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## **BLOCK INTRODUCTION**

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Unit 1 will help you to develop your skills for preparing the morbidity of older persons in your area. You will learn how to assess the needs of the older people and the gaps in the services available for them. You will also be able to assess the social and environmental factors which can affect the health and well being of older persons.

In the second unit of this block, you will learn how to take nutritional history, to carry out anthropometric assessment and undertake the nutritional assessment.

After going through the Unit 3, you will be able to determine the nutritional needs of the elderly individual and plan their diets. You will also be able to give dietary advice to the elderly in chronic disorders and tips for healthy aging.

Unit 4 not only acquaints you with the ethical and legal issues which you may face while dealing an elderly but also guides you how to approach an elderly in case of ethical dilemmas.

The last unit provides guidance on information that can be collected while visiting old age homes and day care centres.

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# UNIT 1 ASSESSMENT OF DEMOGRAPHIC TRENDS IN THE COMMUNITY

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## Structure

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## 1.0 OBJECTIVES

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After undertaking the activities in this unit, you will be able to

- Prepare the morbidity profile of older persons in your area, compare it to the national statistics, analyse the situation and suggest appropriate interventions.
- Identify the gaps in services for the older persons especially for specifically disadvantaged segments of elderly like women and disabled and plan for better services
- Assess the social and environmental factors that affect the lives of older person in your area and their impact on the health and wellbeing of older persons
- Identify the special needs of older person in emergency situations and respond appropriately.

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## 1.1 INTRODUCTION

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National Family Health Survey 5 has reported stabilization of the population in India. The first wave data released by Govt. of India in 2022 showed that population in India is now stabilizing. In all states except Bihar, Manipur and Meghalya the Total Fertility Rate (TFR) was 2.1. Now, India will start its journey of entering what is called the 4<sup>th</sup> stage of demographic transition i.e. Low Stationary that is characterized by low birth and low death rates.

In other words, we are now going to move into a demographic phase where ageing population will, be substantial portion of the population. This change in the age structure will also have consequences for the morbidity and mortality profile of the country.

This will have repercussions for our health care system and its efficacy. Epidemiological factors should be kept in mind while dealing with the elderly population. . In combination with declining birth rates this reflects a shift in disease pattern, with chronic and degenerative diseases becoming relatively more important than communicable diseases. However, the pattern tends to differ from place to place, Kerala my present a different picture than West Bengal.

In order to respond to this age group better as a health professional it will not be wise to stop at limited curative practices. As a Medical professional in the community you are far better placed than anyone in a tertiary facility or Meta level to intervene meaningfully and provide appropriate and timely intervention for better health care. As a medical professional specializing in geriatrics, it would be useful if the outlook is not restricted to just treating the patients who approach a doctor; but, to develop a comprehensive and in depth understanding of the situation in a holistic manner. The following exercises are designed to help you think and act so as to ensure wellbeing of the older person and the community in which they live.

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## **1.2 SOME SIGNIFICANT FACTS ON THE DISEASES PATTERN OF OLDER PERSONS IN INDIA**

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Ageing may not be as important a segment for the government and other stakeholders, but efforts have been made to collect data on ageing population and understand their needs better. The most recent examples are Study on Global Ageing and Health (SAGE) WHO SAGE Wave 2 and Longitudinal Study of Ageing in India (LASI). National Family Health Survey 5 also gives some insights into the health and other aspects that can be analyzed for healthy and active ageing.

Some important facts about morbidity as per SAGE and LASI are given below for your ready reference.

### **1.2.1 Arthritis**

According to SAGE Report Wave 2, the self-reported prevalence of arthritis increased with age, from 2% at age 18-29 to 16% at age 50-59. For older and younger adults, self-reported diagnosis, as well as symptom-based prevalence, was higher among women than men; for older women, self-reported prevalence (22%) was much higher than for men (14%). Rural respondents were more likely to have arthritis than their urban counterparts. The prevalence of arthritis was negatively correlated with educational attainment for both older and younger adults: at age 50-plus, self-reported and symptom-based prevalence among college-educated respondents was 11%, compared with 19% and 21% respectively for those with no formal education.

Among older adults, aged 50 and above, Assam had the highest percentage of self-reported prevalence (34.6%) while the symptom based prevalence was only at 15%. States like Rajasthan and UP had large variations in self-reported and symptom based prevalence of arthritis. Rajasthan had 27% of symptom based prevalence while only 13.1% reported to have arthritis. Of which, only 20.3% have undergone treatment in the past 2 weeks, and 29.9% of the respondents have been taking chronic treatment (past 12 months). Meantime, UP had 15.3% symptom based prevalence, while only 9.5% reported, and only 29.3% have taken treatment in past 2 weeks.

Among older adults who had arthritis, 59% had received treatment in the previous 12 months, while just 40% had received treatment in the previous two weeks.

In the LASI report, J&K had 21.9% of self-reported prevalence of arthritis among those aged 60 and above, 16.9% in West Bengal, 16.7% in Odisha, and the southern states have higher percentage of reported prevalence, 20.1% in Telangana, 19.1% in Kerala, 18.4% in Karnataka, 14% in Andhra, and 17.9% in Tamil Nadu. Meanwhile, the states in North, North-east, and a few others have very low self-reported cases of arthritis, for example, 3.1% in UP, 4.6% in Bihar, 2.8% in MP, 2.4% in Haryana, 2.8% in Meghalaya, 8.8% in Gujarat, etc.

### 1.2.2 Stroke

Prevalence of self-reported stroke has barely changed in the eight years between SAGE-1 and SAGE-2 among younger and older respondents. However, the proportion of respondents who are currently treated for this condition has increased from 13 percent to 41 percent among younger respondents. For older respondents, it has increased from 37 percent to 55 percent. Similarly, for younger respondents, chronic therapy taken has increased from 10 percent to 68 percent from SAGE-1 and SAGE-2. However, among older respondents, it has increased from 51 percent to 68 percent.

For older adults, the prevalence of self-reported stroke was 2%. Among the six states, the lowest self-reported prevalence was in Uttar Pradesh (0.5%). The prevalence of self-reported diagnosed stroke among older adults ranged from 0.5% in Uttar Pradesh to 6% in West Bengal. Only 39.1% and 39.6% of the respondents from UP and Rajasthan have taken medication or treatment in the past 2 weeks.

According to the LASI report, Chandigarh (16.8%), Kerala (12.8%) and J&K (10.2%) have the highest self-reported cases of various heart diseases. Meanwhile, almost all other states, except Delhi, West Bengal, Himachal Pradesh and all UTs, are reporting below the national average of 5.7% in heart diseases.

### 1.2.3 Angina Pectoris

Among older respondents, the symptom-based prevalence of angina (20%) was almost five times higher than the self-reported prevalence of diagnosis (4%). Comparing states, self-reported prevalence varied from 2% in Uttar Pradesh to 6% in Karnataka, while the symptom-based prevalence ranged

from a low of 12% in Karnataka to 35% in Maharashtra followed by Rajasthan. The difference in these variables for those aged 50 and above are as follows:

States	Self-reported %	Symptom-based %
Assam	3.2	12.6
Karnataka	5.7	11.9
Maharashtra	4.8	35.2
Rajasthan	3.6	27.6
Uttar Pradesh	1.8	15.2
West Bengal	4.3	18.5

At the same time, those currently receiving treatment or medication are at the highest in Karnataka at only 34.9%, and chronic treatment at 42.5%, followed by West Bengal at 23% and 26% for currently treating and chronic treatment respectively. The rest of the states are all below the national averages for treatment which is 14% for current treatment, and 16% for chronic treatment.

Among younger adults, more than 1% reported being diagnosed with angina, while 12% of respondents had symptom-based diagnosis angina. The variation by state in angina diagnosis ranged from 5% in Karnataka to 22% in Maharashtra. The difference between self-reported diagnosis and symptom-based prevalence was greatest in Maharashtra, where the self-reported prevalence of angina was only 1%, compared with over 22% for symptom-based diagnosis.

According to LASI report, the highest percentage of self-reported angina pectoris was among the states like Himachal Pradesh and Uttarakhand, for both aged 45-59 and those above 60, followed by Meghalaya, and Maharashtra. More than one in ten elderly age 60 and above have symptomatic angina in the states/UTs of Himachal Pradesh (20%), Meghalaya (15%), Uttarakhand (13%), and Maharashtra (10%). Among the elderly age 60 and above, the prevalence of angina pectoris is higher in rural (7%) than urban areas (5%); women (7%) have higher prevalence of angina than men (5%). The prevalence of angina among both older adults age 45-59 and elderly age 60 and above decreases as educational attainment increases. The prevalence of angina is much higher than the prevalence of diagnosed heart disease among rural elderly and elderly women. The prevalence of symptomatic angina is relatively lower among elderly age 60 and above in the southern Indian states/UTs of Karnataka (4%), Tamil Nadu (4%), Telangana (3%), Andhra Pradesh (3%), and Lakshadweep (2%).

#### 1.2.4 Diabetes

According to SAGE report, the prevalence of diabetes among older adults was 10% at the national level. Across states, the prevalence among older adults ranged from 7% in Uttar Pradesh to 17% in Karnataka.

Prevalence of self-reported diabetes has marginally changed between SAGE-1 and SAGE-2, increasing from 1.9 percent in 2007 to 2.6 percent in 2015 among younger respondents. For older respondents, it has increased from 6.9 percent to 9.7 percent in the same time. However, the proportion of respondents who are currently treated for this condition has decreased from 53 percent to 47 percent among younger respondents. For older

respondents, it has increased from 49 percent to 66 percent. Similarly, for younger respondents, chronic therapy taken has decreased from 69 percent to 51 percent from SAGE-1 and SAGE-2.

Among older adults, diabetes was more prevalent among men (11%) than women (9%) and in urban areas (15%) compared with rural areas (8%). Similarly, it increased from 6% among those with no formal education to 20% for those with college and above education. The proportion of older respondents who had received treatment in the previous 12 months increased with education level and wealth quintile.

According to LASI report, among elderly age 60 and above, the prevalence of diagnosed diabetes is three times higher in those living in urban areas (26%) than those living in rural areas (9%) and slightly higher among men (15%) than among women (14%). More than a fourth of elderly age 60 and above reported that they have been diagnosed with diabetes mellitus in the states/ UTs of Kerala (35%), Puducherry (28%), Lakshadweep (28%), Goa (27%) Delhi (26%), Tamil Nadu (26%), and Chandigarh (25%).

### 1.2.5 Respiratory Diseases

Chronic lung disease is the second largest contributor to the burden of mortality and morbidity in India. According to LASI, in India, the self-reported prevalence of any diagnosed chronic lung disease among older adults age 45 and above is 6%. The most prevalent lung disease is asthma (4.4%) followed by COPD (2.1%) and bronchitis (1.1%). More than one in ten elderly age 60 and above have been diagnosed with any chronic lung diseases in Rajasthan (15%), Puducherry (13%), Kerala (12%) and West Bengal (11%). Among elderly age 60 and above, the self-reported prevalence of bronchitis and COPD is highest in Karnataka (6.2% and 7.6% respectively) followed by that in Puducherry (4.1% and 7.1% respectively). On the other hand, the self-reported prevalence of diagnosed asthma is the highest in Rajasthan (12%) followed by that in Dadra & Nagar Haveli (8.9%), Kerala (8.2%), and West Bengal (8.2%).

Prevalence of self-reported asthma has decreased marginally between SAGE-1 and SAGE-2, decreasing from 7.2 percent in 2007 to 4.8 percent in 2015 among older respondents. Similarly, symptom-based asthma has barely increased from 4 percent in 2007 to 5 percent among younger respondents. All the states surveyed for SAGE had undiagnosed cases of asthma, as the self-reported cases of all the states were 4% to &5 less than the symptom-based prevalence. The difference in self-reported and symptom based prevalence of asthma among older adults aged 50 and above are as:

States	Self-reported %	Symptom based %
Assam	7.0	14.0
Karnataka	3.0	8.5
Maharashtra	4.7	8.9
Rajasthan	8.2	13.9
UP	4.0	11.3
West Bengal	4.9	11.4

Even for treatment, the numbers have been too low, with the highest being 30.8% in Rajasthan for treatment in the past 2 weeks, while in UP, its only 16.7%.

### 1.2.6 Depression

According to SAGE, there is huge difference between self-reported and symptom based prevalence of depression among both older and younger adults. For older respondents, Rajasthan had the highest (5%) prevalence of self-reported depression and Uttar Pradesh (1%) the lowest. However, in terms of symptom-based prevalence among older respondents, the numbers are as follows:

States	Self-reported %	Symptom based %
Assam	4.2	3.2
Karnataka	2.5	11.8
Maharashtra	0.9	11.0
Rajasthan	5.2	12.5
UP	0.7	12.5
West Bengal	1.8	15.0

The worse when it comes to treatment with Rajasthan is on the top of list with 10% of those who sought treatment in past 2 weeks, and 16% in chronic treatment. The rest of the states are well below these numbers with UP having as below as 2.3% for current treatment, and 1.4% as chronic treatment. For the LASI report, the prevalence of self-reported depression for all the states is very low, ranging maximum to 1.3% in Chandigarh for adults aged 45 and above in total.

### 1.2.7 Hypertension

According to SAGE, the prevalence of self-reported hypertension among younger and older respondents was 9% and 20% respectively. However, based on the measurement of blood pressure, a much larger proportion of respondents had hypertension: 17% among younger and 39% among older adults. Among older adults, the lowest prevalence of self-reported hypertension was in Uttar Pradesh (12%); the highest prevalence (32%) was reported in Assam. In all states, the measured prevalence of hypertension among older respondents was much greater than the self-reported prevalence. More than a quarter of older respondents with either a college education (29%) or from the highest wealth quintile (30%) reported being diagnosed with hypertension. However, based on measured blood pressure, respondents from every educational level and wealth quintile were almost equally likely to be hypertensive.

According to LASI report also, these variables were of the same pattern with the self-reported cases, where states in north-east had more untreated and undertreated cases of hypertension. More than a fifth of elderly age 60 and above who reported that they have been diagnosed with hypertension remain untreated in the states/UTs of Arunachal Pradesh (26%), Mizoram (25%), Nagaland (25%), and Himachal Pradesh (22%). Conversely, more than a half of elderly age 60 and above are adequately treated for hypertension in the states/UTs of Puducherry (61%), Chandigarh (60%), Goa (55%), Maharashtra (55%), Karnataka (52%), and Telangana (50%).

### 1.2.8 Nutrition

According to LASI, a higher proportion of elderly age 60 and above (27%) than older adults age 45-59 (16%) are underweight. In contrast, a higher proportion of older adults age 45-59 are overweight and obese (24% and 9%, respectively) compared to elderly age 60 and above (17% and 6%, respectively). The proportion of underweight elderly age 60 and above residing in rural areas (32%) is almost three-fold the rate among those residing in urban areas (12%). In contrast, overweight and obesity are much more prevalent among elderly in urban areas (27% and 12%, respectively) than among those in rural areas (12% and 3%, respectively).

The prevalence of underweight among older adults age 45 and above is higher in the demographically less advanced eastern and central Indian states/UTs and much lower in the demographically advanced southern and northern Indian states/UTs, ranging from 32% in Chhattisgarh to 5% in Chandigarh, Delhi, and Lakshadweep. More than one-third of elderly age 60 and above are underweight in the states/UTs of Dadra & Nagar Haveli (40%), Odisha (37%), Tripura (37%), Uttar Pradesh (37%), Chhattisgarh (36%), Madhya Pradesh (35%), and Assam (34%). Meanwhile, around half of older adults age 45 and above in Chandigarh (56%), Delhi (53%), and Punjab (49%) are either overweight or obese.

### 1.2.9 Other Determinants of Health Care

LASI has more data on health seeking behavior, health financing and risk behavior, women that is relevant here. This will help you to understand the social and economic dynamics in the life of an elderly and also the affordability of treatment for various ailments. These bullet points are supposed to work as triggers for you to explore more facts about the older person's health and diseases and non-biological factors that affect their health and wellbeing.

- Overall in India, a quarter of elderly age 60 and above and a sixth of older adults age 45 and above reported poor self-rated health (SRH). More than half of elderly reported poor SRH in the states of Kerala (53%) and Tamil Nadu (53%).
- Among the elderly, women than men, those with no schooling than those with 10 or more years of schooling and those currently not working compared to those working are more likely to report poor SRH.
- More than 90% of the elderly who reported that they have been diagnosed with hypertension are currently on treatment for hypertension in the states/UTs of Goa (97%), Andhra Pradesh (92%), Puducherry (92%) and Kerala (91%).
- The treatment rate for hypertension is lower in Arunachal Pradesh (28%), Bihar (54%), Mizoram (54%), Uttarakhand (60%), Haryana (60%), Nagaland (61%), Uttar Pradesh (63%), Rajasthan (65%), Himachal Pradesh (67%), and Jharkhand (69%).
- The proportion of the elderly age 60 and above diagnosed with diabetes mellitus who are currently receiving treatment for diabetes mellitus ranges from 70-90% across states of India, except for Gujarat (69%), Assam (67%), Uttar Pradesh (67%), Mizoram (64%) and Arunachal Pradesh (36%).

- The treatment rate for all chronic health conditions is higher among elderly in urban areas than those in rural, those with 10 or more years of schooling than those with no schooling and those in the richest than the poorest MPCE quintile.
- In India, 23% of the elderly have been diagnosed with multi-morbidity conditions and; elderly women are more likely to have multi-morbidity conditions.
- Elderly living in urban areas (36%), those with 10+ years of schooling (37%) and in the richest MPCE quintile (35%) are more likely to be diagnosed with multi-morbidity conditions.
- A higher proportion of elderly have been diagnosed with multi-morbidity in the states/UTs of Kerala (52%), Chandigarh (41%), Lakshadweep (40%), Goa (39%), Andaman & Nicobar (38%), and Puducherry (36%).
- In India, 15% of elderly have sleep problems and around 1/5<sup>th</sup> of elderly have sleep problems in the states/UTs of Madhya Pradesh (22%), Punjab (21%), Puducherry (21%), Kerala (20%), and Delhi (20%).
- More than a quarter of elderly experienced pain (29%) and around half of elderly from Puducherry (54%), Odisha (49%) and Jharkhand (47%) reported trouble with pain.
- The self-reported prevalence of injuries and falls among 45 + is 16% and 19% respectively; one in four elderly have experienced any injury and /or falls. Among elderly, women, widowed and elderly living alone are more prone to injuries and/or falls.
- The prevalence of falls among the elderly is higher in Odisha (35%), Punjab (31%), Kerala (30%), Assam (29%) and Bihar (29%).
- Elderly are more likely to have psychological problems (2.3%) than permanent physical disability (0.4%) and chronic illness (0.6%) due to natural and man-made disaster.
- The overall prevalence of water-borne diseases in India among elderly is 20%, the prevalence of vector-borne diseases is 11% and that of other infectious diseases is 4%.
- Elderly residing in rural area, women, living with spouse and children, Overall, in India, the prevalence of any form of impairment among elderly is 11%; locomotor impairment (6%) is the leading impairment followed by visual impairment (4%), mental and hearing impairment (3% each) and speech impairment (0.9%).
- Among elderly, the prevalence of locomotor impairment is higher in Karnataka, mental impairment is higher in Tamil Nadu, visual and hearing impairment is higher in Dadra & Nagar Haveli while speech impairment is higher in Madhya Pradesh.
- Stooping, kneeling and crouching are most experienced mobility restrictions among elderly while picking up a coin is the least experienced mobility restriction.

- Among elderly, the reported prevalence of work limiting health conditions is much higher in the states of Gujarat (59%), Dadra & Nagar Haveli (45%), Maharashtra (43%) and Karnataka (42%). A quarter of elderly (24%) reported having at least one ADL limitation; 14% reported having two or more ADL limitations; close to half of elderly age 60 and above reported having at least one IADL limitation (48%) and; more than a third reported having two or more IADL limitations (37%).
- Older adults as well as elderly women, those residing in rural areas, widowed, those living alone or with others and those worked in past but currently not working are more likely to have ADL and IADL limitations.
- The proportion of elderly with ADL limitations do not vary much by education or MPCE quintile; however, elderly with no schooling and in poorest MPCE quintile are more likely to have IADL limitations.
- Difficulty in using toilet facility is most common ADL limitation faced by elderly; whereas, among IADL limitations, getting around in unfamiliar places is most common difficulty reported by elderly. Scheduled tribe and those currently working are more prone to endemic diseases.
- In India, about 16% of women aged 45+ reported having reproductive health problems such as hot flashes, irregular vaginal discharge, uterine prolapse, fibroids, cysts, and vaginal dryness in the past 12 months prior to the survey.
- Women age 45+ who are currently married, those living with spouse and children, residing in rural area and belonging to Muslim religion are more likely to report with any reproductive health problem.
- A higher proportion of older adult women age 45 and above who have undergone pap smear for cervical cancer screening in Mizoram (8%), Karnataka (7%), and Kerala (5%); whereas, higher proportion of older adult women age 45 and above had undergone mammography for breast cancer screening in demographically advanced states/UTs such as Karnataka (3.9%), Chandigarh (3.6%), Kerala (3.6%).
- In India, 43% of the elderly have been using any aid or supportive devices.
- More than half of elderly in urban areas of India reported using any aid or supportive devices. Apart from spectacles/contact lenses, a higher proportion of the elderly age 60 and above reported using aids for physical disabilities.
- Elderly with higher education and those in richest MPCE quintile are more likely to use aid/ supportive device.
- Use of any aid or supportive device among older adults age 45 and above is higher in the western states, and is comparatively lower in central and eastern Indian states, ranging from 67% in Goa to 12% in Meghalaya.
- Overall, in India, 12% of those aged 45+ are current smokers and 20% are current users of smokeless tobacco. The prevalence of current tobacco consumption (smoking or smokeless) among them is 30%.

- Among elderly women, 16% are current users of smokeless tobacco and 3% are current smokers; whereas, among elderly men, 28% are current users of smokeless tobacco and 26% are current smokers, indicating very small difference between use of smokeless tobacco and smoking.
- More than half of elderly men are current smokers in the states/UTs of Haryana (53%) and Tripura (52%); whereas, current users of smokeless tobacco among elderly men are higher in the states of Odisha (65%), Jharkhand (57%), and Bihar (53%).
- Among elderly women, current users of smokeless tobacco are higher in the states of Odisha (57%), Tripura (56%), Assam (39%), and Mizoram (33%) whereas, the prevalence of current smoking is higher in the states of Mizoram (24%), Tripura (19%), and Uttarakhand (18%).
- In India, 3% of those aged 45+ are heavy episodic drinkers and at risk of harmful effects of alcohol. Heavy episodic drinking is more common in men (6%) than women (0.5%) aged 45+.
- As per WHO standard recommendations for physical activity in older adults, 35% of Indians aged 45+ are physically inactive; a higher prevalence of physical inactivity is observed among men, those who never worked, and among elderly than their respective counterparts.
- Higher proportions of both men and women aged 45+ physically inactive in Mizoram (80% and 75%, respectively), Delhi (63% and 55%, respectively), Haryana (60% and 50%, respectively), and Arunachal Pradesh (59% and 56%, respectively).
- In India, 11% of those aged 45+ as well as elderly are practicing some form of yoga more than once a week. The elderly with 10 or more years of schooling and those in the richest MPCE quintile are likely to practice yoga, meditation, asana or pranayama more than once a week.
- Those aged 45+ in Madhya Pradesh (14%), Bihar (10%), and Jharkhand (10%) are seen to be more prone to food unavailability.
- Among those aged 45+ 7% received inpatient care (hospitalization) in past the year prior to the survey, and 26% received outpatient care in the past month prior to the survey.
- Both inpatient and outpatient care is higher among elderly compared to those aged 45+
- The inpatient rate is the highest in Himachal Pradesh (11.1%) and the lowest in Chhattisgarh (3%), whereas the outpatient rate is the highest in Punjab (54%) and the lowest in Mizoram (3.4%).
- In India, about two-fifths of aged 45+ received inpatient care from public health facility compared to about three-fifths from private health facility.
- Elderly are more likely to receive inpatient and outpatient care from public health facilities.

- Among those hospitalized, 63% are hospitalized for non-communicable diseases (NCDs), 21% for communicable diseases, and about 6% are hospitalized for maternal health problems and other diseases.
- The mean out-of-pocket expenditure among those aged 45+ for the last inpatient care in public facility is Rs.8,877, whereas it is Rs. 52,022 in private facility.
- The mean expenditure for outpatient care during the last 30 days is Rs 1,061; it is higher for the elderly (Rs. 1,149) than those aged 45+ (Rs. 977).
- 21% of those aged 45+ are covered under health insurance at the national level. More than half of those aged 45+ have health insurance in Mizoram (65%), Odisha (61%), Dadra & Nagar Haveli (61%), and Assam (53%).
- The preferred living arrangements amongst the elderly is living with a spouse and children. However, in India, 6% of the elderly and around 9% of elderly women live alone. The proportion of the elderly living alone is as high as 15% in the state of Tamil Nadu, 13% in Nagaland, and 11% in Telangana.
- During the last one year, 15% of the elderly received financial support from family members or friends, whereas 6% of the elderly provided financial support to others.
- More than 2% of the elderly have family members who are unable to carry out their basic daily activities such as eating, dressing, taking a bath, and using the toilet.

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### 1.3 TEST YOUR KNOWLEDGE

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The following exercises are meant to challenge your faculties to think in a holistic way the needs of the community that you are serving with that of the larger society and vice-versa. You are required to do at least one of the following. But, based on your interest in the subject and the permission of your supervisor you may attempt one more with a group of other students or doctors in your facility.

**Exercise 1:** Document the epidemiological profile of the elderly in your community.

Collect Data on:

Morbidity Profile of the older persons.

Risk factors

Food Habits and Nutritional Deficiencies

Access to clean drinking water, sanitation

Sources of Pollution: Skin and respiratory problems

Map the services available for:

Screening: availability, accessibility, usage

Treatment: availability, accessibility, usage

Prevention: availability, accessibility, usage

You may choose from any of the following conventional methods:

- a. Simple survey technique of developing a closed ended questionnaire for the same to collect data from the people in the community
- b. Analyze available medical records and reports. Use data available in the nearest NPHCE center
- c. Do a group discussion with local people to get an idea on risk factors, social behavior, eating habits, exercise
- d. Speak with the locally knowledgeable persons like ASHA workers and find out about the health conditions and health seeking behavior of the older persons
- e. Innovate and use any local event or medium to involve the local people in raising awareness about health conditions that need treatment. Involve the people in the community who are behaviour influencers.

**Exercise 2:** Assessment of the health system's preparedness to meet the epidemiological transition of your community

Collect data on:

International standards of geriatric care

National standards of health care

Map the Following:

Available health care infrastructure in the community

Enabling and hampering factors

Existing health facilities that may be useful

Local volunteers

Prepare a block/District plan to deal effectively with the problems identified and services available.

Suggested Methods of Data collection:

You may use simple participant observation method in the area to profile availability, appropriateness and gaps in the health care system. Please start by develop a checklist of the important variables in terms of essential and desirable elements of geriatric care delivery. See what is available and useable and what more needed to be done. Then change eth perspective and look at it from the po8int of view of the older person who is accessing the system. The principles underlying any old age programme should be: independence, dignity, self-fulfillment and care.

**Exercise 3:** Gender and Ageing:

Collect Data on:

Life Expectancy in the district and state

Disability

Marital Status

Living Arrangements

Maternal Mortality Rate in the district and state

Morbidity in old age

Education level of women  
Access to Social Pension  
Access to Health Insurance  
Nutritional Status  
Health seeking behavior

Map the services:

Health care for women in reproductive age group  
Health care services for older women  
Paid and Unpaid work that women do in the community  
Impact on Health  
Special focus health programme for older women including mental wellbeing

Prepare a note on how older women compare to older men and what can be done to get them better access to health care services.

Suggested Methods of data collection and mapping

You may begin to understand the challenges faced by older women in terms of health by doing an outreach camp for detection of diseases. This will help you understand the morbidity profile of the community. You may follow it up with a focus group discussion with older women on their experience of accessing the health care system. Our health system has many specific interventions for young girls and women in reproductive age group; but complete lack of focus on health needs of the post-menopausal women. Data suggest that they have handicaps in terms of access and design of the system. Analyze the existing system in terms of availability and accessibility of the specific services to women on nutrition, mental wellbeing. You may involve ANMs, ASHA workers, Gynecologists to understand the challenges better. Domestic violence is another factor that needs attention in case of women particularly older women. Do look for signs and collect primary data on the same.

**Exercise 4 :** Public spaces to enable access to older persons

Ask the older person, self-observe and note:

Type of public spaces available for older persons: work, volunteer, recreation

Enable or hamper social and economic inclusion

Mode of public transport available to older persons (public service buses, metro rail, app based cabs services, e rickshaws, cycle rickshaws)? Does it match standards of use for disabled population?

Does it impact their mental and social wellbeing?

Does it make them independent and secure?

If in a 'smart city' does it have any special plan for older persons for encouraging healthy and active ageing? What is the impact of their disability/ frailty on their use of public spaces?

Please make a note and prepare a plan of action for age friendly public spaces

Suggested methods for collecting data:

You may take older person for a walk in the community and ask him/her to show you the areas that s/he frequents. Ask her/him to share her experiences of using the space over the years. Has it become difficult or easy? Has s/he changed paths to reach? Have some spaces that s/he frequented disappeared? Any seasonal challenges that s/he may face in walking or reaching a spot.

**Exercise 5: Family and Elderly**

Collect Data on:

Living arrangements of older person in the district and state

Age and gender variations in living arrangements

Reported crimes and elder abuse in the district

Knowledge on Maintenance and Welfare of Parents and Senior Citizens Act

Knowledge of helplines for older persons

Map:

Treatment meted out by the family treat to the older person/s

Money and time spent on care of the older person/s

Medical intervention and role of family

Impact of the behavior of the family on the wellbeing of the elderly

Recourse to law in case of abuse

Recourse to any community group for resolution of family disputes

Make a comparative note on the impact of family behavior on the wellbeing of the older persons. What more can be done to encourage families to care for the older persons

Suggested method of data collection:

You may do Non Participant observations on how the older members are treated by the family. Do they accompany them to medical facility, take interests in his/her health matters? Do they take the older person along in social events? Have they come to the health facility with some physical bruises, wounds, or injuries? Do they appear depressed and isolated? Look for any data or insights available with the District Mental Health Programme on violence victims?

**Exercise 6: Palliative Care**

Collect data on:

Number of people requiring palliative care

Type of care required

Available Resources to respond to the need

Availability of Community Volunteers for palliative care

Training of Clinical and Non clinical care givers in the area and the state

Map:

- Law/Guidelines in the state on palliative care
- NGOs providing palliative care services
- For Profit medical establishments providing services
- Training of Palliative Care givers
- Availability of palliative care services in institutional setting
- Availability of palliative care facilities in home settings
- Affordability of palliative care facilities in hospitals and home care settings

Intervention Activities:

Prepare a note on gaps in palliative care services in both institutional and non-institutional settings and approach the school of social work in your area to help by way of providing training programme for community and family volunteers to take care of such older person. You may connect with Senior Citizens Organizations or Self Help Groups in your area and encourage 'young old' person to volunteer to take care of such older persons.

Ministry of Skill Development has designed curriculum for training care givers. The Government of West Bengal under its Anand Dhara Program is training village level care givers called Seva Sakhi from among members of Self Help Groups.

#### **Exercise 7: Care of Older Persons in Disasters**

Prepare a Checklist:

- a. How did older persons in your area deal with the COVID 19 pandemic?  
Y/N
- b. Did they get credible information on time? Y/N
- c. Did the health care facilities extend an arm to help them? Y/N
- d. Are they aware and connected to the tele-facilities that are available?  
Y/N
- e. Did par medics and care workers provide special assistance to the older persons during the pandemic to help the elderly? Y/N
- f. Did they get any mental health and wellbeing support during the first 2 waves? Y/N
- g. Do you have any NPHCE facility available in your area? Y/N
- h. Did it provide any meaningful support to the older persons? Y/N

Intervention activity following the fact finding:

You may like to activate the village level disaster management committee to involve the older persons in both preparedness and relief and rehabilitation.

You may also help develop guidelines for the local health system to respond to the specific needs of older patients suffering from NCDs in getting access to medicines and appropriate food.

You may document the process of activating the system to involve and deal with the aged people in any disaster situation or living in disaster prone area.

### Exercise 8: Preventive Health Care

Preventive health care is as important as curative health care, in some ways more than the latter. However, its importance needs to be emphasized. People normally do not change their eating habits with age and many become less active physically due to cultural and other factors. But, both may have adverse impact on the health of the older person. You may select from any of the following topics: Healthy Ageing, Active Ageing, Stress Management, Depression, Prevention of Elder Abuse, Safety and Security, Prevention of Falls, Vaccinations.

For this to be a success, it is important to convince the community especially the young adults of the importance of healthy and active ageing. Normally in India it is found that the bonding between the older and younger people is good and they tend to persuade each other to adopt correct life style. The involvement of the medical and para medical community is also important to give this whole exercise credibility and acceptance among the community members including the current elderly. How, a small step in the right direction of lifestyle change can have a ripple impact on later life is phenomenal, but needs to be demonstrated. By involving the young and old in this activity you will benefit both generations and also reduce burden of disease and disability on the system and the community.

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### 1.4 REFERENCES AND FURTHER READINGS

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2. Study on Global Ageing and Health (SAGE), Wave 2, India; 2020. Indian Institute of Population Sciences, Mumbai.
3. Longitudinal Aging Study in India (LASI), Wave1; India Report; 2020; NPHCE, Indian Institute of Population Sciences, Mumbai and Ministry of Health and Family Welfare, Govt. of India.

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## UNIT 2 NUTRITIONAL ASSESSMENT

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### Structure

- 2.0 Objectives
- 2.1 Introduction
- 2.2 Geriatric Nutritional Assessment
  - 2.2.1 Medical History
  - 2.2.2 Life-style Patterns
  - 2.2.3 Dietary Assessment
- 2.3 Physical Examination
- 2.4 Anthropometric Assessment
  - 2.4.1 Measurement of Height and Weight
  - 2.4.2 Determination of Body Mass Index
  - 2.4.3 Measurement of Skin fold Thickness
  - 2.4.4 Waist Hip Circumference Ratio
- 2.5 Let Us Sum Up
- 2.6 Glossary
- 2.7 Answers to Check Your Progress
- 2.8 References and Further Readings

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### 2.0 OBJECTIVES

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After undertaking the activities in this unit, you should be able to:

- Undertake anthropometric assessment of elderly individuals
- Evaluate the nutritional adequacy of their diets
- Conduct nutritional assessment.

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### 2.1 INTRODUCTION

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You have read earlier, in the block 2 of MME 104 that good nutrition is essential for good health. Any poor diet and inadequate intake of various nutrients may lead to a deficiency of these nutrients in our body. Nutritional deficiencies may be manifested in several ways such as:

- Vitamin A deficiency affects the eyes
- Iron deficiency is associated with low haemoglobin levels leading to anaemia
- Energy and protein deficiency may lead to changes in anthropometric profile e.g. loss of weight, decrease in mid upper arm circumference.

These nutritional deficiencies can be assessed by nutritional assessment. In this chapter, you will be learning how to assess the nutritional status of elderly persons and identify signs and symptoms of common nutritional deficiencies.

## 2.2 GERIATRIC NUTRITIONAL ASSESSMENT

Nutritional assessment is the measurement of indicator of dietary or nutrition related factors that lead to the identification of the presence, nature and extent of impaired nutritional status of any type.

As you must have observed very few patients consult a doctor with specific complaints related to nutritional-problems. It is only when they complain of problems like hypertension, arthritis, of joint pain, that the associated nutritional problems of-obesity or osteoporosis come to light. Therefore, it is very important that the triggering factors of nutritional problems be incorporated as part of the standard medical examination conducted by the doctor.

### 2.2.1 Medical History

You have already learnt in the various theory units that many medical surgical and psychiatric problems and many medicines and drugs may result in nutritional deficiency disorder. **Table 2.1** gives the diseases, which may give rise to nutritional deficiencies or disorder.

**Table 2.1: Diseases Associated with Nutritional Deficiencies**

Diseases	Nutrient Deficient
Thyrotoxicosis	Vitamin A, Thiamine, Folate
Alcoholism	Pyridoxine, Vitamin C, Riboflavin, Vitamin C and Protein
Rheumatoid Arthritis	Folate, Iron
COPD	Vitamin A
Osteoporosis	Vitamin D, Iron, Calcium
Chronic Renal Failure	Calcium, Iron, Folic Acid, Vitamin B12
Nephrosis	Protein

Certain drugs also interfere with the nutrient absorption and metabolism in the body such as diuretic use, which can result in electrolyte imbalance. Long term use of NSAIDS lead to iron deficiency because of gastrointestinal disturbance or disturbance as a side effect.

Ask for psychological problems, depression, dementia and their severity. In case your patient or elderly is taking a drug over a long period of time some nutritional disorders may arise. Chemotherapy for malignancies are usually associated with nausea, vomiting and anorexia which can lead to multiple nutritional deficiencies.

### 2.2.2 Life-style Patterns

Life style patterns have a marked influence on the nutritional status of the individuals (**Table 2.2**).

**Table 2.2: Life-style Factors Influencing Nutritional Status**

S.No	Mobility
1.	Occupation
2.	Financial Status
3.	Living Arrangements
4.	Smoking
5.	Alcohol Consumption

The effect of these factors on nutritional status is given below:

- a) Occupation may influencing the eating pattern, create a stress environmental hazards like exposure to poisonous gases. These may influence absorption of vital nutrients leading to their deficiencies.
- b) Activity level of patient determines the nutrient needs as well as the level of independence.
- c) Living arrangements give a clue to the adequacy of resources and/or availability of food containing appropriate nutrients.
- d) Habits of high-risk behaviour such as smoking and alcohol consumption can result in serious nutritional problems like Vitamin B deficiencies.

**2.2.3 Dietary Assessment**

Food intake of an individual has a strong bearing on his nutritional status, more so in old age. Hence, it is very important to be able to assess the food and nutrient intake of aged individuals. A twenty-four hour recall method is usually used. Ask the elderly or caretaker to recall the elderly’s exact food intake during the previous twenty-four hours. The diet daily should include sonic food items from all the food groups i.e. cereals, pulses, milk and milk products/animal foods, vegetables and fruits.

According to the mini nutritional assessment chars diet prescribed to them discuss if the diet is adequate or not

**Check Your Progress 1**

1) List a common disease state which may result in the deficiency of the following nutrients:

- a) Thiamine .....
- b) Iron .....
- c) Vitamin C.....
- d) Protein .....
- e) Calcium .....

2) What aspects of a patient life-style would influence his nutritional status? List any three.

.....

.....

.....

.....

## 2.3 PHYSICAL EXAMINATION

General physical examination will be done as for all diseases. You must specifically examine for any signs of nutritional deficiencies as given in **Table 4.3**. The clinical signs are indicative of nutritional deficiencies. Related lab investigation may be carried out e.g. in anaemia do the serum cross-levels hemoglobin levels and serum albumin in severely malnourished individuals.

## 2.4 ANTHROPOMETRIC ASSESSMENT

Anthropometric measurements are non-invasive techniques that provide information for estimation of body composition, fat and muscle stores. These measurements include weight, height, body circumferences and skinfold thickness.

Anthropometric measurements help to detect malnutrition, particularly energy and proteins. Anthropometric measurements are done to assess the nutritional status of the elderly.

### 2.4.1 Measurement of Height and Weight

Measurement of weight and height are the simplest ways of monitoring nutritional status. Weight changes over a period of time reflect changes in the body's nutrient stores and status. Stature or height is used to calculate body mass index.

**Table 2.3: Manifestations of Nutritional Deficiencies**

Nutritional A deficiencies	Manifestation
1) Vitamin A deficiency  2) Vitamin B deficiency i) B1 (Thiamine)  ii) B2 (Riboflavin) iii) Niacin iv) B6 (Pyridoxine) v) Pantothenic Acid vi) Folate vii) Vitamin B12 viii) Vitamin C (Ascorbic acid) ix) Vitamin D x) Calcium xi) Iron	1) Ocular manifestations <ul style="list-style-type: none"> <li>• Night blindness</li> <li>• Conjunctival xerosis</li> <li>• “Bitot spots</li> <li>• Corneal xerosis</li> <li>• Corneal ulcer</li> <li>• Keratomalacia</li> </ul> 2) Extraocular Manifestations <ul style="list-style-type: none"> <li>• Follicular hyperkeratosis</li> <li>• Anorexia</li> <li>• Growth retardation</li> <li>• Beri-beri</li> <li>• Wernick’s encephalopathy</li> <li>• Angular stomatitis</li> <li>• Cheilosis</li> <li>• Glossitis</li> <li>• Nasolabial Dyssebacia</li> <li>• Pellagra</li> <li>• Peripheral Neuritis</li> <li>• Defect in biosynthesis of corticosteroids</li> </ul>

Nutritional A deficiencies	Manifestation
	<ul style="list-style-type: none"> <li>• Megaloblastic anaemia, glossitis cheilosis and GI disturbances, infertility and sterility</li> <li>• Megaloblastic anaemia (pernicious anaemia), demyelinating neurological lesions in the spinal cord</li> <li>• Scurvy</li> <li>• Osteomalacia</li> <li>• Osteoporosis</li> <li>• Anaemia</li> </ul>

### Measurement of Body Weight

Our bodies reflect how much and what we eat, hence measurement of weight and height are the simplest ways of monitoring nutritional status. Weight changes both gain or loss over a period of time reflects changes in the body's nutrient stores and status. A weight loss of 5% in a month, 7.5% in 3 months or 10% in 6 months is considered significant enough to warrant further investigations.

While a beam balance is considered more suitable to measure weight spring balance is more practical for field use. One can also use bathroom scales for measurement of weight. The balance should be placed on a hard flat surface and checked for zero error before each measurement. The subject should stand unassisted on the centre of the platform and be asked to look straight ahead, standing relaxed but still he should be wearing minimal clothing and so shoes. Weight is taken to the nearest 0.1 Kg. Sudden gain in weight particularly in the elderly, may be a consequence of an underlying disease e.g. renal or endocrinal disorders and should not be overlooked.

### 2) Measurement of Height

Stature or height is evaluated directly or used to calculate indices to determine obesity. Height is generally measured in the standing position. You may use a stadiometer measuring rod or non-stretchable tape fixed to a vertical surface, along with a right angle headboard or ruler.

When measuring height, the subject stands erect with the head straight, feet together, knees straight and heels, buttocks and shoulder blades in contact with the vertical surface. Arms should be hanging loosely at the sides with palms facing the thighs. Clothing should be minimal and shoes and socks should not be worn. Subjects are asked to take a deep breath and stand tall to aid the straightening of the spine. Shoulders should be relaxed. The movable headboard is gently lowered until it touches the crown of the head. Height is recorded to the nearest millimeter.

With increasing age some older persons adopt a stooping posture and the height measurements may be inaccurate. Others may be bedridden making measurements of height difficult.

### 2.4.2 Determination of Body Mass Index

The Body Mass Index is normally used to determine the extent of obesity and is a good indicator of the amount of body fat in the elderly.

Once we know the weight and height of an elderly individual, we can determine the Body Mass Index using the formula:

$$\text{Body Mass Index (BMI)} = \frac{\text{Wt. (in Kg)}}{\text{Ht. (in m}^2\text{)}}$$

Classification of individuals according to BMI is given in Table 4.5. These values are for adults and can be used for the elderly too. However, BMI may have a different significance in elderly individuals than young adults, because of the reduction in height with age.

Nutritional Status: NORMAL

STATUS	BMI (Non-Asian)	BMI (Asian)
Underweight	< 18.5	18.5 – 22.9
Normal	18.5 – 24.9	18.5-22.9
Overweight	25-29.9	23-24.9
Pre-Obese	-	25 – 29.9
Obese	≥ 30	≥30
Obese Type 1 (Obese)	30 – 40	30 – 40
Obese Type 2 (morbid obese)	40.1 – 50	40.1 – 50
Obese Type 2 (super obese)	> 50	> 50

### 2.4.3 Measurement of Skinfold Thickness

Skinfold thickness measurements are said to provide an estimate of the size of the sub-cutaneous fat deposit. Triceps skinfold is the most preferred site to obtain a single indirect measure of body fat. The measurement of tricep skinfold is performed at the midpoint of the upper left arm between the acromion process and the tip of the olecranon, with the arm hanging relaxed. To determine the midpoint, the left arm is bent 90° at the elbow and the forearm is placed plam down across the body. Then the tip of the shoulder blade at the outermost edge and the tip of the olecranon process of the vulva are located and marked.

### 2.4.4 Waist Hip Circumference Ratio

The waist hip ratio is a simple method of assessing the distribution of both subcutaneous and interabdominal adipose tissue. It is well established that a high waist hip ratio, indicator of android or “apple shaped” obesity is a risk factor for degenerative diseases like diabetes and heart disease. On the other hand, a waist hip ratio of below 0.8, reflects gynoid or “pear shaped” obesity and is associated with a lower risk to such diseases.

In Asian populations, a high waist circumference per se is also indicative of cardiovascular risk. Hence a cut off 102cms for men and 88cms for women has been suggested by WHO, while for Indians a lower cut off of 90cms for men and 80 cms for women have been proposed.

While measuring waist and hip circumferences, ideally the individual should be made to fast overnight and wear minimal clothing. The individual should stand erect, feet together, and the weight equally divided over both legs. Subjects are asked to breathe normally and waist measurements are taken at the level of the umbilicus. In the case of hip circumference, the measurement is taken at the point yielding the maximum circumference over the buttocks.

### Check Your Progress 2

- 1) Fill in the blanks:
  - a) The simplest way of monitoring nutritional status is .....
  - b) Formula for calculating body mass index is .....
- 2) How is triceps skinfold thickness measured?  
 .....  
 .....  
 .....  
 .....  
 .....

## 2.5 LET US SUM UP

In this chapter, we have learnt about the techniques used to assess the nutritional status of elderly persons. As most elderly patients consult a doctor only for a medical problem, it is very important to incorporate the nutritional assessment as a part of the standard medical examination. Nutritional deficiencies are commonly associated with several medical disease states as well as with intake of various drugs. Hence, these aspects also need to be investigated.

Simple, anthropometric measurements help in determining the nutritional status. Techniques of conducting such measurements have also been discussed in this Chapter. Besides anthropometric assessment, clinical signs and symptoms as well as biochemical profile of blood, urine and stool help to establish the nutritional problems among the elderly with greater precision.

## 2.6 GLOSSARY

- Anorexia** : Loss of appetite
- Nomogram** : A graphical device to allow rapid determination of an index like BMI, avoiding the need for detailed calculations.
- Non-invasive Techniques** : Method of assessment which do not involve penetration of the body parts.

**Osteoporosis** : A disease characterized by decreased bone density, generally associated with advancing age and deficiency of Vitamin D and Calcium.

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## 2.7 ANSWERS TO CHECK YOUR PROGRESS

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### Check Your Progress 1

- 1)
  - a) Fever
  - b) Haemorrhage
  - c) Rheumatoid arthritis
  - d) Alcoholism
  - e) Osteoporosis
- 2) Activity, financial status, living arrangements
- 3) You may do this exercise and discuss with your counselor.

### Check Your Progress2

- a) Height and Weight
- 2) Triceps skinfold is the most preferred site to obtain a single indirect measure of body fat. The measurement of tricep skinfold is performed at the midpoint of the upper left arm between the acromion process and the tip of the olecranon, with the arm hanging relaxed. To determine the midpoint, the left arm is bent 90° at the elbow and the forearm is placed palm down across the body. Then the tip of the shoulder blade at the outermost edge and the tip of the olecranon process of the ulna are located and marked.

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## 2.8 REFERENCES AND FURTHER READINGS

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Physical Status: The Use and Interpretation of Anthropometry, Report of WHO Expert Committee, WHO Tech. Rep. Ser.54, 1995.

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## UNIT 3 DIETARY ADVICE

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### Structure

- 3.0 Objectives
  - 3.1 Introduction
  - 3.2 Dietary Advice for the Elderly
    - 3.2.1 My Plate
    - 3.2.2 Tips for Healthy Eating
  - 3.3 Planning Diets for the Elderly
    - 3.3.1 Food Exchange Lists
    - 3.3.2 Food Exchange List in Meal Planning
    - 3.3.3 Sample Diet
  - 3.4 Dietary Guidelines for Diet Related Chronic Disorders
    - 3.4.1 Obesity
    - 3.4.2 Diabetes Mellitus
    - 3.4.3 Hypertension and Heart Disease
  - 3.5 Let Us Sum Up
  - 3.6 Key Words
  - 3.7 Answers to Check Your Progress
  - 3.8 References and Further Readings
- Annexure

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### 3.0 OBJECTIVES

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After undertaking activities in this unit, you should be able to:

- Determine the nutritional needs of elderly individuals;
- Plan diets for healthy elderly individuals;
- Educate elderly persons regarding proper food selection and suitable diet preparations;
- Advise suitable dietary modifications for elderly patients with diet related chronic disorders and delay the onset of diet related chronic disorders.

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### 3.1 INTRODUCTION

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Eating the right type of food is important for a healthy lifestyle. Generally, we select foods that we like in our daily meals. We do not think of the nutrients or their health- benefits. You already know a lot about carbohydrates, proteins, fats, minerals and vitamins. We have to plan out meals and include a variety of foods in our diet in order to get the benefit of all these nutrients.

As we grow old, certain changes occur in our body, some which are visible like greying hair, wrinkling skin, loss of hearing and weak eyesight. Several

other changes occur internally, which we cannot see. Many of these changes have been discussed in Unit 1 of Block 3 of MME-003. Some of these changes influence the diet patterns of the elderly.

Many other socio-cultural factors like living arrangements, economic situation etc. have a strong bearing on the meal patterns of the old. This Chapter will help you to plan suitable diets for the elderly and also equip you to suggest modifications in their dietary patterns suitable to their age.

As age advances, several chronic degenerative diseases effect health. Many of these like obesity, hypertension and diabetes are diet related and hence can be controlled and even prevented by suitable dietary modifications. The last section of the unit will help you select the right types of foods to prevent and control such ailments.

## 3.2 DIETARY ADVICE FOR THE ELDERLY

Eating a variety of foods is important, no matter what one's age. If the elderly eat well, they are likely to feel healthier, stay active for longer and suffer from fewer illnesses. To make it easier for you to plan nutritious meals for the elderly a simple guide is given below.

### 3.2.1 My Plate



Fig 3.1: My plate providing 3000 Kcals (ICMR- NIN, 2020)

A model plate, providing 2000 Kcals, has been given by ICMR (2020). This plate depicts all food groups to be eaten for good health. The proportions indicated in the plate ensure adequate intake of all micronutrients (vitamins and minerals), bioactive compounds, functional foods, antioxidants etc. As the elderly require lesser kilocalories as has been explained in the following pages, the quantities of food groups to be eaten, particularly cereals, will need to be reduced accordingly.

Cereals are the basic foundation of our daily diet. Try to include at least 1-2 servings of any cereal preparation in every meal- chapati, rice, bread, dalia, upma etc. These foods provide energy, vitamins and minerals. Some unrefined cereals must be consumed daily as they are rich in fibre, vitamins and minerals. Whole-wheat flour (atta) should be preferred to refined flour (maida), undermilled rice is better than polished rice.

Vegetables and fruits are excellent sources of numerous nutrients especially fibre, minerals and vitamins. These foods are rich in antioxidants and other phytochemicals also, which protect us from several diseases like cancer, heart disease etc. Try to include plenty of vegetables and fruits in the diets of old people, including some in the raw form as salads etc. Vegetables like carrots, cabbage etc. may be finely chopped or grated if they find it difficult to chew.

Pulses, nuts, eggs, fish and chicken, milk and milk products are good sources of protein and hence useful to the body. Include at least one food item from this group in every meal. Milk and its products like cheese, curd, paneer etc. contain calcium which helps to keep the bones strong. Eggs and red meat should be taken in limited amounts, as one grows older. They are rich in fat and cholesterol and increase the risk of diseases like high blood pressure and cancer in later life.

Oil, ghee, butter provide energy. Excessive consumption of these fats in old age is harmful to health. Avoid eating too much of fried foods as one grows older. Recommend the use of vegetable oils like mustard, sunflower, corn or soya oil for cooking food rather than ghee or vanaspati.

Salt is considered to be an essential constituent of our diet. However, the taste for salt is an acquired one. Too much salt is harmful for the body. Its use should be restricted in old age as it can lead to high blood pressure and other related disorders.

Sugar and jaggery also provide energy. However, their use in the diet should be restricted.

#### Regular consumption of foods in proportions as per the model plate

- improves immunity and resistance to infections
- maintains good microbial flora (beneficial bacteria in the intestine)
- prevents Diabetes Mellitus, Cardiovascular Diseases (CVDs) such as heart attack, stroke and many other diseases
- maintains appropriate alkalinity and thereby reduces inflammation and decreases chances of kidney stone formation
- prevents insulin resistance and maintains appropriate insulin sensitivity and glycaemic index
- ensures adequate intake of fibre and therefore prevents constipation
- prevents adverse effects of environmental pollution and toxins such as heavy metals and pesticides by working as a detoxifying diet

( ref: ICMR-NIN, 2020)

### 3.2.2 Tips for Healthy Eating

You have already read that the nutritional needs of the elderly, especially those over 80 years of age, are very different. Activity levels decrease and

the body's metabolism also slows down. As we grow older, we therefore, require less energy and correspondingly smaller quantities of food. The intake of energy giving foods such as chapati, rice, sugar, ghee and oil should, therefore, be reduced.

Even though the elderly need less energy, they need the same amount or even more of vitamins and minerals than they needed as adults. Some of these like vitamin E and C are known to have antiaging benefits as well as protect us from diseases like cancer, heart disease and cataract. A liberal use of vegetables and fruits will help to provide these nutrients.

The power to digest and absorb food gradually decreases. Changes in digestive system occur necessitating certain modifications in the kind and amount of food we can eat and number of meals to be taken. Elderly people commonly complain of heaviness, distension or fullness in the stomach, even gas formation, heartburn and acidity. The diet should, therefore, be carefully selected. Fried, spicy and fatty foods should be avoided. Old people should be encouraged to drink plenty of fluids. However, tea and coffee should be taken in moderate amounts and smoking and alcohol should be avoided. Very large meals may not be tolerated, so 3-4 small meals may be preferred. Eating small nutritious snacks in between meals may help to alleviate acidity and heartburn

As one grows older, the pleasure of eating diminishes. Food preferences also alter with advancing age. This occurs because of a decrease in the sensitivity of the taste buds. The ability to perceive tastes like sweet and salty diminishes. The taste of food appears bland. Therefore, meals should be made more attractive and appealing by including a variety of foods and seasonings. Include some of their favourite foods in their meals.

Most elderly complain of dental problems like loose teeth, ill fitting dentures or problems in chewing. Liquids or soft cooked mashed foods like vegetable dalia, khichri etc., are preferred by them. However, such foods may not supply sufficient nourishment and supplements may be necessary. Hard foods like raw vegetables and fruits can be included in the grated, boiled or stewed form.

The elderly often suffer from constipation. Eating fibre rich foods like whole cereals, pulses, vegetables and fruits helps to overcome constipation. Drink at least 6-8 glasses of fluids like water, milk, juice, tea, soup etc. daily.

The elderly need to eat 3-4 meals, at fixed times, every day. Missing an occasional meal may not cause any harm but doing so habitually would deprive the body of essential nourishment. If their appetite is poor and are gradually losing weight, they need to consult a doctor.

Eggs, red meat and animal fats like ghee should be avoided since they give rise to diet related disorders like diabetes, hypertension, coronary artery disease etc. Lean meats like fish and chicken may be included in the diet.

To keep the bones strong, elderly people need extra amounts of calcium. Milk and milk products like curd, paneer as well as green leafy vegetables are rich in calcium.

Eating in company can increase their enjoyment of food. Hence encourage them to enjoy some meals with children, grandchildren, friends and neighbours.

For maintaining good health, alcohol and smoking should be avoided in old age.

Alcoholic drinks, in excess, can damage the liver. They may also interact adversely with certain medicines, which the old persons may be taking. Hence, it is imperative to check with the doctor before consuming alcohol.

### Check Your Progress 1

- 1) Fill in the blanks:
  - a) ..... Cereals are rich in fibre, vitamins and minerals.
  - b) ..... and ..... Should be eaten in restricted amounts as they are rich in cholesterol.
  - c) For healthy bones, ..... rich foods must be eaten.
  - d) Vegetables and fruits are rich in ..... which protect us from disease.
- 3) What dietary advice would you give to a 73-year-old woman suffering from constipation and having chewing problems?

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### 3.3 PLANNING DIETS FOR THE ELDERLY

Nutrient needs of the elderly are influenced by their present physical state, activity, their food habits and certain psychological and social influences. Moreover body composition changes with advancing age, and these changes affect nutritional needs of the elderly.

The requirements for elderly can be estimated on the basis of the advice given as above (Section 3.2). The recommended energy requirements based on BMR and physical activity levels for the sedentary adult man and woman weighing 65 and 55 kg are 1700 and 1500 kcal respectively. Table 3.1 can be used to compute the energy requirements of both male and female elderly based on their body weight and activity pattern. Table 3.2 may be used by you to determine the requirements of protein, vitamins, minerals and other nutrients

**Table 3.1: Energy Requirements of Elderly Males/ Females (60 years and above) with different body weights and activity levels (kcal/day)**

	Body weight (kg)	BMR (kcal)	Activity		
			Sedentary	Moderate	Heavy
<b>Males</b>	45	1003	1404	1805	2306
	50	1055	1478	1900	2427
	55	1108	1551	1995	2549
	60	1161	1625	2089	2670
	65	1213	1699	2184	2791
	70	1266	1772	2279	2912
	75	1319	1846	2374	3033
<b>Females</b>	40	930	1303	1675	2140
	45	972	1361	1749	2235
	50	1013	1419	1824	2331
	55	1055	1477	1898	2426
	60	1096	1535	1973	2521
	65	1138	1593	2048	2616
	70	1179	1650	2122	2711

ICMR (2020)

**Table-3.2: Daily Nutrient Recommendations for the Elderly in India ICMR-NIN, 2020**

		Energy (Kcal)	Dietary Fibre	Protein (gr)	Vit-A (µg)	Thiamin B <sub>1</sub> (mg)	Riboflavin B <sub>2</sub> (mg)	Niacin (mg)	Vit-C (mg)	Vit-Bo (mg)	Folate (µg)	Vit-B <sub>12</sub> (mg)	Vit-D (IU)	Calcium (mg)	Magnesium (mg)	Iron (mg)	Zinc (mg)	Iodine (µg)
Men ≥ 60 Yrs	EAR	1700	-	43.0	460	1.2	1.6	12	65	1.6	250	2.0	400	1000	370	11	14	95
	RDA	-	30	54.0	1000	1.4	2.0	14	80	1.9	300	2.2	800	1200	440	19	17	140
Women ≥ 60 Yrs	EAR	1500	-	36.3	390	1.1	1.6	9	55	1.6	180	2.0	400	1000	310	11	11	95
	RDA	-	25	46.0	840	1.4	1.9	11	65	1.9	200	2.2	800	1200	370	19	13.2	140

ICMR (2020)

### 3.3.1 Food Exchange Lists

To make meal planning simple and easy to implement, the Food Exchange List system is used. In an exchange similar foods are grouped together so that specified amounts of all the foods listed in that group or exchange, have approximately the same energy, carbohydrate, protein and fat content. Any one food in a particular food exchange list can be exchanged for any other food in the same list thus providing flexibility to the consumer and ensuring better adherence to the dietary regime. Hence planning of meals every day is simple and easy to implement.

In the food exchange system, foods are grouped into eight main food groups on the basis of similarities in nutrient composition. These are:

Milk, Meat, Pulse, Cereal, Vegetables, Fruit, Fat and Sugar.

The Comprehensive Food Exchange List (**Table-3.3**) gives a broad overview of all the eight exchanges.

**Table 3.3: Comprehensive Food Exchange List**

S.No.	Food Exchange	Amount (g) (raw food)	Measure (raw food)	Energy (Kcal)	Energy (KJ)	Protein (g)	Carbohydrate (g)	Fat (g)
1.	i) Milk	250 ml	1 cup	180	750	8	12	11
	ii) Skim milk	320	1 1/4 cup	94	390	8	15	Neg
2.	Meat	40	2 pieces/ 1 egg	80	334	7	Neg	5
	Lean meat	40	2-3 pieces	35	146	7	Neg	1
3.	Pulse	30	3 T	100	420	7	17	Neg
4.	a) Cereal/ starch	20	5 T	75	315	2	15	0.5
	b) Roots and Tubers	100	1 cup	75	315	2	15	0.5
5.	i) Green Leafy Vegetables	100	1 cup	30	124	1	2.5	Neg
	ii) Other Vegetables	100-150	1 cup	30	124	2	3.5	Neg
6.	Fruit	80-100	1 portion	45	190	1	10	Neg
7.	Fat Oilseeds	8-12	1t	45	190	2	Neg	5
	Fats	5	1t	45	190	Neg	Neg	5
8.	Sugar	6	1t	20	84	Neg	5	Neg

The details of each of the eight exchanges are being discussed below.

### MILK EXCHANGE

The basis for the milk exchange is one cup (250 ml) of cow's milk. The protein content of 8g provided by 1 cup of cow's milk is taken as the constant for calculating one exchange, i.e., the quantity of various milk or milk products which provide 8g of protein is taken as one **Milk Exchange**. Once the amount has been ascertained, calculations are done for energy, carbohydrate and fat content for that amount of milk or its product.

**1 milk exchange = 12 g carbohydrate, 8 g protein, 11g fat, 180 kcal (750 kJ).**

**1 skim milk exchange = 15 g carbohydrate, 8 g protein, negligible fat, 94 kcal (390 kJ)**

Foods listed under the milk exchange list can be substituted with each other, thus providing variety in each meal. For example, 1 exchange of milk (250 ml) will provide the same amount of protein as about 40 g of paneer (4 cubes of paneer) or khoa or 2.5 slices of processed cheese.

**Table 3.4: Milk Exchange List**

(i) **250 ml, 8 g protein, 12 g carbohydrate, 11 g fat, 180 Kcal, 750 KJ (IFCT, 2017)**

S.No.	Food stuff	Amount (g)	Protein (g)	Carbohydrate (g)	Fat (g)	Energy (Kcal)	Energy (KJ)
1.	Milk, buffalo	217	8	18.2	14.3	233	974
2.	Milk, cow	245	8	12.1	11	179	747
3.	Paneer	42	8	5.2	6.3	108	453
4.	Khoa	49	8	10.1	8.1	155	648

(ii) **250 ml, 8 g protein, 12 g carbohydrate, 10 g fat, 170 Kcal, 711 KJ (Nutritive value of Indian Foods, 1989)**

S.No	Foodstuff	Amount (g)	Protein (g)	Carbohydrate (g)	Fat (g)	Energy (Kcal)	Energy (KJ)
1.	Skim milk	320	8	14.7	0.3	93	389
2.	Full cream milk (fat 6 %)	213	8	10	12.8	187	782
3.	Toned milk (fat 3 %)	213	8	10.0	6.4	130	544
4.	Double toned milk (fat 1.5 %)	213	8	10.0	3.2	101	423
5.	Curds	258	8	7.7	10.3	155	649
6.	Butter milk	1000	8	5.0	11.0	150	628
7.	Paneer, cow	44	8	0.5	9.1	116	485
8.	Paneer, buffalo	60	8	4.7	13.8	175	732
9.	Processed cheese	33	8	2.1	8.3	115	481
10.	Whole milk powder	31	8	11.8	8.3	154	644
11.	Skim milk powder	21	8	10.7	Neg	75	314

*Milk and milk products are good sources of calcium and vitamin D, a fair source of vitamin A (retinol), phosphorus, riboflavin, magnesium and zinc*

### MEAT EXCHANGE

The meat exchange is divided into two groups on the basis of their fat content

(i) Meat           (ii) Lean meat

The basis for this exchange is 40g of edible portion of mutton muscle providing 5g of fat and 7g of protein.

This protein content is taken as the constant in this exchange, i.e., the amount of various meats, and eggs which provide 7g of protein is taken as one meat exchange.

**1 meat exchange = negligible carbohydrate, 7 g protein, 5g fat, 80 kcal (334 kJ)**

**1 lean meat exchange = negligible carbohydrate, 7 g protein, 1g fat, 35 kcal (146 kJ)**

**Table 3.5: Meat Exchange List**

**(MEAT a) 40 g, 7 g protein, 5 g fat, negligible carbohydrate, 80 Kcal, 334 KJ (IFCT, 2017)**

S.No.	Foodstuff	Amount (g)	Protein (g)	Fat (g)	Energy (Kcal)	Energy (KJ)
1.	Egg, Whole	53	7	4.8	71	299
2.	Egg, yolk	45	7	11.8	134	559
3.	Hilsa	32	7	5.9	83	347
4.	Chicken legs skinless	36	7	4.6	138	578
5.	Chicken, thigh skinless	39	7	5.5	78	326
6.	Chicken, breast skinless	32	7	2.9	54	225
7.	Chicken, wings skinless	40	7	5.5	77	323
8.	Goat, chops	34	7	2	46	193
9.	Goat, legs	31	7	2.5	49	207
10.	Goat, brain	51	7	4.1	65	272
11.	Sardines	39	7	3.5	59	248
12.	Paneer	37	7	5.3	95	399

**(Meat b) 40 g, 7 g protein, 6 g fat, Negligible Carbohydrate, 80 Kcal, 335 KJ**

**(Nutritive value of Indian Foods, 1989)**

S.No.	Foodstuff	Amount (g)	Protein (g)	Fat (g)	Energy (Kcal)	Energy (KJ)
1.	Mutton, Muscle	38	7	5.1	73	305
2.	Processed Cheese	29	7	7.3	101	423
3.	Paneer, cow	38	7	7.9	101	423
4.	Paneer, buffalo	52	7	12.0	152	636

**(LEAN MEAT a) 40 g, 7 g protein, 1 g fat, negligible carbohydrate, 35 Kcal, 146 KJ (IFCT, 2017)**

S.No.	Foodstuff	Amount (g)	Protein (g)	Fat (g)	Energy (Kcal)	Energy (KJ)
1.	Egg Poultry, White raw	65	7	0.4	29	121
2.	Chicken, liver	33	7	1.3	41	171
3.	Goat, Kidney	45	7	1.3	40	168
4.	Goat, liver	34	7	1.7	43	179
5.	Sheep, Liver	31	7	1.5	41	173
6.	Katla	39	7	0.8	37	154
7.	Pomfret, white	37	7	1.9	45	189
8.	Rohu	36	7	0.8	37	154
9.	Prawn, big	36	7	0.2	33	137
10.	Prawn, small	54	7	0.4	38	160
11.	Crab	68	7	1	56	223
12.	Crab, sea	46	7	0.3	31	130

**(Lean Meat b) 35 g, 7 g protein, 0.5 g fat, Negligible Carbohydrate, 35 Kcal, 146 KJ**

**(Nutritive value of Indian Foods, 1989)**

S.No.	Foodstuff	Amount (g)	Protein (g)	Fat (g)	Energy (Kcal)	Energy (KJ)
1.	Fowl	27	7	0.2	29	121
2.	Goat, meat	33	7	1.2	38	159
3..	Pork	37	7	1.7	43	180
5.	Singhara	33	7	1.0	55	230

***Other nutrients present in meat exchange include Vitamin A (Retinol), Thiamin, riboflavin, Niacin, Vitamin B-6, Folate, Vitamin B-12, Phosphorus, Iron (haeme) and Zinc***

**PULSE EXCHANGE**

The basis for this exchange is 30g of raw pulse containing 7g of protein. Thus, the protein content of 7g is taken as the constant in this exchange, i.e., that amount of each pulse, beans, legumes or their products which provide 7g of protein is taken as one pulse exchange.

**1 pulse exchange = 17g carbohydrate, 7 g protein, negligible fat, 100 kcal (420 kJ)**

Approximately 30g of raw pulse or 1 katori of cooked pulse preparation provides 7 g of protein.

***Sprouting the pulses enhances the nutritive value. When sprouted, the ascorbic acid, thiamine, riboflavin and niacin content of pulses increases significantly***

**Table 3.6: Pulse Exchange List**

**i) 30 g, 7 g protein, negligible fat, 17 g carbohydrate, 100 Kcal, 420 KJ (IFCT, 2017)**

S.No.	Foodstuff	Amount (g)	Protein (g)	Carbohydrate (g)	Fat (g)	Energy (Kcal)	Energy (KJ)
1.	Bengal gram dal/Besan	32	7	14.9	1.7	105	440
2.	Bengal gram (whole)	37	7	14.7	1.9	106	444
3.	Black gram dal	30	7	15.3	0.5	97	407
4.	Cowpea, brown	34	7	18.6	0.4	109	456
5.	Cowpea, white	33	7	17.7	0.4	106	442
6.	Green gram dal	29	7	15.3	0.4	94	395
7.	Green gram whole	31	7	14.3	0.4	91	381
8.	Lentil dal	29	7	15.2	0.2	93	391
9.	Lentil whole, brown	31	7	15	0.2	93	388

10.	Moth beans (moth)	35	7	18.2	0.6	108	452
11.	Peas, dry	34	7	16.8	0.6	103	431
12.	Rajmah, brown	36	7	17.6	0.6	107	448
13.	Rajmah, red	35	7	17	0.6	105	438
14.	Red gram dal	33	7	18.2	0.5	109	457
15.	Soybean, white	19	7	1.9	3.7	72	300

ii) **30 g, 7 g protein, negligible fat, 17 g carbohydrate, 100 Kcal, 420 KJ**  
(Nutritive value of Indian Foods, 1989)

S.No.	Foodstuff	Amount (g)	Protein (g)	Carbohydrate (g)	Fat (g)	Energy (Kcal)	Energy (KJ)
1.	Bengal gram (roasted)	31	7	18	1.6	114	477
2..	Nutrinuggets	14	7	4.2	0.1	48	201

### CEREAL/STARCH EXCHANGE

The basis of this exchange is one big slice of bread (30g) or a small wheat flour *chapatti* made out of 20g flour which contains about 15g carbohydrates. The carbohydrate content of 15g is taken as the constant in this exchange, i.e., that the amount of various cereal/starches and their products which provides 15g of carbohydrate is taken as one cereal exchange.

**1 cereal exchange = 15g carbohydrate, 2 g protein, 0.5g fat, 75 kcal (315 kJ)**

*1 bread slice will provide same amount of carbohydrates as ½ katori of cooked rice or 1 chapatti or ½ katori poha or 3 glucose biscuits*

**Table 3.7: Cereals /Starch and Roots And Tubers Exchange List**

i) **20g, 15g carbohydrate, 2 g protein, 0.5g fat, 75 Kcal, 315 KJ (IFCT, 2017)**

#### A) CEREALS/ STARCHES

S.No.	Foodstuff	Amount (g)	Protein (g)	Carbohydrate (g)	Fat (g)	Energy (Kcal)	Energy (KJ)
1.	Bajra	24	2.6	15	1.3	84	349
2.	Barley	24	2.6	15	0.3	76	317
3.	Jowar	22	2.2	15	0.4	74	308
4.	Maize (dry)	23	2.0	15	0.9	77	322
5.	Maize, tender, local	66	2.4	15	0.9	79	331
6.	Maize, tender, sweet	91	3.8	15	1.2	88	369
7.	Ragi	22	1.6	15	0.4	71	295
8.	Rice, raw, milled	19	1.5	15	0.1	68	283

9.	Rice flakes	20	1.5	15	0.2	71	296
10.	Rice puffed	19	1.4	15	0.3	69	288
11.	Wheat flour, refined	20	2.1	15	0.2	70	294
12.	Wheat, flour	23	2.4	15	0.4	74	308
13.	Wheat bulgar (Dalia)	22	2.3	15	0.3	75	315
14.	Semolina (suji)	22	2.5	15	0.2	73	307
15.	Vermicelli	21	2.0	15	0.9	70	292

**ii) 20g, 15g carbohydrate, 2 g protein, Negligible fat, 70 Kcal, 293 KJ**

(Nutritive value of Indian Foods, 1989)

S.No.	Foodstuff	Amount (g)	Protein (g)	Carbohydrate (g)	Fat (g)	Energy (Kcal)	Energy (KJ)
1.	Sago	17	Neg	15	-	60	251
2.	Cornflakes	18	1.4	15	-	72	301
3.	Oatmeal	24	3.3	15	-	90	377
4.	White oats	24	2.7	15	1.8	90	377
5.	Macroni, noodles, spaghetti	19	1.7	15	-	67	280
6.	Bread (white)	29	2.3	15	-	71	297
7.	Bread (brown)	31	2.7	15	-	76	318
8.	Rusk	12	1.8	15	2.5	90	377

**100 g biscuits (Parle-G) provide 77.5 g carbohydrate, 6.9 g protein, 12.8 g fat, 453 kcal, 1895 KJ**

(Diet Cal software, 2017)

*1 serving of plain cake/biscuits should be taken as 20g equivalent to one cereal exchange*

### B) ROOTS AND TUBERS

**20g, 15g carbohydrate, 2 g protein, 0.5g fat, 75 Kcal, 315 KJ (IFCT, 2017)**

S.No.	Foodstuff	Amount(g)	Protein (g)	Carbohydrate (g)	Fat (g)	Energy (Kcal)	Energy (KJ)
1.	Beetroot	243	4.7	15	0.3	86	362
2.	Carrot, Orange	270	2.6	15	1.3	89	375
3.	Carrot, red	224	2.3	15	1.0	85	358
4.	Colocasia	84	2.8	15	0.14	74	312
5.	Lotus root	102	2.0	15	0.9	81	339
6.	Potato, brown skin, big	101	1.6	15	0.2	70	295
7.	Potato, brown skin, small	116	1.7	15	0.3	71	299
8.	Radish, elongated, white skin	229	1.8	15	0.3	74	309

9.	Radish, round, red skin	247	2.1	15	0.4	76	321
10.	Sweet potato, brown skin	62	0.8	15	0.2	67	283
11.	Tapioca	84	0.9	15	0.2	67	281
12.	Water chestnut	70	0.6	15	0.3	67	280
13.	Yam, elephant	86	2.2	15	0.1	72	304
14.	Yam, ordinary	85	1.9	15	0.1	72	297

***Whole grains are good sources of fiber, B-vitamins (Thiamine, Riboflavin, Niacin, Folate), Iron (non-haeme), Magnesium and Zinc***

## VEGETABLE EXCHANGE

The vegetable exchange, on the basis of their carbohydrate content, is divided into two groups

- i) Green leafy vegetables ii) Other vegetables.

### Green Leafy Vegetables (GLVs) Exchange

This exchange includes leafy vegetables such as amaranth, spinach, lettuce, mustard leaves, vegetables of the gourd family such as bottle gourd, snake gourd, ridge gourd, round gourd, cucumber and radish. They have lesser carbohydrate content as compared to other vegetables. Under this exchange, 2.5g of carbohydrate is kept as a constant.

**1 Green leafy vegetable exchange = 2.5g carbohydrate, 3 g protein, negligible fat, 30 kcal (124 kJ)**

### Other Vegetables

This exchange includes all the vegetables that are not included under the Green Leafy Vegetable exchange or cereal/starch exchange.

The carbohydrate content of 3.5g is taken as the constant in this exchange, i.e., that amount of various vegetables which provide 3.5g of carbohydrate is taken as one exchange of this group of vegetables.

**1 other vegetable exchange = 3.5 g carbohydrate, 2 g protein, negligible fat, 30 kcal (124 kJ)**

The weight/measure of one exchange of different vegetables in this exchange vary from approximately 50 to 150g, depending upon whether they are high or low carbohydrate vegetables.

Thus, a combination of green leafy vegetables and other vegetables may be used in the day's diet plan.

**Table 3.8: Vegetable Exchange List****i) GREEN LEAFY VEGETABLES**

**100g, 2.5g carbohydrate, 3g protein, negligible fat, 30Kcal, 124 KJ (IFCT, 2017)**

S.No.	Food Stuff	Amount (g)	Protein (g)	Carbo-hydrate (g)	Fat (g)	Energy (Kcal)	Energy (KJ)
1.	Amaranth, tender, green	110	3.6	2.5	1.5	34	141
2.	Amaranth Leaves, red	109	4.2	2.5	0.7	36	153
3.	Bathua leaves	98	2.5	2.5	0.4	27	114
4.	Cabbage, green	77	1.1	2.5	0.1	17	69
5.	Cabbage, Violet	71	1.0	2.5	0.5	16	69
6.	Cauliflower leaves	74	2.9	2.5	0.3	26	110
7.	Colocasia leaves	68	2.3	2.5	0.9	30	124
8.	Coriander leaves	130	4.6	2.5	0.9	40	169
9.	Curry Leaves	55	4.1	2.5	0.6	35	146
10.	Drumstick leaves	45	2.9	2.5	0.7	30	127
11.	Fenugreek leaves	115	4.2	2.5	1.0	40	166
12.	Lettuce	83	1.2	2.5	0.2	18	76
13.	Mustard leaves	104	3.7	2.5	0.5	31	131
14.	Parsley	27	1.5	2.5	0.3	20	82
15.	Radish leaves	90	2.0	2.5	0.5	23	98
16.	Spinach	122	2.6	2.5	0.8	30	124
17.	Mint leaves	105	4.9	2.5	0.7	39	163

**ii) OTHER VEGETABLES EXCHANGE LIST**

**100-150gm, 3.5gm carbohydrate, 2gm protein, negligible fat, 30 Kcal, 124 KJ (IFCT, 2017)**

S.No.	Food Stuff	Amount (g)	Protein (g)	Carbohy- drate (g)	Fat (g)	Energy (Kcal)	Energy (KJ)
1.	Maize, tender, local	15	0.5	3.5	0.2	18	75
2.	Maize, ten- der, sweet	21	0.9	3.5	0.3	20	85
3.	Beans, scarlet runner, sem	68	1.94	3.5	0.7	29	122
4.	Bitter gourd	124	1.8	3.5	0.3	26	108
5.	Bottle gourd	208	1.1	3.5	0.3	23	96
6.	Brinjal – 9 small round	100	1.5	3.5	0.3	25	106
7.	Brinjal – 10 big round	86	1.4	3.5	0.2	24	100
8.	Brinjal – 19 elongated	103	1.3	3.5	0.3	25	103

S.No.	Food Stuff	Amount (g)	Protein (g)	Carbohy- drate (g)	Fat (g)	Energy (Kcal)	Energy (KJ)
9.	Capsicum, green	190	2.1	3.5	0.6	31	129
10.	Capsicum, Red	164	2.4	3.5	0.8	33	136
11.	Capsicum, yellow	180	2.4	3.5	0.7	34	140
12.	Cauliflower	172	3.7	3.5	0.8	39	165
13.	Cluster beans	71	2.5	3.5	0.3	28	119
14.	Cucumber, green, elongate	100	0.7	3.5	0.2	20	83
15.	Cucumber, green, short	124	1.0	3.5	0.2	22	91
16.	Drumstick	93	2.4	3.5	0.2	27	114
17.	Field beans, tender, broad	127	3.9	3.5	0.8	39	164
18.	French beans, country	131	3.3	3.5	0.3	32	134
19.	Jackfruit, raw	101	2.0	3.5	0.4	27	111
20.	Knolkhol	252	4.0	3.5	0.9	40	169
21.	Ladies finger	97	2.0	3.5	0.2	27	112
22.	Mango, green, raw	33	0.22	3.5	0.0	16	68
23.	Onion Stalk	117	2.4	3.5	0.3	30	125
24.	Parwar	99	1.4	3.5	0.3	24	100
25.	Peas, fresh	29	2.1	3.5	0.0	24	100
26.	Plantain, green	20	0.2	3.5	0.0	16	67
27.	Pumpkin, green, cylindrical	83	0.7	3.5	0.1	21	86
28.	Pumpkin, orange, round	88	0.7	3.5	0.1	20	85
29.	Ridge gourd	203	1.8	3.5	0.3	27	112
30.	Ridgegourd, Turai, smooth skin	156	1.5	3.5	0.2	24	100
31.	Tinda	184	2.0	3.5	0.3	26	107
32.	Tomato, ripe, hybrid	109	0.8	3.5	0.3	21	86
33.	Tomato, ripe, local	129	1.2	3.5	0.6	25	106
34.	Zucchini, green	150	1.7	3.5	0.8	30	126
35.	Onion, big	37	0.6	3.5	0.2	18	74
36.	Onion, small	30	0.5	3.5	0.2	17	71
37.	Button Mushroom	177	6.5	3.5	0.7	49	204

*Vegetables contain important nutrients like Vitamin A, Vitamin C, Folate, Magnesium, Potassium, Fibre.*

### FRUIT EXCHANGE

A portion of fruit that contains about 10g of carbohydrate is taken as one fruit exchange. Keeping the carbohydrate content of 10g constant, the amount of various fruits providing this much carbohydrate is taken as one fruit exchange.

**1 Fruit exchange = 10 g carbohydrate, 1 g protein, negligible fat, 45 kcal (190 kJ)**

- As the fruits vary in their carbohydrate content, the weight of one exchange of different fruits is variable. For example, if a high carbohydrate fruit such as dates or banana is chosen, then only 14-42g constitutes one exchange.

On the other hand, when a low carbohydrate fruit such as musk melon or water melon is chosen, then as much as 250g is taken as one fruit exchange. Fruits containing moderate levels of carbohydrate such as apple, apricot, cherries, guava, lichi, papaya, pear, plum, etc. vary in amount from 75-100g per exchange.

**Table 3.9: Fruit Exchange List**

**80-100g, 10g carbohydrate, 1g protein, negligible fat, 45 Kcal, 190 KJ (IFCT, 2017)**

S.No.	Foodstuff	Amount (g)	Protein (g)	Carbohydrate (g)	Energy (Kcal)	Energy (KJ)
1.	Amla	228	0.8	10	54	226
2.	Apricot, dried	14	0.4	10	44	185
3.	Apricot, processed	91	1.3	10	51	215
4.	Apple, big	76	0.2	10	47	198
5.	Apple, green	93	0.4	10	48	199
6.	Apple, small	72	0.2	10	46	192
7.	Apple, small, kashmir	71	0.2	10	46	191
8.	Banana, ripe	42	0.5	10	44	185
9.	Cherries, red	84	1.3	10	50	210
10.	Dates, dry, pale brown	13	0.3	10	42	174
11.	Dates, dry, dark brown	14	0.3	10	43	182
12.	Dates, processed	15	0.2	10	43	180
13.	Grapes, seedless, green	85	0.5	10	45	190
14.	Grapes, seedless, black	50	0.6	10	45	187
15.	Grapes, seeded, red	80	0.7	10	47	195
16.	Guava, white flesh	195	2.8	10	63	263
17.	Lemon, juice	143	0.6	10	52	219
18.	Litchi	88	0.9	10	47	198

S.No.	Foodstuff	Amount (g)	Protein (g)	Carbohydrate (g)	Energy (Kcal)	Energy (KJ)
19.	Lime sweet, pulp	193	1.5	10	53	220
20.	Mango, ripe, gulabkhas	97	0.5	10	48	203
21.	Mango, ripe, neelam	122	0.8	10	52	217
22.	Mango, ripe (Tota-puri)	78	0.3	10	46	193
22.	Melon, musk, orange flesh	236	1.0	10	55	229
23.	Melon, musk, yellow flesh	185	1.0	10	51	215
24.	Orange, pulp	126	0.9	10	47	197
25.	Papaya	217	0.9	10	52	217
26.	Peach	128	1.1	10	51	215
27.	Pear	124	0.4	10	47	195
28.	Pineapple	106	0.6	10	46	191
29.	Plum	83	0.5	10	47	198
30.	Pomegranate	86	1.1	10	47	197
31.	Raisins, dried, golden	15	0.4	10	44	186
32.	Sapota	72	0.7	10	53	221
33.	Strawberry	294	2.9	10	72	303
34.	Melon, water, dark green	259	1.6	10	53	220

Other key nutrients provided by fruit exchange are Dietary fibre, Ascorbic acid,  $\beta$ -carotene, Folate, Magnesium and Potassium

### Fruit Juice

S.No.	Foodstuff	Amount (ml)	Carbohydrate (g)	Energy (Kcal)	Energy (KJ)
1.	Sweetened*	66	10	40	167
2.	Unsweetened*	90	10	40	167

### Fat Exchange

This is divided into two groups i) Fats and oils and ii) Nuts and oilseeds

- i) Fats and Oils: One teaspoon or 5g of fat or oil is the basis for this exchange. This exchange includes butter, edible fats and oils, such as hydrogenated fats and vegetable oils, cream, salad dressings, etc.
- ii) Nuts and oilseeds: The foods on this list contain mostly fat although some items may also contain a small amount of protein also

**1 exchange fats and oils= Negligible carbohydrate, negligible protein, 5g fat, 45 kcal (190 kJ)**

**1 exchange nuts and oilseeds= Negligible carbohydrate, 2 g protein, 5g fat, 45kcal (190 kJ)**

**Table 3.10: Fat Exchange List****a) Fats and Oils**

5g, 5g fat, negligible carbohydrate and protein, 45 Kcal, 190 KJ

(Nutritive value of Indian Foods, 1989)

S.No.	Foodstuff	Amount (g)	Protein (g)	Fat (g)	Energy (Kcal)	Energy (KJ)
1.	Butter	6	-	5	45	188
2.	Cooking oil	5	-	5	45	188
3.	Cream (heavy – 40%)	15	-	5	45	188
4.	Cream (light – 20%)	25	-	5	45	188
5.	Ghee	5	-	5	45	188
6.	Hydrogenated oil	5	-	5	45	188
7.	Mayonnaise	6	-	5	45	188

**b) Nuts and Oilseeds**

**i) 8-12g, 5g fat, 2 g protein, negligible carbohydrate, 45 Kcal, 190 KJ (IFCT, 2017)**

S.No.	Food Code	Foodstuff	Amount (g)	Protein (g)	Fat (g)	Energy (Kcal)	Energy (KJ)
1.	H001	Almonds	9	1.6	5	55	229
2.	H005	Cashew nut	11	2.1	5	64	268
3.	H006	Coconut, kernel, dry	8	0.6	5	50	209
4.	H007	Coconut, kernel, fresh	12	0.5	5	49	205
5.	H011	Gingelly seeds, white	12	2.6	5	62	261
6.	H012	Ground nut	13	3.1	5	68	283
7.	H013	Mustard seeds	12	2.3	5	61	256
8.	H018	Pistachio nuts	8	1.8	5	43	181
9.	H020	Sunflower seeds	10	2.3	5	58	245
10.	H021	Walnuts	8	1.2	5	54	225

*Fats and oils are rich sources of essential fatty acids and vitamin E.  
Nuts and seeds contain small amounts of fibre, protein and iron, calcium and magnesium*

**SUGAR EXCHANGE**

One teaspoon or 5g of sugar is the basis for this exchange i.e., that much portion of sugar or substitutes which provides 5g of carbohydrate is taken as one sugar exchange.

This exchange includes sugar, jaggery, honey, jam, jellies, marmalades. A list of aerated drinks is also included in this exchange.

**1 sugar exchange= 5g carbohydrate, negligible protein, negligible fat , 20kcal (84kJ)**

**Table 3.11: Sugar Exchange List****i) 6g, 5g carbohydrate, 20 Kcal, 84 KJ (IFCT, 2017)**

S.No.	Food Code	Foodstuff	Amount (g / ml)	Carbohydrate (g)	Energy (Kcal)	Energy (KJ)
1.	I001	Jaggery, Cane	6	5	21	89
2.	I002	Sugarcane, juice	38	5	22	92

**ii) 5g, 5g carbohydrate, 20 Kcal, 84 KJ****(Nutritive value of Indian Foods, 1989)**

S.No.	Foodstuff	Amount (g / ml)	Carbohydrate (g)	Energy (Kcal)	Energy (KJ)
1.	Aerated drinks	50	5	20	84
2.	Honey	6	5	19	79
3.	Jaggery, Cane	6	5	21	89
4.	Jam	6	5	19	79
5.	Sugar, cane	5	5	20	84

**3.3.2 Food Exchange List in Meal Planning**

The food exchange list helps in planning of practical and simple diets quickly. It lends more flexibility and the planner can include more variety in the diet using foods within the same exchange list.

**Steps in Meal Planning**

1. The **first step** in use of exchanges in planning of meals is to record the **Profile of the subject** ie Age, Gender, Physical Activity, Socio-economic status, Occupation and Food habits
2. The **second step** involves determination of the **Estimated Average Requirements** taking age, gender, type of occupation, physiological state using the ICMR tables.
3. The **third step** is making the **Food plan**. You will do this using the comprehensive food exchange list

Estimate the number of different Food Exchanges that will provide the required energy and protein keeping in mind the socio economic status and food habits and preferences of the individual.

Consider the following points under this step

- a) First estimate the number of protein exchanges i.e., milk, meat and pulse, according to socio-economic status and food choices. These protein exchanges are interchangeable to some extent.
- b) Include enough cereals appropriate for that age group. These will provide a large part of the energy and protein requirements as Indian diets are predominantly cereal based
- c) Next select fruits and vegetables in the diet based on the socio-economic status and food choices to provide enough of the vitamins and minerals.

- d) The remainder of the energy needs should be provided by fat and sugar . These should however not be too much.

The food exchange plan should provide energy and protein as close to the EAR (Energy +/- 15-20 Kcal)

Food exchanges should preferably be in whole numbers. However, halves can be used for the larger exchanges like milk

4. The **fourth step** involves **distributing the exchanges** in the food plan into different meals.

This is called the **meal pattern**. The meal pattern depends on the subject's occupation and work schedule. Distribute each main meal i.e. breakfast, lunch and dinner equally in terms of energy. The meals should contain enough protein. Put foods from all the food groups in each meal along with some fat. This will ensure nutritional adequacy in each meal.

5. The **fifth step** involves making a **Menu Plan**. Here you will translate the exchanges distributed in the various meals into a menu.

This menu plan should be made based on the subject's socio-economic status, choices, likes and dislikes, food habits and religious beliefs, availability of food items depending on season and geography, time constraints and convenience. Satiety offered by each meal should be kept in mind.

Meals should be balanced and have variety in colour, texture and taste. The same food item should not be repeated in the same form on the same day.

Combination of food items can be used to reduce volume (Eg cereal-pulse, cereal-vegetable, vegetable-pulse etc).

A number of menus can be formulated using the same basic exchange plan and distribution of exchanges. This can impart variety to the diets which would otherwise have been monotonous had they been based on food items and not exchanges.

You will use detailed exchange tables in making the menu plan.

A basic menu plan can be adapted to different socio-economic groups by substituting cheaper/ more expensive foods within the same exchange list.

### 3.3.3 Sample Diet

Let us now plan a Sample Diet using food exchange list for a 70 year old elderly woman who is doing sedentary activity and belongs to MIG

(i) **SUBJECT PROFILE**

Age	:	Adult
Gender	:	Female
Physical activity	:	Sedentary
Socio-economic status	:	Middle income group
Occupation	:	Housewife

(ii) **EAR**

Energy 1500 kcal

Protein 36.3 g

Calcium 1000-1200 mg

Dietary Advice

**(iii) FOOD PLAN**

S. No.	Food Exchange	No. of exchange	Energy (Kcal)	Protein (g)	Carbohydrate (g)	Fat (g)
1.	Milk	1	180	8	12	11
2.	Meat	1	80	7	Neg	5
3.	Pulse	2	200	14	34	Neg
4.	a) Cereal/Starch	7	525	14	105	3.5
	b) Roots /Tubers	1	75	2	15	0.5
5.	a) Green Leafy Vegetables	2	60	2	5	Neg
	b) Other Vegetables	2	60	4	7	Neg
6.	Fruit	1	45	1	10	Neg
7.	Fat					
	a) Oilseeds	1	45	2	Neg	5
	b) Fats	4	180	Neg	Neg	20
8.	Sugar	3	60	Neg	15	Neg
	<b>TOTAL</b>		<b>1515</b>	<b>53</b>	<b>203</b>	<b>45</b>

**(iv) DISTRIBUTION OF EXCHANGES BETWEEN DIFFERENT MEALS**

Food Exchange	Total Number of exchanges	Break-fast	Mid morning	Lunch	Tea	Dinner
Milk	1	½			1/4	1/4
Meat	1	1				
Pulse	2			1		1
a) Cereal/Starch	7	2		2	1	2
b) Roots and Tubers	1			1		
a) Green Leafy Vegetables	2		½	1		½
b) Other Vegetables	2	½	¼	1/2		¾
Fruit	1		1			
Fat			1			
a) Oilseeds	1					
b) Fats	4	1		2		1
Sugar	3	1			1	1

(v) MENU PLAN

Meal	Menu	Ingredients	Exchange	No. of Exchanges	Amount (g)
Breakfast	<ul style="list-style-type: none"> <li>Broken wheat porridge</li> <li>Vegetable omelette</li> </ul>	Broken wheat	Cereal	2	40
		Milk		½	125
		Sugar	Milk	1	5
		Egg	Sugar	1	50
		Onion	Meat	¼	10
		Tomato	Other Veg	1	35
		Oil	Other Veg		5
			Fat		
Mid Morning	<ul style="list-style-type: none"> <li>Veg- Fruit Chaat</li> </ul>	Cucumber	Other veg	¼	30
		Cabbage	Green veg	½	35
		Apple	Fruit	½	40
		Papaya	Fruit	½	100
Lunch	<ul style="list-style-type: none"> <li>Arhar dal</li> <li>Spinach potato subji</li> <li>Chappati</li> </ul>	Arhar dal	Pulse	1	30
		Oil	Fat	1	5
		Spinach	Green veg	1	120
		Potato	Roots	1	100
		Onion	Other veg	¼	10
		Tomato	Other veg	¼	25
		Oil	Fat	1	5
		Wheat flour	Cereal	2	40
Evening Tea	<ul style="list-style-type: none"> <li>Biscuits</li> <li>Tea</li> </ul>	Biscuits	Cereal	1	20
		Milk	Milk	¼	60
		Sugar	Sugar	1	5

Meal	Menu	Ingredients	Exchange	No. of Exchanges	Amount (g)
Dinner	• Nutrinugget Veg Pulao	Nutrinuggets	Pulse	1	20
		Onion	Other veg	½	20
		Beans	Other veg		
			Green Veg	¼	40
			Fat		
	• Curd	Methi	Cereal	½	60
		Oil	Milk	1	5
		Rice		2	40
		Curd		¼	60

Exchange	1200 kcals	1400 kcals	1600 kcals	1800 kcals
Milk	1	1	3	3
Meat	1	1	1	1
Pulse	3	3	3	3
Cereals	4	6	8	10
Vegetables	3	4	4	4
Fruits	1	1	1	3
Fats	3	4	4	3
Sugars	-	1	1	1
<b>Total Energy</b>	<b>1190 kcals</b>	<b>1390 kcals</b>	<b>1610 kcals</b>	<b>1790 kcals</b>

### 3.4 DIETARY GUIDELINES FOR DIET RELATED CHRONIC DISORDERS

Eating the wrong type of foods can lead to several problems in old age. Obesity, hypertension and heart disease as well as diabetes mellitus are common diet related degenerative diseases of advancing age. Simple diet restrictions will help to not only control these disorders but also if started early enough may even prevent the onset of these chronic ailments.

#### 3.4.1 Obesity

Obesity is basically accumulation of excess body fat leading to an increase in body weight. Obesity is not only unattractive but it leads to many other problems like arthritis, heart disease, diabetes etc. Hence, maintaining weight within normal range will keep one healthy and active. Some dietary considerations to reduce weight include:

- Decrease the amount of cereal foods eaten e.g. rice, chapati, bread etc.
- Reduce intake of fatty foods e.g. ghee, butter, oils, fried foods. Substitute skimmedmilk for whole milky

- Avoid foods with excess sugar e.g. chocolates, sweets, mithai, carbonated beverages, jam, jellies etc.
- Include more fibre rich fruits and vegetables in the diet. Eat plenty of green leafy vegetables, carrots, radish, beans etc.
- Do some form of physical activity. Walking is an excellent exercise.
- Portion control should be included as a part of comprehensive weight management.

### 3.4.2 Diabetes Mellitus

Diabetes mellitus leads to an increase in blood sugar levels. This disease is due to a deficiency of insulin in the body. Obesity is a strong predisposing factor. Though there is no cure for diabetes, it can be controlled by suitable dietary interventions. If uncontrolled, it can lead to several complications affecting the eyes, blood vessels and kidneys. Controlling weight is the first step in the management of this disease. Other dietary considerations include:

- Sweet foods like sugar, jaggery, chocolates, mithai etc. should be completely avoided.
- Restrict the use of starchy fruits and vegetables like banana, mango, cheeku, potato, sweet potato, arbi etc.
- Eat plenty of fresh fruits and vegetables, \* **Soluble fibre** present in oats, barley, fruits and legumes has been shown to lower blood sugar levels.

### 3.4.3 Hypertension and Heart Disease

Hypertension or high blood pressure as well as most heart diseases occur due to excessive deposition of fat in the arteries. This process occurs over a period of time and obesity is an important predisposing factor. Hence weight control is a very significant aspect of the management of these disorders. We must adopt the dietary considerations suggested for reducing weight. Besides those, some other guidelines include:

- Restrict the intake of fats, particularly saturated fats like ghee, butter, vanaspathi etc. Vegetable oils like corn oil, sunflower oil, soybean oil etc. may be used for cooking food,
- Eggs and red meats should be avoided. They are rich in saturated fats and cholesterol. If desired, only the egg white may be eaten. Fish and chicken are other suitable alternatives.
- Restrict the intake of salt in foods. Most snacks like wafers, samosas, pakoras, mathri etc. contain large amounts of fat and salt and hence should be avoided.
- Eat plenty of vegetables and fruits.
- Alcohol should be restricted or completely avoided,

**Check Your Progress 2**

1. Suggest a suitable menu for dinner for an obese businessman, 64 years old, suffering from hypertension.

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**3.5 LET US SUM UP**

In this unit, you have read about the various physiological and socio-psychological effects of growing old. The aging process as well as the associated lifestyle changes influence the nutritional requirements of the elderly. Nutritional problems common in old age have also been described in this unit. Practical techniques of planning diets for the elderly as well as guidelines for food selection will equip you to impart nutritional advice to elderly patients. Besides guidelines for healthy old persons an attempt has been made to list diet guidelines for patients with chronic degenerative diseases.

**3.6 KEY WORDS**

<b>Basal metabolism</b>	: metabolism at minimal activity
<b>Distension</b>	: feeling of fullness/bloating feeling in the abdomen
<b>Flatulence</b>	: gas formation
<b>Heartburn</b>	: burning sensation in esophagus due to excess acid Dietary Advice secretion
<b>Homeostasis</b>	: metabolic balance
<b>Osteoporosis</b>	: condition characterized by decrease in bone mass

**3.7 ANSWERS TO CHECK YOUR PROGRESS****Check Your Progress 1**

- 1)
  - a) Unrefined
  - b) Eggs, red meats
  - c) Calcium
  - d) Antioxidants
- 3) The diet should contain plenty of fibre rich foods like unrefined cereals, whole pulses, vegetables and fruits. As the old person has chewing problems, the foods can be softened like dipping chappati in dal, grating or chopping vegetables and fruits etc. Plenty of fluids should also be consumed.

### Check Your Progress 2

- 1) Suitable menus should consist of:
- |                   |                            |
|-------------------|----------------------------|
| Vegetable soup    | Whole greengram dal        |
| Grilled chicken   | Cauliflower and peas sabzi |
| Boiled vegetables | Onion and tomato raita     |
| Dinner roll       | Green Salad                |
| Fruit Salad       | Chappati                   |

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### 3.8 REFERENCES AND FURTHER READINGS

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## UNIT 4 ETHICAL & LEGAL ISSUES IN GERIATRIC MEDICINE

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### Structure

- 4.0 Objectives
- 4.1 Introduction
- 4.2 Approach for Ethical Dilemmas
  - 4.2.1 Case-based Approach for Ethical Dilemmas
  - 4.2.2 Ethical Decision-Making Process
- 4.3 Informed Consent Process
  - 4.3.1 Information to be Provided for Informed Consent
  - 4.3.2 Taking Informed Consent
- 4.4 Doctor-Patient Relationship and Communication
- 4.5 Withdrawal of Life Support
- 4.6 References and Further Readings

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### 4.0 OBJECTIVES

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

- Apply a case-based approach to resolve the ethical dilemmas in geriatric care
- Describe the ethical decision-making process while dealing with ethical dilemmas
- Discuss the rationale of taking informed consent
- Take the informed consent from patients or their legal representatives
- Demonstrate the steps of effective doctor-patient communication
- Identify and assess the elderly facing abuse
- Apply the layered approach in making decisions regarding withdrawal of Life-support and Intervention

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### 4.1 INTRODUCTION

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You have already learned about clinical aspects associated with the care of elderly patients. While dealing with the patients you will come across situations in which you have to decide amongst two rights, i.e., the ethical dilemma and side by side, you also have to take care of the legal responsibilities which you should follow while providing care to elderly patients. This is critical for keeping medicine, ethics and law working in synchronicity for the betterment of society. After performing the activities of this unit, you should be able to identify ethical dilemmas in geriatric care and take appropriate action in resolving them by various approaches. The process of taking a proper informed consent has been well discussed and here you will practice to decide which information is to be disclosed while taking a proper informed consent. Communicating with the elderly is

very sensitive, especially when they are facing abuse and remain silent. You will also learn the ways of effective doctor patient communication. It will be interesting for you to learn about taking care of legal issues especially while dealing with end-of-life issues as well as withdrawal of life support. Doctors have to face ethical and legal dilemmas while providing end-of-life care. There is a felt need for the doctors to remain updated with the relevant legislation as well as to follow the best moral path in favour of the patient and the society at large. It requires to develop the skill to effectively manage such situations. Layered approach has been described which will make your life easy while dealing with such kind of situations.

It's interesting to learn the ethical and legal dilemmas while reading through the book, but it's difficult as well full of responsibilities while dealing with ethical and legal issues in real-life scenarios. Let's learn to face the real-life scenarios with best of the knowledge and skills.

## 4.2 APPROACH FOR ETHICAL DILEMMAS

Ethical dilemma occurs when a problem exists between two or more ethical principles and deciding in favor of one principle usually violates another. Even in the best circumstances, many clinicians will face ethical dilemmas that needs to be resolved for better patient care.

### 4.2.1 Case-based Approach for Ethical Dilemmas

One way of resolving ethical dilemmas is by using Case-based approach. It involves four major considerations

#### Check List for Case-based approach for Resolution of Ethical Dilemmas

Steps for Case based Approach	Case 1	Case 2	Case 3	Case 4	Case 5
<b>Clinical Indications:</b> <ul style="list-style-type: none"> <li>• How serious is the patient's illness?</li> <li>• Is there a need for medical intervention?</li> <li>• What is the optimal standard of care for this patient?</li> </ul>					
<b>Patient Preferences:</b> <ul style="list-style-type: none"> <li>• What preferences are expressed by the patient?</li> <li>• Does the patient have decision-making capacity for this clinical decision?</li> <li>• What factors may be impinging on the expressed preferences of the patient?</li> <li>• Does the patient have advancedirective?</li> <li>• Who is the appropriatesurrogate if the patient lacks decision-making capacity?</li> </ul>					

Steps for Case based Approach	Case 1	Case 2	Case 3	Case 4	Case 5
<b>Quality of Life</b> <ul style="list-style-type: none"> <li>• What is the patient’s quality of life, given his or her illness process?</li> <li>• What impact will clinical intervention have on the patient’s quality of life?</li> </ul>					
<ul style="list-style-type: none"> <li>• Is there any plan and rationale to forgo treatment?</li> <li>• Is there plans for palliativecare?</li> <li>• Are there any biases that might prejudice the clinician’s evaluation of the patient’s quality of life?</li> </ul>					
<b>External Considerations</b> <ul style="list-style-type: none"> <li>• What external factors exist that may affect the patient’s care (e.g., legal issues, limited programs)?</li> <li>• Is there any conflict of interest on the part of clinicians or the institution?</li> <li>• Are there any family, religious or cultural, financial or confidentiality issues that might influence treatment decisions?</li> </ul>					

#### 4.2.2 Ethical Decision-Making Process

The interests of the patient should be of primary importance. (Patients’ interests = autonomy + beneficence + non-maleficence.) If harms and benefits (of a treatment course) are proportionate, non-maleficence outweighs beneficence. Justice may also clash with non-maleficence, and again, the latter should take precedence.

#### Checklist for Ethical Decision-Making Process

Ethical Decision-Making Process	Case 1	Case 2	Case 3	Case 4	Case 5
• Describe the problem					
• Gather the facts					
• Clarify values					
• Note reactions					
• Identify ethical Principles					
• Clarify legal rules					

<b>Ethical Decision-Making Process</b>	<b>Case 1</b>	<b>Case 2</b>	<b>Case 3</b>	<b>Case 4</b>	<b>Case 5</b>
• Explore options and alternatives					
• Decide on a recommendation					
• Develop an action plan					
• Evaluate the plan					

### 4.3 INFORMED CONSENT PROCESS

The informed consent is a process of educating patient regarding the benefits, risks and alternatives to a given treatment. This process should be well documented. When potential participant lacks decision making capacity and the ability to consent, legally appointed representative (LAR) should be involved in decision making. Special care should be taken to ensure participants’ confidentiality and privacy.

#### 4.3.1 Information to be Provided for Informed Consent

##### Purpose of taking informed consent

Clinicians have a duty to provide adequate/full disclosure to patients that would facilitate patients in making informed decisions. While learning the skill of taking informed consent, you must know information to be provided to the patient and rationale for the same. List of information to be provided while taking informed consent is mentioned below:

<b>Information to be provided to the patient</b>	
Diagnosis of the disease	What is the natural course of the disease and possible complications?
Nature of the intervention	What will be done and how it will be done?
Benefits/ Consequences	What are potential outcomes of the intervention and other alternatives?
Risks of the intervention	What are possible risks of treatment? Given opportunity to the patient to clarify all doubts.
Alternatives	what will be the possible consequences if the intervention is not undertaken or an alternative course of action is chosen?

**Checklist for Informed Consent Process**

<b>Information to be provided to the patient</b>	<b>Case 1</b>	<b>Case 2</b>	<b>Case 3</b>	<b>Case 4</b>	<b>Case 5</b>
Diagnosis of the disease					
<b>Information to be provided to the patient</b>	<b>Case 1</b>	<b>Case 2</b>	<b>Case 3</b>	<b>Case 4</b>	<b>Case 5</b>
Natural course of the disease and possible complications					
Examination/testing required and its necessity					
Available treatment options					
Potential risks and benefits of treatment options					
Potential outcomes					
Burden of different treatment options					
Follow-up, if required and for how long					
Implications of non-treatment					

**4.3.2 Taking Informed Consent**

Informed consent form is a **document with important information about a medical procedure or treatment**. It also includes information on possible risks and benefits. If a person chooses to take part in the treatment, procedure or testing, he or she signs the form to give official consent.

Fill consent forms from the patients after providing them with full disclosure.

**Repeat Sample consent form 5 times for practice.**

**Informed Consent for  
Surgical / Medical Procedure**  
Procedure \_\_\_\_\_ of \_\_\_\_\_

Patient Name: \_\_\_\_\_  
DOB: \_\_\_\_\_  
MRN: \_\_\_\_\_ (if available)

Attending Physician(s): \_\_\_\_\_

Name and purpose of procedure(s) (number multiples): \_\_\_\_\_

**Potential risks of any procedure(s)** include, but are not limited to, bleeding, infection, accidental injury to a nearby body part, incomplete repair, and death. Other reasonably common risks to this specific procedure(s) include: \_\_\_\_\_

**Benefits and expected outcomes** (list): \_\_\_\_\_

**Alternatives**, including, but not limited to, no treatment: \_\_\_\_\_

This procedure will be performed with:  general and/or regional anesthesia,  sedation,  local anesthesia

I understand that the doctor(s) may find unexpected conditions during the procedure(s) named above. An unexpected condition may require a change in procedure. I give my permission for the doctor(s) identified on this form to either *extend* the planned procedure (do more) or do a *different* procedure, if she/he believes it is medically necessary for my health / health of the patient.

I understand that Cincinnati Children’s Hospital Medical Center is a teaching hospital. One of the activities of the hospital is training doctors, nurses, and other health care providers. Interns, residents, nurses, medical students and other health care workers may assist in the procedure under my doctor’s direct supervision. I give my permission for this assistance.

My questions about the procedure(s) have been answered to my satisfaction. **I also understand that if I have more questions at any time before the procedure(s), I can call my doctor’s office at \_\_\_\_\_** I have read and understand this consent form and all of the blanks were filled in before I signed it. By signing I confirm to the best of my knowledge that the law allows me to consent to the procedure(s) for this patient.

	DATE:	TIME:	
Signature of patient / parent / guardian			Print name of patient / parent / guardian and relationship
	DATE:	TIME:	
Signature of doctor			Print name of doctor
	DATE:	TIME:	
Signature of witness			Print name of witness

SITE MARKING REQUIRED:  YES  NO      Telephone consent was obtained:  YES (check, if necessary)

## 4.4 DOCTOR-PATIENT RELATIONSHIP AND COMMUNICATION

Effective physician-patient communication has been shown to positively influence health outcomes by increasing patient satisfaction, leading to greater patient understanding of health problems and treatments available, contributing to better adherence to treatment plans and is core to ethical principles of medicine. Following are simple steps for effective physician-patient communication

**Checklist for Effective Physician-Patient Communication**

<b>Steps for Effective Communication</b>	<b>Case 1</b>	<b>Case 2</b>	<b>Case 3</b>	<b>Case 4</b>	<b>Case 5</b>
<b>Relationship building</b> <ul style="list-style-type: none"> <li>• Greets</li> <li>• Shows care and concern</li> <li>• Responds with respect</li> </ul>					
<b>Information Collection</b> <ul style="list-style-type: none"> <li>• Asks open-ended questions</li> <li>• Listens actively</li> <li>• Try to elicit concerns of patient and family regarding treatment</li> </ul>					
<b>Information Sharing</b> <ul style="list-style-type: none"> <li>• Explains in patient’s language</li> <li>• Provide full disclosure on treatment and alternatives and outcomes</li> <li>• Asks for any more concerns or questions</li> </ul>					
<b>Summarisation and Agreement</b> <ul style="list-style-type: none"> <li>• Agree on treatment plan, follow-up, if required and for how long</li> <li>• Checks for mutual understanding</li> <li>• Provides closure</li> </ul>					
<b>Communication with Empathy</b> <ul style="list-style-type: none"> <li>• Appropriate behaviour</li> <li>• Accurately conveys the seriousness of patient’s condition</li> <li>• Shows compassion and care</li> <li>• Helps in empowering decision-making capacity of patient</li> </ul>					

**Elder Abuse:**

we all have to work in the patient’s interest but at the same time, we also have to take care of the legal responsibilities which we are bound to follow while providing care to elderly patients. This is critical for keeping medicine and law working harmoniously for the betterment of society

How a physician should approach in case of elder abuse

**Checklist for Approach to Elder Abuse**

<b>Step By Step Approach</b>	<b>Case 1</b>	<b>Case 2</b>	<b>Case 3</b>	<b>Case 4</b>	<b>Case 5</b>
Step 1: Identify a. Address primary concerns of the patient b. Provide immediate attention to emergency medical issues c. Listen Carefully to the elderly, he may give hints of being abused d. Look for possible signs of abuse e. Reassure the Patient about Confidentiality f. Inform about the available protections to elderly.					
<ul style="list-style-type: none"> <li>• Step 2: Assess</li> <li>a. Decision making capacity of the patient</li> <li>b. Status of Injuries if present: Are this life threatening?</li> <li>c. Status of any influence: Drugs/alcohol etc</li> <li>d. Identify the Protections available in the form of care-takers in family, friends or NGO’s etc.</li> </ul>					
<ul style="list-style-type: none"> <li>• Step 3: Support and Referral</li> <li>a. Ensure immediate safety and steps to prevent further abuse</li> <li>b. Discuss the available legal and social protections to elderly for prevention against abuse</li> <li>c. Key Point is Consent of Patient to take any legal step.</li> </ul>					

Step By Step Approach	Case 1	Case 2	Case 3	Case 4	Case 5
<i>If the elderly refuses to take any step with having sound mind to make decisions, then his/her decision must be respected.</i>					
<ul style="list-style-type: none"> <li>• Step 4: Document</li> <li>a. Maintain the records of evidence of elder abuse</li> <li>b. Maintain the records of intervention done to prevent the abuse.</li> </ul> <p>Keep in mind that these records may be asked to be produced in the court of law.</p>					

## 4.5 WITHDRAWAL OF LIFE SUPPORT

Doctors have to face ethical and legal dilemmas while providing end-of-life care, making the doctors to be updated with the relevant legislation as well as to follow the best moral path in favour of patient and the society, for which they need to develop the skill to effectively manage such situations.

A layered approach to make decisions regarding withdrawal of Life-support & Intervention.

Layered Approach	Consideration	Issues	Case
Layer 1	Look for the boundations	Legal Boundations Professional Boundations Evidence & available Resources	
Layer 2	Condition of the Patient	Decision Making capacity Religious beliefs and preferences Disease Prognosis/likely progress/regress in condition Surrogate decision makers available Availability of Living Will	
Layer 3	Formulate the ethical dilemma and Legal Dilemma	Ensure the correct question(s) is being asked Check for the influence of our own perspective?	

Layer 4	Establish the available options	Look for the potential moral justifications? Look for the legal provisions? Available solutions to the problems Is there a need for Communication/explanation?	
Layer 5	Communication and coordination	Communicate the available options to the patient/care givers Coordinating and implementing the decision	

#### **4.6 REFERENCES AND FURTHER READINGS**

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## UNIT 5 VISITING INSTITUTIONAL AGE CARE BODIES

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### Structure

- 5.0 Objectives
- 5.1 Introduction
- 5.2 Visiting an Old Age Home
  - 5.2.1 Information to be obtained from the Manager
  - 5.2.2 Information to be obtained from Residents
- 5.3 Visiting Day Care Centre (DCC)
  - 5.3.1 Information to be obtained from the Manger
  - 5.3.2 Information to be obtained from the Members
- 5.4 Let Us Sum Up
- 5.5 Answers to Check Your Progress

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### 5.0 OBJECTIVES

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After reading this chapter, you will be able to:

- Describe the profile of an old age home and day care centre
- Discuss the characteristics of residents/users of old age home and day care centre
- Detail the managerial and administrative requirements of setting up and functioning of an old age home and day care centre

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### 5.1 INTRODUCTION

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Family shoulders the responsibility of care for the elderly in India, which we often refer to as informal care. It is still the most prevalent form of care. Traditionally old age homes were set up by philanthropists or charity organizations as these services were required only by those who had no family to fall back on. The National Policy on Older Persons and the Maintenance and Welfare of Parents and Senior Citizens' Act also lay emphasis on the family responsibility for care of aged. However, with changing structure and ethos of family, the need for institutional care was felt by a larger number of older persons. Currently, old age homes are not only being set up and managed by charity organizations, government, philanthropists; but also run by private and for-profit organizations.

Currently, there is no law that clearly governs the old age homes, but some state governments have issued guidelines to that affect and the Maintenance and Welfare of Parents and Senior Citizens Bill 2019 also proposes regulation of age care institutions. There are an estimated 1835 old age homes in India.

Nothing can replace the warmth of family care, but the institutions that provide age care are expected to come close to that as possible. Old Age homes are no longer considered asylums for the destitute. They are supposed to be built and run on the principles of age friendliness. When you

visit an old age home irrespective of the management style, it should be a residential facility that ensures living with dignity, independence, care and self fulfilment for the older persons.

Another service that has emerged in the recent past and is gaining importance is the day care centre. This is a facility that helps to take care of basic needs of the older persons when the family is away for work during the day. This plays an important role in dealing with care and social inclusion. It helps the older person to remain in the family without being worried about their daily care. It also gives them an opportunity to mingle with their peer groups and spend time usefully. There are some day care centres that are specifically designed to provide services for the patients of dementia. Day care centres act as a bridge care options between family care and old age home.

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## 5.2 VISITING AN OLD AGE HOME

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While visiting an old age home, you must interact with the manager of the old age home, who is generally a person with social work background. S/he is responsible for the general operations of the home. Government of India under the Integrated Programme for Senior Citizens has prescribed basic qualifications for the manager of Government operated old age homes. Other private homes may have their own set criteria.

### 5.2.1 Information to be obtained from the Manager

S/he can give you an understanding of the registration requirements, administrative procedures, governance and facilities provided for the older persons. S/he is also best suited to share with you the needs and requirements of the residents and challenges that s/he faces when fulfilling them. It could be about resources, staff, behavior of residents, procurement, etc.

#### Information about admission procedure

Old age homes normally have a standard procedure for admission to the facility. They have prescribed formats on which people may apply and have predefined eligibility criteria. Some may have committees for the purpose of approving the applications. The post approval may have formalities about payment, contract between Home and the resident, need assessment, disclosure about criminal record and addictions and finally induction of the resident. The records have to be maintained as prescribed.

#### Information about the Residents

The manager will have all the information regarding demographic characteristics of the resident like age, area to which they belong like urban or rural, gender, educational profile, occupational information, income, religion, food habits, health and care needs, family situation i.e. relation with the family members and emotional wellbeing, reason for moving to an old age home morbidity profile, mental wellbeing. An understanding of these factors would be useful in assessing the appropriateness of the services being provided by the Home to the residents and suggest improvements.

#### Information about Daily Routine

Most Homes follow a certain regimen of daily routine for the residents which includes time for waking up, doing activities of daily living, food,

recreation, social interaction, physical exercise, mentally stimulating activities, spiritual lectures or meditation, TV and films, reading newspapers, books, playing indoor and outdoor games, participating in activities like cooking. Cleaning, gardening, etc. This will give you an idea about if the older persons are living a normal life just like their own home and if they are under strict rules and treated as prisoners or independent individuals.

**Information about Facilities**

It is important to ask about the quality of food that is being served to the residents both in terms of palatability and nutrition, availability of other water and sanitation and hygiene facilities especially for those with requirement of assistance, privacy, access to furniture, storage for belongings, age friendly structures like well-lit corridors, green spaces, beds, clean sheets, medical needs like consultation, tests and medicines, emergency services and safety and security. It will help you understand the challenges that the Manager will face in smoothly running the Home.

Man does not live by bread alone

**Information about Other Activities**

To address the next level of needs of the older persons, there are provisions for local outings, social visits, visits to yoga and spirituality centers, pilgrim centers, visit by a spiritual teacher for lectures etc by the old age home. This will help you to know about the quality of life of the residents.

**Role of residents in management of the Home**

To make them feel at home, it is important that the residents play a role in management of daily activities of the Home. Dose the manager make effort to involve them in cooking, cleaning, deciding menu, dealing with conflicts, deciding venues of the outings etc.?

**Check Your Progress 1**

1. What all does the manager of an Old Age home need to do to ensure that the residents have a comfortable and meaningful life in an old age home?

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**5.2.2 Information to be obtained from the Residents**

Old age home is meant to provide service to the residents, so it is important to talk to them and find out if their needs are being met. Apart from enquiring about the facilities and services from the manager, it is important to obtain information from the residents from their perspective and assess if the facilities and the services that are being offered by the Home are adequate and appropriate; what more could be done to improve it further.

In addition, it is also important to assess the physical infrastructure using the checklist given in the log book.

### Reasons for Joining Old Age Homes

Poverty is the main reason for lack of care in old age. The older person may be from a chronically poor family who has no savings and children cannot take care of him/her. Such limitations are recognized by the law in India and government has obligation to build at least one model old age home of 125 residents in each district. In middle class families, there could be lack of care due to migration of young adult children to foreign countries, lack of adjustment, space and other factors. Desire for independent living in old age, lack of warmth and affection, neglect by the young adults are some of the quoted reasons for choosing old age home. In some religious towns like Varanasi, Hindus go and live in old age homes due to the belief that death in these cities may bring salvation. The understanding of the reason will help you in assessing the special care requirements of the older persons from institutional care.

### Life prior to Joining Old Age Home

You may ask the resident about his/her occupation, education and life style, living arrangement before joining the old age home. How s/he was being treated by his/her family, his/her social life, his/her relationship with family members, health and ability profile, who took care of his/her needs, if s/he was being treated kindly or abused, reason for joining the old age home pertaining to family constraints or free will. What did s/he expected from the Home before joining?

### Life after Joining Old Age Home

You may ask the resident about his/her general experience about the facilities provided in the Home, are the facilities adequate and appropriate? Do they serve food and medicine on time and to his/her liking? Does to home have a provision for regular periodic medical checkup and consultation? Does it also have preventive health care facilities? Does it ensue mental wellbeing? s/he feel satisfied with the arrangements of food, sanitation, recreation, health care and wellbeing? Is the staff caring and cordial? Are the other residents friendly or unfriendly, what role does the manger and staff play in making him/her feel good? Are the furniture and fixtures adequate, is the cleanliness maintained, is the staff responsive, does s/he feel happy to be part of this Home or feels alienated due to the behavior of people around him/her?

#### Check Your Progress 2

1. What are the main reasons for people to move to an old age home in India?

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2. How can the residents of old age homes be made to feel at home away from home?

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### 5.3 VISITING DAY CARE CENTRE (DCC)

Day Care Centre is a relatively new concept in India. The need for such centres was felt as the older persons living with the family had to be taken care of during the day when the younger members were busy with their work. These centres shared the burden of care, helped the older persons live with the family and get opportunities for social interaction and inclusion, helped horizontal integration with other older people in the area. Initially these centres were providing basic minimum services of indoor games, library, TV and light refreshments at times. However, with each passing year the potential for such centres has been explored to include many other activities.

A visit to these centres will help you understand the importance of such centres in helping older persons remain integrated with family and encourage them adopt practices that ensure healthy and active ageing.

#### 5.3.1 Information to be Obtained from the Manager

S/he can give you an understanding of the registration requirements, administrative procedures, governance and facilities provided for the older persons. S/he is also best suited to share with you the needs and requirements of the members and challenges that s/he faces when fulfilling them. It could be about resources, staff, behavior of members, starting new services etc.

#### Information about Various Procedure

The DCC is normally set up after assessing the needs of the older person in the community. Sometimes it is mandated by the government and based on the prescribed guidelines about funding, facilities and staff. The admission procedure could vary from just 'walk in' to becoming a member and at times signing consent forms. The manager also has to follow prescribed formats for maintaining attendance register, inventory and other such documents. There are other documents like daily routine, dos and don'ts etc.

#### Information about the Residents

The DCC is ideally based on assessment of the needs of the local older person which may range from poverty, ill health, isolation, boredom, abuse, neglect, loss of control and self-esteem to lack of preparedness. The older person may experience these issues and many more in various unique permutation and combination depending on other socio-demographic and environmental factors. However, the manager would be able to inform about the overall view of the elderly that his/her DCC is servicing. It could be in an area where older person are poor and require food and nutrition apart from livelihood opportunities. In some other place the felt need could be more

in terms of health care beginning with regular consultations, physiotherapy and counselling. Home care and palliative care could be the dominant need in another community.

### **Information about Daily Routine**

Daily routine of the DCC could vary depending on the services that are being offered; but, there could be some general basic routine that all would follow. This will include common activities like yoga, meditation, exercise on sports equipment like stationary cycle, treadmill, refreshment, care regimen of the members. Depending on other facilities being offered, it could be medical consultation, physiotherapy, memory jogging, free time to watch TV or read newspaper or take afternoon nap, get training for livelihood activity or palliative care, digital literacy to name a few.

### **Information about Facilities and Activities**

The furniture and fixtures of the DCC may include relevant equipment besides basic furniture for sitting, lying down, tables, computers, telephone and mats, basic utensils for eating and drinking and cooking. Depending on the additional facilities of training and health care there could be other equipment and staff doing the specialized job. It is always helpful to have standardized practices and prescribed formats for all activities so that it is easy to quantify and measure the impact. If it is a multi-facility Centre then it should have all the personnel and facilities relevant for that e.g. if it is running livelihood project then it should, have trainer, raw material and store and relevant inventory, opportunities for volunteering for the older persons then requisite staff and protocols to coordinate with the outside agencies for older person to be fruitfully engaged.

### **Role of Members in management of the DCC**

Depending on the facility it should offer opportunities for the older person to be involved in the day to day management and designing and implementing new activities. Even for the facilities that are being offered for the dependent or assisted elderly, what mechanisms are in place to allow the members to have a say in the process. Top down approach should be avoided as far as possible so that members are not just passive recipients. Feedback will enrich the services offered to the elderly.

## **5.3.2 Information to be Obtained from the Members**

### **Characteristics**

What kind of people find the DCC useful and who all are able to access it. To know these basic facts you must delve in the social, economic, demographic information about the members. Their age, gender, living arrangement, family dynamics, health conditions, psychological and physical needs, and social inclusion will go a long way in understanding the need for institutional care and how to provide best possible services to improve the quality of their lives.

### **Reasons for Choosing Day Care**

Reason for choosing to be member of a DCC may vary from neglect to genuine difficulties of the family members in taking care required for the older person, inherent psychological needs for relating to others, helping others dealing with lack of role in family, income difficulties some being

so poor that they may be using this as a day shelter with some facilities for food or to engage in income generation activities.

**Impact of DCC on Quality of Life**

As the DCC is meant for the benefit of older person it is important to know what benefits did it bring to their life whether intended or unintended? The basic and additional services that are being offered by the DCC should be assessed periodically on scale of satisfaction of the members. Did joining the DCC help the members get the quality care that they were looking for? Did it relive family of eth anxiety of leaving them unattended at home while at work? Did the older person found any benefit of visiting the DCC and making new friends and lessening boredom and isolation? Did it generate their interest in getting involved in socially productive things? Did it improve their feeling of wellbeing? Did they get better information about ageing and its various aspects?

**Check Your Progress 3**

1. What role does a Day care Centre play in improving the quality of life of an older person?

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2. What are the various types of services generally being provided in Day care Centres?

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**5.4 LET US SUM UP**

Old age homes and day care centres are a response of the age care system to the changing society and increasing longevity. These institutions address an increasing gap in age care system. But these are artificial ecosystems and require care to emulate the organic care structures of family and community. There are hard and soft elements in the design of these institutions that have to be understood to provide quality care in the last phase of life of an individual. There are elements of building, furniture and fixtures that are required apart from the soft skills of assessing needs and sensitivity to run these facilities to improve quality of life of older persons. This practical course is a guide for you to understand these nuances of care.

**5.5 ANSWERS TO CHECK YOUR PROGRESS**

**Check Your Progress 1**

- 1. The Manager of an Old Age Home should ensure a comfortable and secure life for the residents of the Home. S./he should start

by ensuring that basic needs of the residents are met as per their requirement keeping in mind their morbidity and disability status. Next exercise, recreation, social engagement. Health facilities for curative and emergency organize awareness sessions with experts and regular screening camps will be helpful. Counselling services may be provided to deal with mental wellbeing.

The soft is also of significance in making the residents feel comfortable and at home in an institution.

The residents should be given a role to play in the management of the Home to the extent possible so that they are not reduced to recipients of care.

Safety and security of the residents should also be maintained both physical angle of having universal design of the building and protection against abuse by staff or other residents.

### Check Your Progress 2

1. The residents should be asked this question in the gentlest way as possible as this may cause mental agony as many residents come to the institutional care due to abandonment by family or neglect. Older person in India do not move to old age homes as a matter of natural choice, other factors could be nobody to take care at home, lack of space, cultural factors like dying in a holy town. There are few who move to old age homes due to safety and security reason and desire to live independent life.
2. Good care goes a long way in making older persons at home in a old age home. Their basic needs should be fulfilled, should have opportunities for recreation and engagement, whether in the form of skill development, income generation activities management of home or hobbies. Social interaction is also important for the older person living in an institution. Soft skills of the staff may help them to feel at home.

### Check Your Progress 3

1. Day Care Center can go a long way in the helping older persons spend the day in the care of professionals in the absence of family members. It provides them an opportunity to meet with the older person in the area and socialize with them. Besides, it can helps them learn new skills, develop hobbies, get facilities like health screening and awareness on health and other relevant issues. Day Care Centers offer facilities like indoor gyms, games etc are an added advantage. In other words, these centres help an older person deal with loneliness, diseases and discomfort, safety and security, access services and spend day in the company of likeminded people.  
  
In case where the Centre offers specialized services like care of dementia patients it home to learn to deal with such patients.
2. The facilities provided in a day care center for older person ranges from the very basic like library and reading room, TV, indoor games, mid-day meal, snakes, computer, to skill training physiotherapy, indoor gym equipment, livelihood opportunities and health care facilities.



