in charge of a mental health establishment.

- 5) **Decriminalising suicide and prohibiting electro-convulsive therapy:** A person who attempts suicide shall be presumed to be suffering from mental illness at that time and will not be punished under the Indian Penal Code. Electro-convulsive therapy is allowed only with the use of muscle relaxants and anaesthesia. The therapy is prohibited for minors.

5.6 NATIONAL MENTAL HEALTH PROGRAMME (NMHP)

Over last few decades, there has been an increase in mental health disorders including epilepsy and psychiatric illnesses. Most of these patients live in rural remote areas where either there is lack of any modern mental health facility or there is a stigma attached to seeking care. Thus these patients are likely to be under-diagnosed or missed.

Thus in response to the rising burden of mental health and related disorders and inadequacy of mental health care infrastructure, Government of India launched the National Mental Health Programme (NMHP) in 1982 with aims to:

- 1) Prevent and treat mental and neurological disorders and their associated disabilities.
- 2) Use of mental health technology to improve general health services.
- 3) Application of mental health principles in total national development to improve quality of life.

5.6.1 Objectives

The Objectives of the programme are to:

- 1) Ensure availability and accessibility to minimum mental health care for all, particularly to the most vulnerable and underprivileged sections of population.
- 2) Encourage application of mental health knowledge in general health care and in social development.
- 3) Promote community participation in the mental health services development and to stimulate efforts towards self-help in the community.

5.6.2 Strategies

The Strategies under the programme are:

- 1) To integrate mental health with primary health care through the NMHP to alleviate stigma attached with seeking care;
- 2) To utilise the existing infrastructure of health services and also to deliver the minimum mental health care services.
- 3) To link health services with the existing community development programme.
- 4) Ensure strengthening of tertiary care institutions for treatment of mental disorders. Assistance has been provided for modernisation of state run mental hospitals from custodial care to comprehensive management. Funds have been provided for strengthening of the psychiatric wings of government medical colleges/hospitals in terms of manpower, infrastructure and equipments.

- 5) Setting up regulatory institutions like the Central Mental Health Authority, and State Mental health Authority for protecting their rights. To provide appropriate task oriented training to the existing health staff.

5.7 DISTRICT MENTAL HEALTH PROGRAMME (DMHP)

DMHP was launched under NMHP in the year 1996 in 4 Districts and was later expanded to 123 Districts in XI plan. With the objective to provide Community based Mental Health Services and integrate the mental health with general health services through decentralisation of treatment from Mental Hospital based care to primary health care services.

5.7.1 Component

DMHP had following components :

- 1) **Early detection and treatment:** Imparting short term training to medical officers/ general physicians for diagnosis and treatment of common mental illnesses with limited number of drugs under guidance of specialist. Ensuring early detection and timely treatment of mental illness in the community through OPD/indoor and followup and.
- 2) **Training:** The Health workers to be trained in identifying persons suffering from mental disorders ill persons.
- 3) **IEC:** Increasing public awareness to reduce stigma related to mental disorders.
- 4) **Monitoring:** Data generation for future planning and improvement in service and research.

In addition, Life skills education and counselling in schools and colleges, stress management at work place and suicide prevention services have also been included as a part of the DMHP. Accordingly, at various levels, adequate manpower has been placed.

5.7.2 Activities at District Level

- 1) At the district level, a team of Psychiatrist, a Clinical Psychologist, a Psychiatric Social worker, a Psychiatric/Community Nurse, a Programme Manager, a Programme/Case Registry Assistant and a Record Keeper have been placed.
- 2) The on-site, distance based and short residential training courses shall be done by the district DMHP Team with support from visiting experts from Department of Psychiatry, Government Medical Colleges and /or Centres of Excellence (in the State if available) to ensure minimum competencies among the medical and paramedical workers along with on job supervision and support.
- 3) Outpatient and Inpatient services for walk-in and referred patients from the Taluk Hospital/CHC and PHCs. A provision of 10 beds and 5 nurses have been made for short stay admissions to assess and treat. School based services are being provided for identifying and managing mental health problems in children and running an outpatient service for children with more severe mental health problems.
- 4) To train staff posted in labour rooms and maternal health care units in detecting post partum depression / psychosis and referring them to the PHC/Taluk/DH for treatment and/or counselling and ensuring effective follow up.
- 5) Making referrals for day centres, medium stay centres and long stay centres.
- 6) Disability Certifications to be done by the Psychiatrists at the District Hospitals.

- 7) Necessary laboratory services including Therapeutic Drug Monitoring for psychotropic medications.
- 8) Counselling and Management Services for persons who have survived a suicide attempt.
- 9) Provide services for inpatient and outpatient detoxification, user/care-giver education, link users with community based alcohol/drug rehabilitation services and voluntary services for patients suffering from Alcohol and Substance use disorders.
- 10) Outreach Services in the form of outpatient clinic by the visiting psychiatrist at more frequent intervals (e.g. Once a week). Districts may also consider using Telemedicine facilities for linking up with Taluk Hospitals/CHC for providing support and supervision to general health staff in managing mental illness.

5.7.3 At the Taluk Hospital/Community Health Centres (CHC)

- i) Outpatient and inpatient (short stay upto 5 days) services for walk in and patients referred by the PHC.
- ii) Medical and Social Care and Support to Continuing Care services in their area.
- iii) Counselling services (for those referred to the Psychologist by the Community Mental Health Workers (CMHW) from the PHC. CMHW may refer patients requiring specialist psychological counselling to the Psychologist at the Taluk Hospital.

5.7.4 At the Primary Health Centre Level

- 1) **Training of medical officers** in identification and management including timely referral and follow up of common mental disorders and emergencies.
- 2) Depending on the workload, each PHC to have 2–4 **Community Mental Health Workers** (CMHW, or community counsellors) as ‘front-line’ mental health care providers. These will have to be local residents and educated upto Xth and would be paid an honorarium for their work. Adequate training will be given to them to detect and provide counselling for patients with common mental illnesses (like depression, anxiety and alcohol abuse) and ensuring treatment adherence for long standing illnesses.

In the community they will be able to detect probable cases of mental illness in community settings, and refer them to the health facility for diagnostic assessment, provide support to the families and care-givers, work towards stigma alleviation and prevention of discrimination against these patients and also help them in accessing social benefits and entitlements.

Regular supervision and refresher courses will be provided by the District DMHP Team, which will be combined with mental health promotion exercises for these staff.

- 3) **Availability of Drugs** for management of common mental disorders and substance use disorders. For the convenience of the patients and care givers and cost reduction strategy, psychotropic medicines on the Essential Drug List will be available at all PHCs and these may be provided the patients put on long term medications by the specialist at the CHC/District Hospital at regular intervals.
- 4) **Home based and Community based Continuing care and support** to persons with severe mental disorders including referrals and follow up.

- 5) Identification of **mental health emergencies** and referral to district/taluk hospitals. 108 Ambulance services with trained staff will be available free of cost to transport patients to the District Hospital in an emergency. The funds have been provided through National Health Mission (NHM).
- 6) **Counselling services** and help in accessing social care benefits.
- 7) To provide a range of **community based rehabilitation** interventions.
- 8) **Pro-active case findings and mental health promotion and literacy** activities.

Community Based Continuing Care Services: Continuing care in the community for persons with residual symptoms is an important aspect of service provision for persons with chronic mental disorders. Thus these patients can be placed at Day Centres with vocation training and employment support as a part of rehabilitative care will be set up in two taluks of the district with each day centre having a capacity for 25 person places. Residential continuing care for short stay upto 6 months, each in two taluks of the district each with a capacity for 25 beds/places The long term residential continuing care can be done through public private partnership.

5.8 DRUG DEADDICTION PROGRAMME

The drug deaddiction programme was started in India by Ministry of Health and Family Welfare in 1985-86 and was later revised in 1994 and then in 1996 again. The programme started as a scheme with funding from central government and implementation by state. The strategies under the programme needs coordination between various departments and ministries. The activities under the programme are broadly divided into two arms:

- a) **Supply Reduction:** The activities under supply reduction focuses on reducing the availability of illicit drugs within the country. Ministry of Home Affairs with Department of Revenue act as nodal agency.
- b) **Demand Reduction:** Includes awareness generation, counselling, treatment and rehabilitation of users and addicts. These activities are run by the agencies under Ministry of Health and Family Welfare and Ministry of Social Justice and Empowerment. The Ministry of Health and Family Welfare is mainly responsible for providing treatment services to addicts.

Aims and Objectives

- 1) To create awareness about ill effects of alcoholism and substance abuse to the individuals.
- 2) To develop culture specific models for prevention of addiction and treatment and rehabilitation of addicts.
- 3) To evolve and provide a complete range of community based services for identification, motivation, detoxification, counselling, aftercare and rehabilitation of users.
- 4) Increase community participation and public cooperation for reduction in demand of substances having potential for abuse.

National Drug Dependence Treatment Centre (NDDTC) has been established under All India Institute of Medical Sciences, New Delhi while deaddiction centres in PGI Chandigarh and NIMHANS have been upgraded to 30 beds facility. Also the deaddiction centres have been established in Dr Ram Manohar Lohia hospital, Smt Sucheta Kriplani Hospital, New Delhi and Jawaharlal Nehru Institute of Postgraduate

Medical Education and Research (JIPMER), Pondicherry. NDDTC is a centre for deaddiction and rehabilitation services to the users, research along with training and capacity building for doctors to treat substance use disorder.

The funds are also being provided for setting up of deaddiction centres across the country and to the NGOs for deaddiction services and rehabilitation.

Under Ministry of Social Justice and empowerment, National Drug Demand Reduction Policy has been proposed in March 2013 with the objectives to:

- a) Create awareness about ill effects of substance use.
- b) Provide a range of community based awareness.
- c) Strengthen human resource development.
- d) Facilitate research, capacity building and documentation.
- e) Active efforts to avoid stigma and discrimination against users.

5.9 PREVENTIVE AND PROMOTIVE MENTAL HEALTH SERVICES

As physical exercise and nutritious food are important to strengthen and endure the health of the physical body; mind also requires exercise and constant stimulation by healthy discussions, socialising, meeting new people, meditating and if required by medicating to endure the strain of day to day life.

The public health nurses and the health care providers working in close contact with the community can provide a supportive role to the individual, family and community in such situations by counselling them on the preventive and promotive mental health approaches against these problems and referring them to right places for management. Also the strategies to reduce stress like spending time with family and friends, exercising, meditation, etc. are important in prevention of occurrence of mental health disorders.

- 1) **Mental Health Help Line:** A National Mental Health Help line with a toll free number has been setup to provide information about the availability of services at public health facilities.
- 2) **Suicide Prevention Programme:** With support of local NGOs, a suicide prevention helpline providing services for 24 hours on all seven days in the week has been set up to provide support through telephonic counselling to prevent the attempt of suicides and reattempt in survivors. The medical officers, health workers, senior health inspectors, teachers, panchayati raj institution members, bank officers and the police department etc will have to be trained for the same.
- 3) **Life Skills Programme:** For early detection of mental health problems in adolescents and growing children, school based counselling services will be provided through a uniform cascading model through the school teachers by training them by modular trainings. School based counselling services also to focus on early interventions for adolescents with mental health problems.

5.10 SCREENING, MANAGEMENT AND REFERRAL

With increasing industrialisation, and stress, there have been increase in mental disorders like, anxiety disorders, depression leading to high rates of suicide. Factors like broken love affairs, conflict at home, stress at school etc. have been identified as important factors that arise in the families and community. Alcohol and substance use disorder

are the other common problems encountered by the CMHNS, PHC medical officers, DMHP teams that need to be addressed by early detection by screening and referral for adequate management.

The Community Mental Health Nurses, public health nurses, ANMs, ASHAs and the health care providers working in close contact with the community can be of great help in providing counselling services for prevention and promotion of mental health, early identification of mental disorders by screening, awareness generation for stigma alleviation and timely referral for adequate treatment. They can also have an important role in community based services for continuation of treatment and rehabilitation. Community Mental health nurses (CMHN) play a role in community mental health centers, detoxification centres, group homes for individuals with mental retardation or serious mental illnesses, and residential substance abuse treatment programmes. Thus the role of Community Mental Health Nurses (CMHN) in Mental health programme can be broadly placed under following categories:

- 1) **Assessment of family:** CMHN should study the risk factors for mental disorders related to family conditions to be able to address them through counselling.
- 2) **Assessment of community:** The community factors also contribute towards effect and causation of mental disorders. The CMHN should be able to assess and delineate them to address the modifiable ones and refer the patient to higher levels for coping the non-modifiable risk factors.
- 3) **Planning and implementation:** She should be able to plan and implement various preventive and promotive events for the community like counselling/meditation and yoga under Life Skills Programme for prevention of mental disorders among school and college children.
- 4) **Family interventions:** She should be able to plan family interventions for the factors identified in assessment. e.g. counselling of parents for dispute that might be an underlying cause of depression in the child.
- 5) **Community interventions:** She should be able to plan community interventions for the factors identified in assessment. e.g. Stigma alleviation in seeking care.
- 6) **Evaluation:** Evaluation of the local interventions and assessment of the patients' condition for referral to the higher level. She is also to provide active support to patients referred back from the higher facilities for continuation of treatment, family support and rehabilitation after recovery.

The clients identified by the CMHW/PHN/ANMs/ASHAs in the community should be referred to the PHC medical officer for detailed assessment and initiation of treatment. In cases of Emergency or conditions that are difficult to be treated at the PHC level should be referred to the CHC or district level for appropriate management.

Check Your Progress 2

- 1) Fill in the blanks:
 - a) The activities under the Drug Deaddiction programme are broadly divided into two arms..... and
 - b) Under DMHP, each PHC is to haveCommunity Mental Health Workers (CMHW, or community counselors) asproviders.

2) Write in brief:

a) What are the rights of persons with mental diseases as per the Mental health act?

.....
.....

b) Mention various categories under which the Community Health Nurses have a role to play in Mental health programme.

.....
.....

5.11 LET US SUM UP

According to the data available from various sources , approximately 6–7% of population at any point of time suffers from mental disorders. Depression, anxiety, Bipolar disorder, ADHD and schizophrenia are some common mental disorders. The substance use disorders (alcohol, tobacco, stimulants and hallucinogens) are also commonly seen in the community. However, there is a stigma attached with the treatment of mental disorders. Thus, most of the cases either do not come to the notice of the health care workers or are under treated. Thus Government has taken initiatives to address the problem by launching NMHP and further decentralising it to the district level by training the medical officers and integrating the mental health services into general health services. The community workers including community health nurses have a special role to play by mobilising the community for screening and timely management including rehabilitation, ensuring referrals, alleviation of stigma attached and carrying out preventive and promotive mental activities in community, schools, colleges etc.

5.12 KEY WORDS

- Delusions:** a false idea or belief that is not true
- Hallucinations:** perception of something that is not present.
- ANM:** Auxillary Nurse Midwife
- PHN:** Public Health Nurse
- ASHA:** Accredited Social Health Activist.

5.13 MODEL ANSWERS

Check Your Progress 1

- 1) a) two weeks b) Conduct disorders c) co occurring disorders
d) Thought disorder
- 2) a) PTSD are the disorders usually occur following previous exposure to a traumatic or dangerous event.
- b) Withdrawal Symptoms of Alcohol Use Disorder include forgetfulness, tremors, inability to concentrate, delusions and hallucinations.

- c) Tobacco use predisposes to various respiratory disorders including tuberculosis, cardiovascular problems, diabetes and directly causes a variety of cancers (lung, oral cavity etc). Passive smokers are also at increased risk of cardiovascular diseases, cancers like lung, oral cavity, respiratory /diseases like asthma and tuberculosis, ear infections.

Check Your Progress 2

- 1) Fill in the blanks: a) Source reduction, Demand reduction b) 2–4, front line workers
- 2) a) Every person shall have the right to access to affordable and quality mental health care and treatment from services run or funded by the government. Persons with mental illness also have the right to equality of treatment, protection from inhuman and degrading treatment, free legal services, access to their medical records, and complain regarding deficiencies in provision of mental health care.
- b) The role of Community Health Nurses in Mental health programme can be broadly placed under following categories:
 - 1) Assessment of family
 - 2) Assessment of community
 - 3) Planning and implementation
 - 4) Family interventions
 - 5) Community interventions
 - 6) Evaluation

UNIT 6 ELDERLY CARE

Structure

- 6.0 Introduction
- 6.1 Objectives
- 6.2 Age Related Changes in Various Body Systems
 - 6.2.1 Cardiovascular System
 - 6.2.2 Respiratory System
 - 6.2.3 Gastrointestinal System
 - 6.2.4 Endocrine System
 - 6.2.5 Musculoskeletal System
 - 6.2.6 Genitourinary and Reproductive System
 - 6.2.7 Sense Organs
- 6.3 Goals of Care of Elderly People
 - 6.3.1 Maintaining Self-Care
 - 6.3.2 Preventing Complications of Ageing or of Existing Chronic Conditions
 - 6.3.3 Delaying Decline
- 6.4 Domains of Care of Elderly
 - 6.4.1 Promoting Healthy Aging amongst the Elderly
 - 6.4.2 General Care of the Elderly
- 6.5 Let Us Sum UP
- 6.6 Model Answers
- 6.7 References

6.0 INTRODUCTION

Owing to the increase in life expectancy and decline in birth rate, worldwide the elderly population is rapidly growing. It is the expected result of the modern science. By 2050 the elderly population is likely to grow to almost 2 billion. Majority are living in developing countries. Elderly population is the fastest growing population in India. It was 6.7% in 1991 and is likely to be 10% in 2021. Between 2001 and 2051, the number of old-old (age 70 years and older) is projected to increase 5-fold, and that of the oldest-old (age 80 years and older) is expected to increase 4-fold. The average remaining length of life is around 18 years (16.7 years for men, 18.9 years for women) at age 60 years and <12 years (10.9 years for men and 12.4 years for women) at age 70 years.

The old-age dependency ratio has increased over the past 2 decades, which increases the burden on the working population. Traditionally, older adults are taken care of by their families. However, because of the changing gender roles, employment of women, erosion of traditional family values, and an increasing trend for nuclear families, a care giving crisis is predicted. The number of older adults living alone is increasing. With decreased family support and informal caregivers, more of the older adults in India care for themselves. There are basically two broad categories of elderly: those between 60 and 75 years (young old) and those over 75 years (old-old). The first category of people is comparatively physically active and mentally alert. They can be economically productive if given the opportunity to work. The second category is physically frail with different type of impairments like vision, hearing, locomotion etc. These people need special care.

Caring for older adults requires a multidisciplinary approach including the doctors, occupational therapists, pharmacists, nurses, and other health professionals. They need to become familiarise with the changes that occur in the aging process. This can enable them to provide better care to the elderly. The community health nurses have an important role to play in all the preventive, promotive, and rehabilitative aspects of health care of the elderly.

6.1 OBJECTIVES

At the completion of this unit, you should be able to:

- describe the demographic characteristics of the elderly;
- enumerate the age-related changes in elderly people;
- discuss the physiologic, psychosocial, and cognitive changes influencing the health of older adults;
- recognise the common health disorders among elderly;
- summarise the goals of care for the older adult; and
- discuss the nursing interventions for certain common problems of elderly.

6.2 AGE RELATED CHANGES IN VARIOUS BODY SYSTEMS

Ageing is a progressive and universal phenomenon encompassing gradual loss of cells resulting in decline in organ functional abilities. Consequently, even the baseline functions of the body also gets wasted. Age-related changes affect the function of every system of body, even in the healthiest older people. Heart output declines. Calcium migrates from bones and teeth into blood vessels. Cataracts may dim vision. Hearing fades. Lung, liver, and kidney functions slow. Wear and tear on joints makes pain an unwelcome companion. So, the normal age-related changes may be accompanied by chronic health problems such as diabetes or heart disease. Management of many such chronic conditions may include one or more medications prescribed for regular use. Although medications may relieve symptoms, improve the quality of life, and in some cases increase the lifespan, they are not without risk. For example, research has shown that taking four or more prescription drugs is an independent risk factor for a fall injury, which can put an independent older adult into the ranks of the frail elderly.

Ageing is not a disease in itself, but the aged do become vulnerable to diseases. These alterations make the human being vulnerable to various diseases with declining immune responses, poor regenerating capacities thereby increasing exponentially the morbidity and ultimate mortality amongst them. The incidence, prevalence and thereby the total burden of chronic diseases increases with age which translates into an increased risk of disability and decreased ability to recover from ailments once they occur. The major chronic diseases which contribute globally to the death of those > 70 years of age include cardiovascular diseases, cancer, chronic respiratory diseases and diabetes mellitus.

Let us now discuss the changes in various systems of the body as given below:

6.2.1 Cardiovascular System

There is a progressive loss of myocardial muscle cells along with an increase in cell volume and depletion of fat cells and fibrous tissues. Thus heart gets flabbier but

weaker. The heart valves start becoming thickened, loose elasticity and calcification may set in. The common cardiovascular problems include hypertension, Ischemic heart disease, heart failure, peripheral vascular diseases (PVD), heart blocks, atrial fibrillation and other arrhythmias, pulmonary and cerebral thromboembolism, and aortic stenosis.

6.2.2 Respiratory System

In the large airways and bronchi the number of glandular epithelial cells decline leading to reduced production of protective mucous and thereby increased risk of infection. In small airways and air spaces, loss of supportive elastin and collagen leads to dilatation of alveolar ducts and air spaces. Though alveoli increase in size, there is a decrease in their numbers, therefore there is a reduced alveolar surface with less effective gas exchange. Age related muscle changes lead to poor strength of respiratory muscles. The thoracic cage becomes stiff and rigid due to ossification of costal cartilages and kyphosis of spine and further hampers ventilation. Respiratory responses to both hypoxia and hypercarbia are blunted in old age. The central control of breathing is impaired. Decreased cough reflex and ciliary action promotes bacterial colonisation. All these changes are worsened by smoking or air pollution.

The common respiratory problems include pneumonia, tuberculosis, bronchial asthma, chronic obstructive pulmonary disease (COPD), and lung cancer.

6.2.3 Gastrointestinal System

With age, oral mucosal membrane stops functioning. Teeth are lost due to periodontal diseases and resorption of mandible. The muscles of mastication become weak. The number of taste buds decreases. Salivary secretions are reduced. Swallowing mechanism is affected by weakened oropharyngeal muscles and disturbed coordination between oropharyngeal muscles and upper esophageal sphincter. As a result elderly people are susceptible to dysphagia and aspiration. Gastric emptying of liquids is delayed. Gastric acid secretion may increase or decrease depending upon infection with *Helicobacter Pylori* or use of drugs. Absorption of multiple nutrients in small intestine is reduced leading to malabsorption, but steatorrhea is unusual as pancreatic functions remains normal. Though the large intestine function remains normal, decreased tone of abdominal muscles may affect peristalsis and evacuation may not be complete. Liver volume, blood flow and perfusion decline with age. As a result, the ability to metabolise and detoxify toxins, hormones and drug is significantly impaired.

The common disorders of GI tract include hiatus hernia, Non steroidal anti inflammatory drugs (NSAIDs) gastropathy, peptic ulcer, cancer of GIT, constipation etc.

6.2.4 Endocrine System

Endocrine functions start declining from the time of puberty. Hypothalamic responsiveness to changes in the internal milieu and the hypothalamic–pituitary regulation of releasing hormones and stimulating hormones decline with age. The size of the thyroid gland increases but mostly because of the deposition of connective tissues. Secretion and metabolism of both thyroid hormones is reduced. Basal circadian and maximum levels of glucocorticoids and circulating levels of mineral ocorticoids are maintained within the normal range.

Aging is associated with glucose intolerance. The factors that lead to the derangement of carbohydrate metabolism are:

- Decreased glucose induced insulin secretions.

- Impaired uptake of glucose by the skeletal muscles and adipose tissues.
- Influence of increased body fat, physical inactivity, lack of fibers in the diet, impaired renal functions, increased sympathetic nervous system activity and effect of drugs.
- Common endocrine problems include diabetes mellitus, hypothyroidism, and hyperthyroidism.

6.2.5 Musculoskeletal System

Loss of muscle strength is the commonest musculoskeletal problem of old age. There are several contributory factors which vary from person to person in their contributions and include:

- Loss of motor cells and their replacements by connective tissue and fat.
- Failure to achieve maximal activation of muscles due to loss of motivation, reflex inhibition and variable extent of arthritis.
- Less body movements.
- Deficiency of various hormones like growth hormones, androgens and estrogen.

Bone is a dynamic tissue with ongoing remodelling throughout the life. With ageing the surfaces of bone cartilages tend to breakdown which reduces the tensile strength, fatigue resistance and strength of joints. Periarticular soft tissues such as inter vertebral discs, ligaments, tendons and capsules of joints change with age resulting in thickening, distortion and fibrous of joint capsules. Tendons and ligaments also loose tensile strength.

Common musculoskeletal problems include osteoarthritis, rheumatoid arthritis, osteoporosis, fractures.

6.2.6 Genitourinary and Reproductive System

Menopause takes place between the early 40s and 50s after which the ovaries reduce their production of female sex hormones. Several physical and emotion changes occur which have short term and long term implications. In the early 60s the long-term implications of menopause namely structural changes in sex hormones, urinary tract and skin and an increased risk of IHD, osteoporosis and certain types of cancer would be more evident. Except for these effects of estrogen loss after menopause, there is very little change in a woman's sexual abilities.

Older men do not experience hormonal changes to the extent that women do, although testosterone decreases after sexual maturity. The main effect of testosterone deficiency is on penile erection, premature ejaculation and loss of libido. Sperm production generally does not end until the mid 70s. Most men over 65 years. of age have at least some enlargement of the prostate. The kidney size and the number of nephrons decline with age. The number of nephrons per kidney decreases by 30–50% between ages 25 and 85 years. The micro-architecture of the nephron is distorted, as a result of which the remaining filtering units also function less well. The blood circulation declines as a result of sclerosis of renal vasculature. The Glomerular Filtration Rate (GFR) declines nearly 50% by 90 yrs of age. In spite of all these changes the kidneys maintain the volume and composition of the extracellular compartment within normal limits in old age. However, in the face of physiological or pathological stress, the compromised renal function becomes apparent. The kidney becomes less responsive to sodium loss. The antidiuretic hormone (ADH), which acts to alter the permeability of certain kidney cells for the conservation of water, is less effective with the loss of

sodium and water. The GFR is usually highest during day time with the largest volume of urine excretion. In older people, this pattern is altered and kidneys continue to be quite active during the night. The bladder capacity decreases from 500 ml – 600 ml to about 250 ml. Not only is the capacity lowered, but there is also more residual urine remaining after voiding.

Note: The small capacity of bladder, coupled with higher night time glomerular filtration results in older persons getting up several times during the night to urinate.

Older women usually have less muscle power in the abdominal and perineal muscles which make bladder control more difficult. In men, enlargement of the prostate can block the flow of urine through the urethra causing hesitancy and difficulty initiating the stream and finally leading to retention of urine or retention with overflow.

The net results of the changes in the kidney and urinary tract are:

- Higher risk of infection
- Risk of life threatening hyponatremia
- Necessity of adjustment of drug dose in old age
- Nocturia and urinary incontinence.

UTI and urinary incontinence in both elderly males and females, and benign prostate hypertrophy, and malignancy of prostate in males are quite common.

6.2.7 Sense organs

With age the efficiency of functioning of all five sense organs (vision, hearing, taste, smell, and touch) diminishes. These changes affect the general well-being and daily functioning of the individual.

- **Vision** changes generally begin in middle age. Presbyopia usually occurs at around 40 years of age. The people need glasses or contact lenses to read. Older adults also may experience increased sensitivity to glare, dry eyes, impaired night vision, and reduced color discrimination. Adequate vision is necessary for the safety of the individuals. Visual problems can lead to a loss of ability to perform ADL and IADLs (e.g., self-care, driving, shopping etc.). The person becomes socially isolated which may leads to depression, and a decreased quality of life. Visual impairment also increases the risk of falls, which in turn may cause fractures requiring hospitalization and rehabilitation.
- **Hearing** changes related to aging also can have a major impact on independence, safety, and quality of life of the people. More than one third of people over 65 and half of those over 85 suffer some hearing loss. Hearing impairment can also limit social interaction and can lead to depression amongst the elderly.

Because of the atrophy of taste buds, taste sensation decreases. Smell is reduced with age due to few nerve cells in the nasal lining and fewer cells in the olfactory bulb of the brain. Some medications can also alter both taste and smell. These changes related to aging can reduce the pleasure of eating.

- Tactile sensation is reduced in the elderly people. There is an increased threshold to touch and pressure. Their ability to sense pressure and pain is reduced and they have greater difficulty in differentiating temperature. Because of these sensory changes their environment may be unsafe. The decreased ability of the elderly to sense pressure could lead to skin breakdown.

Check Your Progress 1

- 1) List common cardiovascular problems of elderly.
.....
.....
- 2) List common respiratory problems of elderly.
.....
.....
- 3) List common disorders of GI tract among elderly.
.....
.....
- 4) List common musculoskeletal problems of elderly.
.....
.....
- 5) List the changes in the kidney and urinary tract of male and female elderly.
.....
.....

6.3 GOALS OF CARE OF ELDERLY PEOPLE

Elderly patients have age specific, complex and multifaceted needs. They are affected in unique ways by the combined effects of the ageing process, the disease process and the environment, which challenge their sense of self and influence their perception of quality of life. The elderly patients need nursing care which should be provided by a nurse who is knowledgeable, skilled, vigilant, sensitive, proactive, respectful and is positively motivated about caring for the older persons. The various goals of care of elderly people are as follows:

6.3.1 Maintaining Self-Care

This goal is one of the primary objectives for keeping an older adult independent, healthy, and able to manage any chronic conditions in their home environment. Once self-care becomes difficult, additional challenges may arise, such as recognizing the need for help, finding resources, dependence on a caregiver, and a loss of independence.

6.3.2 Preventing Complications of Ageing or of Existing Chronic Conditions

The goal for managing chronic conditions is to regularly assess a patient's current status for any changes or complications that might require new interventions or changes in treatment. To address this goal, communication with the healthcare team is important, as well as educating the patient and family to verify understanding and importance of management goals.

6.3.3 Delaying Decline

Older adults should be carefully monitored for any decline. Goals may include addressing strength and physical abilities as well as promoting and reinforcing healthy behaviours and appropriate self-care strategies.

- **Achieving the highest possible quality of life.** Each individual will have personal goals that are important to their quality of life. These may be based on the values and beliefs of each person. Care providers should address each individual's goals on a personal basis. A discussion about quality of life is important to address with the patient each time there is a change in health status.

6.4 DOMAINS OF CARE OF ELDERLY

The various aspects of care of elderly are discussed under two main headings, i.e.

- Promoting healthy aging amongst the elderly.
- General care of the elderly.

6.4.1 Promoting Healthy Aging amongst the Elderly

It is very important for the elderly to adapt certain healthy habits in order to decrease the prevalence of various age related problems. Though it is very difficult to change the habits in the old age, however, there is no harm in making an attempt.

Maintain daily routine: Maintaining daily routine of activities is a basic step in remaining healthy. They should be asked to fix a time for each activity during the day e.g. eating, napping during day, going for sleep at night and getting up in the morning, exercises, walk, entertainment, religious activities etc. In old age it becomes very difficult for the body to adjust if the routine is disturbed. Sleep requirement decreases with age. Older adults tend to sleep more lightly and for shorter time spans, but they generally need about the same amount of sleep as they needed as a young adult (7 to 8 hours a night). Many experience insomnia. Excessive napping during day time should be avoided in order to have a good sleep at night. Reduce distractions and noise as much as possible. Provide a night light, as older people usually have difficulty accommodating to changes between dark and light.

Physical activity: The elderly should be promoted for the physical activities as per their capabilities. Thirty minutes walk in the morning as well as in the evening is the best physical exercise. They should be accompanied by someone while going out. Straining and exhaustion due to physical activity should be avoided. Certain light yogic exercises should also be promoted.

Personal hygiene: Elderly people should be encouraged to carry out their own personal hygiene routines as much as possible. This promotes independence and a sense of purpose in life. Even managing the smallest task is better than nothing at all.

The safety issues in the bathroom should not be overlooked. Make sure there are no throw rugs that could create a risk of fall. The grab bars should be installed (Fig. 6.1). A bath chair may be used to sit in the bathroom (Fig. 6.2). The floor should not be slippery. The water temperature should be comfortable. The towel and clothes to wear should be ready. Adaptive equipment such as holding showers can make bathing safer, because sometimes it may be difficult for the elderly to hold a mug full of water.



Fig. 6.1: Grab bars in side bathroom



Fig. 6.2: Bath chair

The dental hygiene should also not to be overlooked. Other than brushing the teeth in the morning and night after having meal, they should be encouraged to rinse their mouth properly after eating anything. Dentures should be cleaned using warm water and a non-abrasive cleanser.

Social activity: Loneliness leading to depression is quite common in old age. Encourage the elderly to remain socially active by involving themselves in certain activities/joining certain NGOs, spending time with friends etc. This will help utilising their lifelong experiences and maintain their physical and mental health.

Regular health checkups: The elderly should be encouraged for regular health checkups. They should undergo all the investigations at least once in a year. Any health problem can be managed properly if it is detected at its early stage.

Avoiding polymedication: Poly medication again is quite common in old age. They should be instructed to avoid self medication. There should be judicious use of medicines. Only the required medicines in appropriate doses after consulting the experts should be taken.

6.4.2 General Care of the Elderly

Let us discuss the assessment of functional status of the elderly and interventions for certain common problems of elderly as given below:

Assessment of functional status and activities of daily living will help in identifying the deficits amongst elderly. It will facilitate in planning various interventions for them. Many elderly people have difficulties caring for themselves, managing their living environment, and moving about. This impacts their functional performance. The two commonly used tools to assess their functional performance are Activities of Daily Living (ADLs) and Instrumental Activities of Daily Living (IADLs) scales. (Table 6.1)

Table 6.1: ADL and IADL scales

Activities of Daily Living (ADLs)	Instrumental Activities of Daily Living (IADLs)
Bathing	Driving or managing other transportation
Dressing	Shopping
Eating	Cooking
Transferring from bed to chair	Using the telephone
Continence	Managing finances
Toileting	Taking medications
	House cleaning
	Laundry

i) **Bowel problems:** Constipation is one of the most frequent problems of the older people. It becomes a source of frustration if they do not pass stool in the morning. More than 25% elderly experience constipation due to decreased abdominal muscle tone, inactivity, immobility, inadequate fluid and dietary, some disease conditions, side effects of medications, dependence on laxatives or enemas, and various environmental conditions.

Certain general measures to avoid constipation are:

- Encourage them to take high fibre diet.
- Promote regular exercise.

- Prolonged use of laxative should be avoided.
- Increase the fluid intake, giving considerations to cardiac status.
- Use suppositories (glycerine or Dulcolax).
- Add stool softeners if required.
- Assist the individual in sitting on a commode or toilet. Commode with the side arms may be helpful (Fig. 6.3). Provide privacy but do not leave the elderly unattended.
- After defecation, inspect the condition of the skin around the anus and determine the consistency, quantity and form of stool.
- Apply anal lubricant.



Fig. 6.3: Commode with side arms

- ii) **Urinary problems:** The patient may have one or multiple urinary problems leading to disturbed urinary pattern, i.e., either incontinence (involuntary urine loss) or retention of urine. Urinary incontinence (UI) is one of the most common and an important problem both in male and female elderly. It is the most under diagnosed and underreported problem because of stigma attached to it. The various types of UI are stress, urge, mixed, and functional.
- a) **Stress urinary incontinence:** It is the leakage of urine associated with increased abdominal pressure from laughing, sneezing, coughing, climbing stairs, standing or lifting heavy objects. The patient should be taught Kegal's (pelvic-floor exercises) and to use the incontinent aids such as absorbent pads or briefs to prevent soiling of clothes.
- b) **Urinary incontinence:** It is the involuntary leakage accompanied by or immediately preceded by urgency. It is generally caused by uninhibited bladder contractions (over activity) that lead to leakage of urine. In men, this condition often is accompanied by urethral obstruction from benign prostatic hyperplasia (BPH).
- c) **Mixed urinary incontinence:** It is a combination of stress and urge incontinence. It is marked by involuntary leakage associated with urgency and also with exertion, effort, sneezing, or coughing.
- d) **Functional urinary incontinence:** It is the inability to hold urine due to reasons other than neuro-urologic and lower urinary tract dysfunction (e.g, delirium, psychiatric disorders, urinary infection, impaired mobility). It occurs when the patient has either physical or psychological factors that impair the ability to go to the toilet (e.g., a patient who is wheelchair-bound or has dementia).
- Establish toilet schedule: Every 2 hours, before and after activity, before and after meals, before and after sleep or rest periods.

- Provide easy access to toilet.
- Provide patient with the clothes which are easy to wear.
- Ensure adequate fluid intake.
- Encourage patient to avoid bladder irritants such as caffeinated beverages, alcohol, and artificial sweeteners.
- Inspect genito-perineal area daily.
- Educate the patient and the caregivers regarding UI that it is not inevitable or shameful. Patient education should be individualised, involving caregivers and others. Education promotes early and more effective management. It may reduce physical, psychological and social limitations, thus improving quality of life.

iii) Provide adequate safety to the elderly

Elders are at risk for falls. Falls present a serious threat to these patients. Age related changes, various health problems, weak or immobile state, sensory deficits, delirium, dementia, confusion, improperly fitted or used mobility aids, unsafe use of medications, unsafe environment, altered mood or cognitive function can reduce the capacity of the elderly to protect them from injury. All these factors increase their vulnerability to safety hazards.

Prevention is important because older adults require more time to recover from injuries and suffer more complications. The following interventions may help:

- Assess risk of injury to patient (falls risk, activities of daily living and impaired activities of daily living function, mental status, gait, medication use, nutritional status, environment, knowledge of injury prevention practices.)
- Orient patients to new environments.
- Encourage patients to wear prescribed eyeglasses, hearing aids, and prosthetic devices.
- Ensure patients' use of canes, walkers, and wheelchairs properly and only when prescribed.
- Advise patients to change positions slowly, holding on to a stable object as they do.
- Keep floors free from litter and clutter.
- Provide adequate lighting with accessible light switches. Use a night light.
- Store cleaning solutions and other poisonous substance in a safe area.
- Encourage patients' use of hand rails and grab bars.
- There should be proper flooring inside the home and the immediate outside environment.
- Assist patients as needed with transfers.
- Clear pathways of furniture and other objects.
- Evaluate appropriateness of footwear to ensure that it is comfortable, non-skid and sturdy.

iv) Administration and cautious use of medications:

Administration of medication through various routes viz oral, IM and IV carries a greatest risk especially for the elderly patients. Almost all aspects of pharmacokinetics are altered in geriatric patients. There is decreased gastric acid content leading to slowed absorption. The gastric emptying and motility is also decreased. Blood flow to the GI tract slows, increasing the time it takes to absorb nutrients and drugs from the intestines. Decreased cardiac output and liver perfusion greatly decrease drug metabolism, leading to a prolongation of drug action duration. Drugs can also accumulate and reach toxic levels more quickly than in a younger person, further emphasizing the importance of increasing dose intervals. The kidneys, which are responsible for most drug excretion, experience decreased function as people age.

Various medicines improve the health and well-being of the older people by alleviating the symptoms of discomfort, treating chronic illness and curing infectious processes. Usually the elderly are prescribed more than one drug at a given time. So, there could be problems because of medication interactions and more chances of non-compliance. Poly pharmacy should be avoided as far as possible. Periodical assessment and review of drugs is required. Table 6.2 depicts the use and misuse of drugs among the older individuals.

Table 6.2: Prevention of Drug use and misuse among Older Individuals

Assessment Area	Precautions
Is drug therapy necessary?	Sleep-inducing medications may be replaced by non-pharmacological means. Avoid treatment of symptoms without a diagnosis because an additional symptom is sometimes a medication side-effect.
Is the dosage appropriate?	Older individuals require low dosages than younger ones. Start with low dosage and go slow increasing the dose gradually. Monitor the person for the desired therapeutic response or toxicity.
What effect will the drug have?	The desired therapeutic response should be identified before the treatment.
What undesirable effects may occur?	Identify all possible side-effects and monitor for occurrence after any change in the medication regimen.
Is the drug form optimal?	In case of dysphagia, liquid preparations may be tried. Slow-release medications may lead to gastric upset. Consider all forms (e.g. liquid, oral, intramuscular, intravenously, suppository etc.)
Is the drug packaging and labelling appropriate?	Make certain that the lids of bottles are removable without causing additional joint stress or making it impossible to comply with the regimen. Labels should be printed large enough and should be colour coded to promote visual recognition of the medication bottle.

Assessment Area	Precautions
Is it possible to guarantee that the medication will be taken appropriately?	The chances of compliance with the medication regimen are increased, if: Three or fewer medications are prescribed. Instructions are in writing. Labels are legible. Old drugs are discarded. The schedule is simple.
When should medications be discontinued?	Many drugs are not needed for lifetime, although medications such as digoxin are commonly prescribed without a time limit. Periodic evaluation of all the drugs should be conducted. Drugs such as steroids, anti-parkinsonian agents and anti convulsants must be withdrawn carefully and under observation.

v) **Prevention of bedsores**

Bedsore develop when soft tissues (skin and underlying tissues) are compressed between bony prominences and contact surfaces (bed/chair). Elders are at increased risk for skin breakdown. The various reasons may be

- Decreased sensory perception and therefore lack of awareness of early indications of skin damage.
- Collection of moisture due to faecal or urinary incontinence or other causes.
- Dryness of the skin creating fragile skin surfaces.
- Limitation of activity including the ability to reposition oneself.
- Lack of mobility.
- Inadequate nutrition.
- Friction and shear during movement and positioning.

The following measures should be taken to prevent the development of bedsores.

- Turn and reposition the patient at 1–2 hour intervals. (The time interval can be increased according to patients’ comfort).
- Encourage the patient to move in bed as far as possible and as far it is allowed.
- A written turning and positioning schedule should be followed so that change of caregivers doesn’t affect the schedule.
- Inspect the skin thoroughly at each position change for evidence of early skin breakdown.
- Avoid the use of extremely hot water for bathing.
- Use a mild soap and clean the skin gently. Apply as little force as possible.
- Don’t massage the reddened bony areas. It will further damage the underlying tissues.
- Apply emollients as needed to prevent dryness.
- Make use of alternating air mattresses.

vi) **Meeting the nutritional needs of the elderly**

Generally the nutrition for the elderly of around 70 years does not vary much. It remains the same as that of other middle aged individuals. However, the nutritional needs of the

elderly above 75 years of age are very different. Because of lower basal metabolic rate and less physical activity, the total calorie intake is reduced. The loss of natural teeth and the ill-fitting teeth may lead to insufficient nutrition. S/he may not be able to eat all the foods because of impaired digestion and absorption capacity. Their food preferences are also changed. Many prefer more of sweet foods. For many 'old-old' individuals the dietary habits become just like the children.

Following certain interventions may help in meeting the nutritional needs of the elderly individuals.

- Offer small and frequent meals. Three small meals are better than one large meal.
- The meals should be eaten at fixed and scheduled time.
- In case of impaired intake of food, try to identify the cause. If it is the side effect of some medicines, try to have some alternate drug.
- Nutritional quality of all food items should be evaluated. First part of the meal should contain the highest nutritional values. The number of calories should be considered. These should not be too much or too less. The diet should be balanced in terms of all food nutrients i.e. protein, fat, carbohydrates, vitamins, minerals and fibres.
- Change the food consistency as per the choice and need of the elderly. For example, in case of missing teeth or badly fitting dentures, properly cooked and mashed vegetables or dal etc. can be given.
- Special needs of the person should be considered e.g. restricting a particular type of food as per the disease condition.
- Do not force-feed them. Do not get angry if sometimes they do not feel like eating anything.
- Fried, very spicy food, red meat, animal fat etc. should be avoided.
- Familiar and favourite foods should be prepared for them.
- Encourage adequate amount of fluids.
- For those who can sit, should be encouraged eating meals at the dining table with other family members.
- Serve meals in a leisurely measure in a relaxed environment. No hurry should be there.
- Offer nutritional supplements. Support and encourage the individual during meal time.
- Meals should be attractively prepared. If possible, it should be served in a place other than the sick room.
- Light exercise or walking before meals (if possible) should be encouraged.
- Procedures, treatments and other stressors if any should be avoided during meal time.
- Reline dentures to improve chewing and facial appearance.
- Encourage adequate dental oral hygiene.

Check Your Progress 2

1) List general measures to avoid constipation among elderly.

.....
.....

2) Explain the nutritional needs of the elderly individuals.

.....
.....

vii) **Communicating with elderly**

Clear communication between nurses and the elderly is very important. It has been recognised as one of the most important aspects of nursing elderly people. Communication can be either verbal or non-verbal. Sound communication with patients, families, and other staff members is very essential in today’s fast-paced and information driven society. It is an important aspect of the quality of care. Ineffective communication in nursing can lead to patients’ incompliance, disturbance in socialisation and some patients’ needs may be left unmet thereby creating and increasing stress on caregivers’. Please refer Theory Course 1, Block 5, Unit 1 on BCC for details on communication process.

The following are certain interventions that should be taken into considerations while caring for the elderly patient.

- Carefully assess and validate the need for modified communication techniques.
- Seek and use resource persons as needed to communicate effectively with the patient who has dementia.
- Communicate respectfully and in a manner that preserves dignity.
- Ask the patient how he or she prefers to be addressed.
- Avoid terms such as honey, sweetie, and dear.
- Speak slowly and at an adequate volume as needed to ensure effective communication.
- Face the patient, speak slowly and distinctly.
- Always initiate conversation by using the name of patient
- Use closed-ended questions requiring only a yes or no response.
- Communicate one thought at a time.
- Make sure that the environment is quiet with no noise that may distract the patient.
- Use suitable facial expressions such as smiling while talking about cheerful occasions.
- Provide adequate time for decision-making and problem-solving.
- Avoid forcing the patient to reply.
- Assess barriers (drug interactions, dementia, delirium, disease states, depression) that impact patients’ understanding of information, following directions and making needs known.

- Demonstrate familiarity with adaptive devices (hearing aid, listenator) and assure the use of needed and applicable communication aids, including glasses or magnifiers.
- Direct instructions/information to family/care partner as well as patient.
- Communicate respectfully and preserve patient dignity when performing physical care as well as when communicating.

viii) Patient and Family Teaching

Elders are often discharged from health care facilities with complex care and treatment plans. Assure that the patient and appropriate others such as family members and other caregivers are fully informed about care needs and procedures. They should be aware of the disease the elderly patient is suffering from. Place particular emphasis upon the knowledge and skill needed to manage the medication regime. Misuse of drugs is the fifth leading cause of death among elderly persons.

6.5 LET US SUM UP

With the advancements in scientific technology, the elderly population is on rise. Consequently there is rise in the number of patients approaching various health care facilities. Their problems, needs and care are different than the people with other age group. In this unit we have read in details about various changes in body due to aging and preventive measures to be used for taking care in different situation. The nurses need to understand the aging process to provide quality care to the elderly. They play a significant role in helping aged persons experience health, fulfillment and sense of well-being.

6.6 MODEL ANSWERS

Check Your Progress 1

- 1) Common cardiovascular problems of elderly are hypertension, Ischemic heart disease, heart failure, peripheral vascular diseases (PVD), heart blocks, atrial fibrillation and other arrhythmias, pulmonary and cerebral thromboembolism, and aortic stenosis.
- 2) Common respiratory problems of elderly include pneumonia, tuberculosis, bronchial asthma, chronic obstructive pulmonary disease (COPD), and lung cancer.
- 3) Common disorders of GI tract among elderly include hiatus hernia, Non-steroidal anti inflammatory drugs (NSAIDs) gastropathy, peptic ulcer, cancer of GIT, constipation etc.
- 4) Common musculoskeletal problems of elderly include osteoarthritis, rheumatoid arthritis, osteoporosis, fractures.
- 5) The changes in the kidney and urinary tract of male and female elderly.
 - Higher risk of infection
 - Risk of life threatening hyponatremia
 - Necessity of adjustment of drug dose in old age
 - Nocturia and urinary incontinence.

UTI and urinary incontinence in both elderly males and females, and benign prostate hypertrophy, and malignancy of prostate in males are quite common.

Check Your Progress 2

- 1) General measures to avoid constipation among elderly are:
 - Encouraged them to take high fibre diet.
 - Promote regular exercise.
 - Prolonged use of laxative should be avoided.
 - Increase the fluid intake, giving considerations to cardiac status.
 - Use suppositories (glycerine or Dulcolax).
 - Add stool softeners if required.
 - Assist the individual in sitting on a commode or toilet. Commode with the side arms may be helpful. Provide privacy but do not leave the elderly unattended.
 - After defecation, inspect the condition of the skin around the anus and determine the consistency, quantity and form of stool.
 - Apply anal lubricant.
- 2) Measures to help in meeting the nutritional needs of the elderly individuals are as follows:
 - Small and frequent meals. Three small meals are better than one large meal.
 - Nutritional quality of all food items should be evaluated. First part of the meal should contain the highest nutritional values. The number of calories should not be too much or too less. The diet should be balanced in terms of all food nutrients i.e. protein, fat, carbohydrates, vitamins, minerals and fibres.
 - Change the food consistency as per the choice and need of the elderly. For example, in case of missing teeth or badly fitting dentures, properly cooked and mashed vegetables or dal etc. can be given.
 - Special needs of the person should be considered e.g. restricting a particular type of food as per the disease condition.
 - Do not force-feed them. Do not get angry if sometimes they do not feel like eating anything.
 - Fried, very spicy food, red meat, animal fat etc. should be avoided.
 - Encourage adequate amount of fluids.
 - Light exercise or walking before meals (if possible) should be encouraged.
 - Encourage adequate dental oral hygiene.

6.7 REFERENCES

- 1) Central Statistics Office, Ministry of Statistics & Programme Implementation. Situational Analysis of the Elderly in India. Available at: http://mospi.nic.in/Mospi_New/upload/elderly_in_india.pdf. Accessed 1 Sept 2016.
- 2) Dsouza SA, Rajashekar B, Dsouza Kumar KB. Falls in Indian older adults: a barrier to active ageing. *Asian J GerontolGeriatr* 2014; 9: 33–40.
- 3) Hafez G, and Bagchi K. Health care for the elderly: A manual for primary health care workers. WHO Regional Publications, Eastern Mediterranean, Alexandria, Egypt, Series 10, 1994.
- 4) Jesmin SS, Amin I, and Ingman SR. Ageing and caregiving crisis in the low and middle income societies. *Indian J Gerontol* 2011; 25:309-28.

- 5) Ministry of Social Justice and Empowerment, Government of India. National policy on older persons. Available at: [http://www. Social justice.nic.in](http://www.Socialjustice.nic.in). Accessed 11 Sept 2016.
- 6) Population Reference Bureau. World population highlights: key findings from PRB's 2010 world population data sheet. Available at: <http://www.prb.org/pdf10/65.2highlights.pdf>. Accessed 1 Sept 2016.
- 7) Rajan SI. Population ageing and health in India. Available at: <http://www.cehat.org/humanrights/rajan.pdf>. Accessed 1 Sept 2016.
- 8) Strategies to improve nutrition in elderly people. http://www.bpac.org.nz/BPJ/2011/may/docs/bpac_prescription_foods_elderly_pages_20-34.pdf. Accessed 7 July 2016.
- 9) Tabloski PA. (2014). Gerontological Nursing (3rd ed.). Upper Saddle River, NJ: Pearson.
- 10) World Health Organization. Active ageing: a policy framework. Available at: http://whqlibdoc.who.int/hq/2002/who_nmh_02.8.pdf. Accessed 1 Sept 2016.

Certificate in Community Health for Nurses (BPCCHN) Theory Course

BNS-041 Foundations of Community Health

Block-1 Introduction to Public Health and Epidemiology

- Unit 1 : Concepts of Community Health**
- Unit 2 : Health Care Planning and Organization of Health Care at various levels**
- Unit 3 : Environmental Health and Sanitation**
- Unit 4 : Introduction to Epidemiology, Epidemiological Approaches and Processes**
- Unit 5 : Demography, Surveillance and Interpretation of Data**
- Unit 6 : Bio-Medical Waste Management and Infection Control**

Block – 2 Nutrition

- Unit 1 : Introduction to Nutrition and Nutritional Assessment**
- Unit 2 : Nutrition during Pregnancy and Lactation**
- Unit 3 : Nutrition for Infant, Child, Adolescent and Elderly**
- Unit 4 : Nutritional Deficiency Disorders**
- Unit 5 : Food Borne Diseases, Food Safety**

Block – 3 Communicable Diseases and Management under National Health Programmes

- Unit 1 : Epidemiology of Specific Communicable Diseases**
- Unit 2 : Communicable Diseases -1 Vector Borne Diseases**
- Unit 3 : Communicable Diseases -2 Infectious Diseases**
- Unit 4 : Communicable Diseases -3 Zoonotic Diseases**

Block – 4 Non-Communicable Diseases and Management under National Health Programmes

- Unit1 : Epidemiology of specific Non-communicable diseases**
- Unit 2 : Non-Communicable Diseases – 1**
- Unit 3 : Non-Communicable Diseases – 2**
- Unit 4 : Occupational Diseases: Medication Follow-up Care**
- Unit 5 : Mental Health and Substance Abuse Disorders**
- Unit 6 : Elderly Care**

Block – 5 Communication Management and Supervision

- Unit 1 : Behaviour Change Communication skills and other Soft Skills**
- Unit 2 : Work Management and Administration**
- Unit 3 : Leadership, Supervision and Monitoring**
- Unit 4 : Health Management Information System**
- Unit 5 : Financial Management, Accounts and Computing at sub centre**
- Unit 6 : Records and Reports**