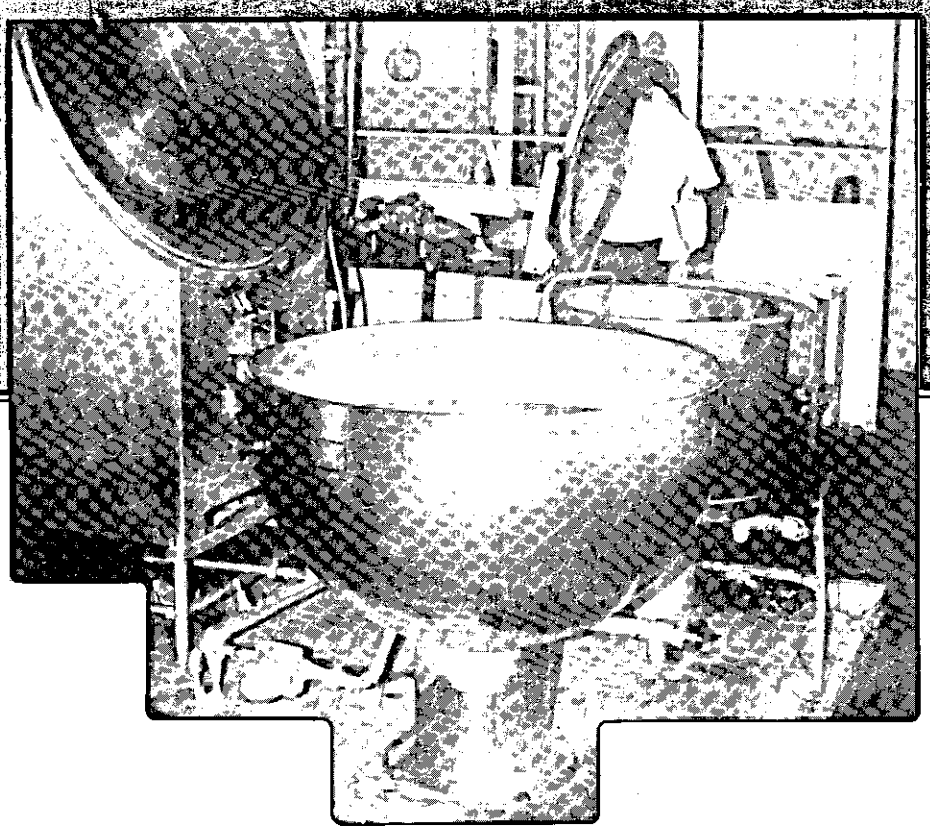
A GUIDE FOR SUPERVISORS

INSTITUTIONAL FOOD SERVICE



CARIBBEAN FOOD AND NUTRITION INSTITUTE 1992

INSTITUTIONAL FOOD SERVICE

A GUIDE FOR SUPERVISORS

(Second Edition)

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The Caribbean Food and Nutrition Institute (CFNI), founded in 1967, has as its goal the improvement of the food and nutrition situation in its member countries[1] through five types of activities, namely: service, education and training, information dissemination, coordination and research. Each activity is carried out in close collaboration with member governments.

CFNI is a specialized centre of the Pan American Health Organization (PAHO) which represents the World Health Organization (WHO) in the Region of the Americas. In addition to its parent body, PAHO/WHO, the Institute is also responsible to an Advisory Council on Policy which the member governments form the majority.

[1]*Anguilla, Antigua, Bahamas, Barbados, Belize, British Virgin Islands, Cayman Islands, Dominica, Grenada, Guyana, Jamaica, Montserrat, St. Christopher-Nevis, Saint Lucia, St. Vincent & The Grenadines, Trinidad & Tobago, Turks & Caicos Islands.*

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Contents

Preface

By popular demand the second edition of this publication has been produced by CFNI. It is designed as a training guide and working manual for supervisors in the food service industry. The previous edition was geared mostly to food service in hospitals and other group-care institutions. The scope has been broadened to include food service in restaurants and other institutions which engage in quantity cookery in the English-speaking Caribbean. It gives practical guidance on food service management techniques as well as outlining those principles of nutrition which are essential to the planning and preparation of nutritious and appetizing meals. Inclusive coverage of all factors relating to these subjects has not been possible but the reader is urged to supplement the information in this Guide by reading the references listed in the bibliography.

The Guide originated from courses in food science management conducted by CFNI in collaboration with the Governments of Barbados and Trinidad & Tobago in 1972 and 1974. It has been modified according to the changes which have taken place in the Food Service industry within the last two decades and at the request of the Barbados Community College and the College of Arts, Science and Technology (CAST), Jamaica, which use the publication as a training resource for students preparing to work in the Institutional Management, Dietetic and Food Science fields. It is hoped that the publication will be useful to all the Commonwealth Caribbean countries.

Dr. A.W. Patterson
Dirctor, CFNI

Acknowledgement

The Caribbean Food and Nutrition Institute acknowledges with thanks the contributions of dietitians, nutritionists and other educators who served as advisors for the development and upgrading of the publication.

Special mention must be made of those who compiled and edited the first edition in 1978. These include: Miss Manuelita Zephirin, former PAHO/WHO Public Health Nutritionist and her team; Mrs. Rosie Jackman, former Assistant Nutrition Officer, National Nutrition Centre, Barbados; Mrs. Joyce Gibson-Inniss, Dietitian, University of the West Indies, St. Augustine, Trinidad; and Miss Hetty Deane, former Dietitian, Queen Elizabeth Hospital, Barbados.

Revision and editing for the production of this second edition were done by Mrs. Joan Sealy, Nutritionist, National Nutrition Centre, Barbados; Dr. James Hospedales, Epidemiologist, the Caribbean Epidemiology Centre (CAREC), Trinidad and Tobago; Miss Ann Crick, Lecturer, Department of Management Studies, U.W.I., Mona; Mrs. Patricia Manchew, PAHO/WHO Public Health Nutritionist, Barbados; Mrs. Versada (Sadie) Campbell, Nutrition Educator and Miss Clare Forrester, Communication Specialist, CFNI/PAHO, Jamaica. The Hospitality and Food Science Department of the College of Arts, Science and Technology (CAST), Jamaica, made valuable suggestions which guided the review process.

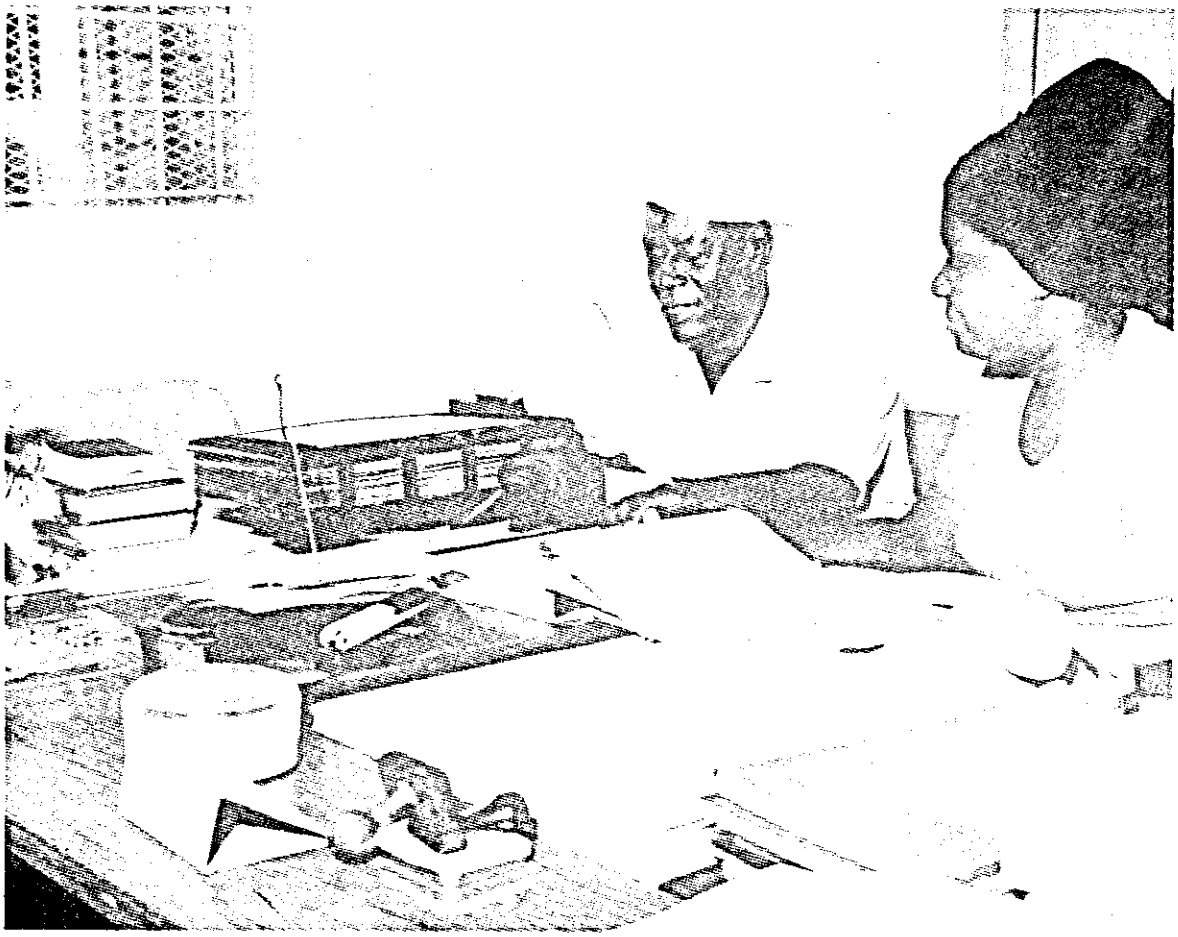
Secretarial services were provided by Miss Faith Roberts, Project Secretary, CFNI and printing by the Materials Production Unit, CFNI.

The Chapter on Selected Hospital Diets draws heavily on the Manual of Nutrition and Dietetic Practice for the Caribbean compiled by Miss Manuelita Zephirin and published by CFNI 1990.

The Institute would also like to record its appreciation for the photographs provided by various Institutions.

Chapter 1

Organization and Management



INTRODUCTION

An organization is defined as a system having an established structure and conscious planning in which people work and deal with one another in a coordinated and cooperative manner for the accomplishment of recognized goals.

Certain steps are necessary in developing the framework of an organization structure if the goals of a food service department are to be accomplished. These steps may be summarized as follows:

1. **Determine and define objectives** - A food service department has as its goal the production and service of the best food possible within the financial resources. It is important that these objectives and plans and policies for their achievement are presented in writing and understood by all.

2. **Analyze and classify work to be done** - Divide the total work necessary for the accomplishment of overall goals into its major parts, grouping activities that are similar eg. purchasing and storage; preparation and processing; service and dishwashing.

3. **Describe in detail the work or activity of individual employees** - Prepare job descriptions, job specifications and work schedules.

4. **Determine and specify the relationship of the workers to each other and to management** - Group the work into departments or other organizational units, with responsibility and authority defined for each level. For an organizational structure to become operational requires the selection of qualified personnel, provision of adequate financing and equipment and a suitable physical environment.

MANAGEMENT

All food service department heads must be effective managers, capable of **planning, organizing, delegating, directing** and **controlling**.

Planning is basic to all other functions. It is concerned with programmes and procedures that will implement the objectives and policies of the food service department and at the same time mesh with the overall plan of the institution.

Organizing identifies separate tasks and groups similar tasks together in order to utilize the special abilities and skills of the workers.

Delegating responsibilities for certain tasks is necessary to distribute the work load.

Directing requires good leadership skills which can be learnt and developed through study and experience.

Controlling is aimed at ensuring performance in accordance with plans and is necessary for all areas of food service.

These will be elaborated in the Chapter on Supervision.

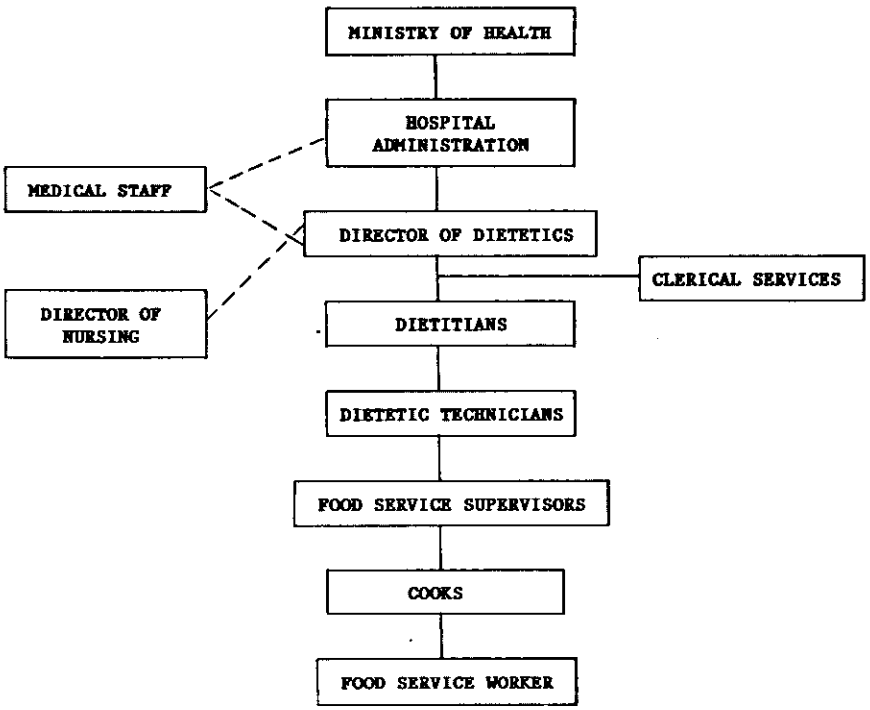
TOOLS OF MANAGEMENT

Organization Chart

The chart of an organization is considered the first tool of management. It presents in a graphic form, the relationships of positions and functions as well as lines of authority.

The functions and positions are presented by use of blocks. Solid lines connecting the blocks indicate channels of authority. Those persons with the greatest authority are shown on the top of the chart, those with the least are at the bottom. Advisory responsibility and lines of communication are often shown by dotted lines (Fig. 1).

Figure 1: Organization Chart of a Hospital Food Service Operation



Job Description

The job description, like the organization chart, is a useful tool for the department head. It should describe briefly, the major facets of a job.

Job descriptions are usually organized under the following headings:

1. Job title
2. Job summary: brief description of the job
3. Performance requirements: responsibilities, physical demands, special demands
4. Qualifications: education, training, experience
5. Related tasks that might be required
6. Working environment
7. Job relationships: supervisor, workers supervised, etc.
8. Work performed

Job descriptions should be written for every job in the food service department and should be updated as necessary.

Job Specification

The job specification is a written statement of the minimum standards that must be met by an applicant for a particular job. It covers the same information as the job description but is less detailed.

Staffing

The main points that are required in staffing are outlined below. Details will be provided in the Chapter on Supervision.

1. **Recruitment and selection** - It is essential that the person in charge of selection choose carefully utilizing the job description, the job specification and application form to match an applicant with a position.

2. **Orientation** - Thorough and accurate orientation will reduce the time needed for a new employee to 'break-in'. He should be given a brief history of the institution and a guided tour. He should be given **written** policies and procedures of the department.

3. **Training** - Continuous training is time-consuming but pays dividends in achieving high standards of efficiency and quality. Training in the food service department should include all levels of personnel.

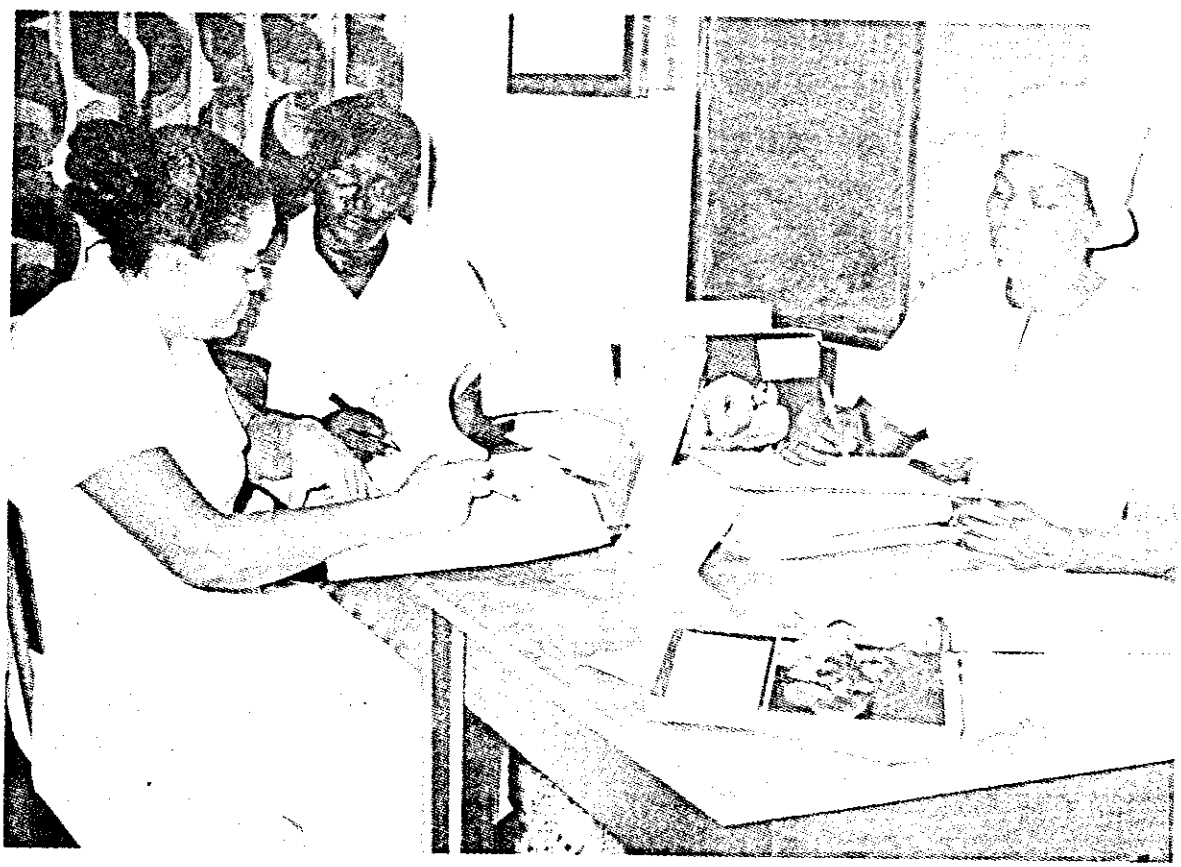
4. **Accident prevention** - Teaching good safety practices is an essential part of the employee training program. The supervisor has the responsibility to know and eliminate as many hazards as possible and to teach each employee how to ensure his own safety and that of his co-workers.

5. **Work schedules** - Written work schedules should be given to each employee as a guide to his basic duties and as a means of coordination overall work output of the department.

6. **Records** - A record should be kept for each employee either in the personnel office or in the food service department. It should include references, comments on the employment interview, report of physical examination, accident record, time record and performance appraisal reports.

Chapter 2

Menu Planning



INTRODUCTION

Mealtime is an important event in food service institutions and so the importance of well-planned menus as a basis for efficient food service cannot be over-emphasized. The menu is the basis for the whole food operation. Everything that is done in the dietary department revolves around the menu.

Your aim is to serve quality food. Carefully planned menus will help you achieve this aim.

Institutions without a menu run the risk of serving food which is monotonous, and complaints are often numerous. With a menu, it is easy to vary types of foods served along with colour, texture and flavour. Buying of food is simpler as you will know what quantities to buy and costs will probably be lower.

A good menu results in a smoother operation and work schedules can be planned ahead of time.

WHAT IS THE MENU

The menu is a plan of the food we wish to serve.

Master Menu - Initially, the person responsible for menu preparation will draw up a list of all the foods which will be served in the hospital during any given week. This list is called the **master menu.**

Cycle Menu - When a number of carefully prepared master menus are drawn up for use in rotation according to a definite pattern, this is referred to as a **cycle menu.**

Selective Menu - If there is a choice of foods on the individual menus from which the patient may select, the menu is then called a **selective menu.**

Static Menu - Same items served day after day, e.g., in a fast food restaurant.

ADVANTAGES OF A CYCLE MENU

1. It saves considerable time in menu preparation.

2. Menus can be made acceptable since unpopular foods can be replaced.

3. Repetition is kept to a minimum.

4. Employee training and food purchasing is made easier.

5. Waste may be reduced.

6. Aids in the control of food and labour costs and can provide for the more effective use of the employee's time.

A cycle of two to four weeks in length has been found satisfactory for most hospitals. After every cycle it is necessary to review the menu and to make changes where necessary. It is especially important to adapt the menu to foods in season.

There will always be changes in a cycle menu, so do not think once you get a set of menus planned you can sit back. A food may not be available or a holiday may appear at a different time. You may wish to introduce a new food, you may obtain a good buy on a seasonal food, or you may need to use leftover foods.

FEATURES OF A SELECTIVE MENU

The Selective Menu is a printed daily menu for patients divided into sections for breakfast, luncheon and dinner. It is often perforated so that each meal section may be easily torn off. Patients check their choices on the menu. Selective menus are usually distributed on the patients' breakfast trays and sent back to the Dietary Department where items can be tabulated and summarized.

HOW TO PLAN THE MENU

A Good Menu Caters to the Senses

Sight - Does the food taste as good as it looks and look as good as it tastes?

Smell - A pleasing aroma stimulates the taste buds.

Taste - Our four basic tastes are senses through the taste buds in the mouth - sweet, salt, sour, bitter.

Touch - Texture - can be physical touch as in shape, consistency and temperature or chemical touch such as the coating of spinach on the teeth.

Sound - You hope to hear compliments.

The menu should be pleasing to read, easily understood and well organized. It is a good idea to mention how the food is prepared, e.g., baked, buttered, creamed. These are accepted descriptions:

Food	**Description on Menu**
Soursop	Chilled soursop juice
Steamed Fish	Steamed fish with butter sauce
Cornmeal	Cornmeal coucou
Okra	Buttered okras
Salad	Tossed green salad
Guava	Stewed guavas with coconut milk

Menus should be planned for contrast in:

Flavour
Texture
Colour
Temperature
Shape
Form

Bland foods can be made more appetizing when served with a tart accompaniment. A bland, cool dessert is more enjoyable following a spicy main course. Foods of the same or similar flavour should not appear at the same meal, and there should be a definite contrast in flavour between the foods of various courses. Acid foods such as grapefruit stimulate the appetite and can also improve a bland main dish. Sweet foods tend to be `filling´ and are best served as dessert.

Colours contribute much to the appearance of a meal and, therefore, it is important that they be harmonious. Avoid a meal such as:

Cream of tannia soup
Hot sliced chicken
Steamed rice
Creamed cauliflower
Coconut blancmange

The appearance of a brightly coloured vegetable with fish or poultry can be pleasing. Choose at least one dark green leafy vegetable or yellow vegetable which blends with the main dish. Colourful local fruit juices or an attractive dessert can do a great deal towards influencing the enjoyment of a meal.

There should be a contrast in food temperatures within a meal, e.g., a hot soup with a salad plate or a chilled juice with a hot meal.

Texture is the characteristic quality usually described as hard, soft, crisp, chewy, smooth, sticky, dry or liquid. There should be a contrast in textures, e.g. crisp with soft such as a tossed salad with spaghetti.

Shape and Form of different foods on a plate can add interest to a meal. It is important to avoid too many foods of a similar shape at the same meal and over-use of the scoop can result in this. If there is variety in preparation, foods can be served in various forms and sizes. A suitable sauce or garnish may be used effectively.

Nutritional Needs of Clients Must be Met

The emphasis on nutritional adequacy in menu planning can be affected by the type of food service facility.

In health care facilities and school feeding programmes, every effort must be made to ensure that the menus are nutritionally adequate. In commercial food service establishments where the emphasis is on profit, a variety of foods from the six food groups should be offered to encourage clients to make nutritionally sound choices.

When planning the menu, use a variety of foods and select from the following daily:

Staple foods
Legumes
Vegetables
Fruits
Food from animals
Fats and oils

The items can be offered singly as a food group or combined in one-pot meals such as soups, pelau, dhalpouri, roti.

Clientele and Management Considerations

The head cook should be consulted when planning a menu, for his/her experience will provide valuable help in ensuring that menus are planned so that complicated dishes are well spaced and foods requiring a long preparation time are served with easily prepared foods.

1. The menu planner must know the clients, i.e. age, sex, nationality, racial customs, religion, occupation and food preferences. In health care facilities, with due regard for medical need, it is important to give patients the food they like, recognizing that diets should be modified to suit the condition.

2. Consideration should be given to availability of supplies and storage facilities as well as the amount of time, skill of workers, equipment available and type of food service facility.

3. A good menu planner should have menu planning materials which include:

   (a) cookbooks
   (b) file of previous menus along with comments on acceptability
   (c) a list of fruits and vegetables in season
   (d) menu forms
   (e) standardized recipes

Always remember to leave nothing to chance. Describe all items fully, including sauces and garnishes. As your menu is developed, watch for repetition and try to use new recipes and different methods of preparation.

Develop a recipe file so that you can determine easily the ingredients used in various recipes.

BASIC MENU PATTERN

BREAKFAST

Fruit or juice
Cereal (optional)
Egg or cheese or sardines or other animal protein food
Toast or bread (whole wheat or enriched)
Butter or margarine
Beverage with milk and sugar

MAIN MEAL

Meat, poultry or fish
Staple
Legume
Cooked vegetable (dark leafy green or yellow)
Salad
Bread
Butter or margarine
Dessert (optional)
Beverage

SUPPER OR LUNCH

Soup or juice (optional)
Meat, poultry or other protein food
Vegetable (in soup or salad if desired)
Dessert (optional)
Bread
Butter or margarine
Beverage

CONCLUSION

In health care facilities and school feeding programmes, the **written menu**, planned **at least one week in advance** is the most practical method of seeing that everyone is well fed. It should be checked for:

(a) nutritional adequacy
(b) variety in foods
(c) preparation methods
(d) contrast in flavour, texture, colour, temperature, form and shape
(e) food preferences

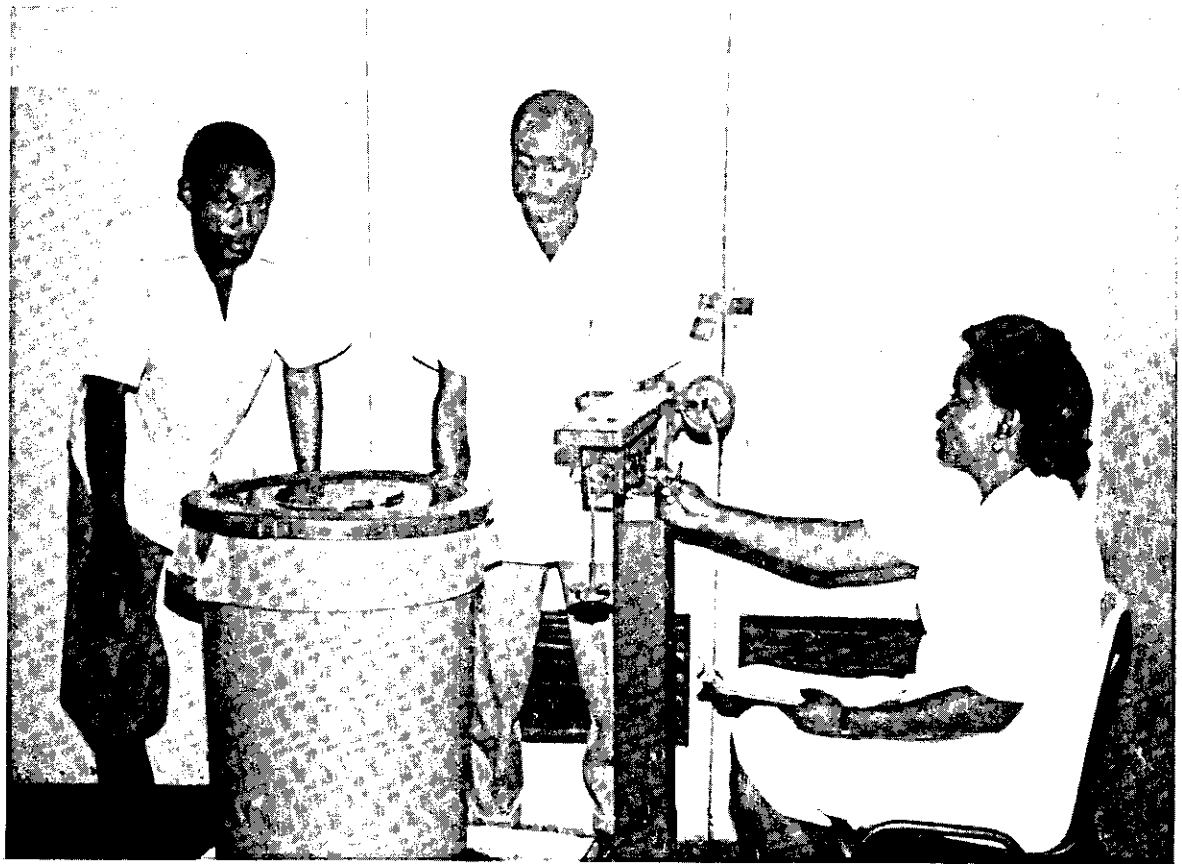
In commercial establishments where profit is the primary consideration, not all of the above may be applicable. There is little inconvenience when substitutions have to be made, for the menu can be referred to for quick and easy adjustment.

The menu also provides a check-list for ordering and checking food supplies.

The responsibility of the menu planner does not end with planning the menu, but is carried on to its preparation and service and to the reaction of those to whom the food is served.

Chapter 3

Food Purchasing and Storage



FOOD PURCHASING

Definitions

Supplier	-	One who disposes of an item by sale (may also be referred to as a vendor).
Contract	-	A written agreement between a vendor and a buyer in which the vendor agrees to supply the buyer with a certain item for a stated length of time.
Specifications	-	Precise statements of quality and other factors required in a food item.
Purchasing Agent	-	The person doing the buying.
Quotation	-	A statement from a supplier verifying the price at which he will supply goods.

Introduction

Purchasing food for the hospital or other institution is an important and often complicated task. How well, and how efficiently, this job is carried out depends to a large degree on the skill, judgement and knowledge of the person who does the buying. Such a person must:

1. Be familiar with and understand the menu planning policies of the institution
2. Be familiar with the various methods of processing, storing and handling of foods
3. Know the basic cuts of meat
4. Know how fresh fruits and vegetables are handled and stored
5. Make an effort to become knowledgeable about crop conditions and current food trends.

In short, a good food purchaser is one who is able to buy the right kind of food, at the right time and at the right price.

Purchasing may be done by the person in charge of the dietary department or it may be centralized in a purchasing department. Since the dietitian or food supervisor is in the position to know the type, quantity and quality of food required to produce the most satisfactory food service for the money spent, she should be the person who sets up specifications for quality and quantity even if she does not do the actual purchasing herself.

Purchasing is one of the more important aspects of a food service. The prices paid for food determine, to a large extent, the cost of meals to the clientele and staff. The quality of the food service will depend to a large extent upon the type, and characteristics of the food that is purchased.

Responsibilities of the Purchaser

TO MAINTAIN ETHICAL STANDARDS WHEN DOING BUSINESS

Since a considerable amount of the institution's operating funds are expended on food and related supplies, it is important for the purchasing agent to ensure that his purchases are made strictly on the basis of price, quality and service, and not on the basis of personal favours which may be offered by the supplier as an inducement to buy.

Honesty and integrity, combined with ethical business principles, are essential to sound purchasing practices.

TO SELECT THE RIGHT VENDORS

The person purchasing the food should have a list of vendors who have proven satisfactory over a period of time. There is little economy in dealing with the company that today offers bargain prices on an item but is unable to supply the same product in equal quantity and quality the next time it is needed.

TO HAVE A THOROUGH KNOWLEDGE OF THE FOOD TO BE PURCHASED

The importance of skills and technical knowledge on the part of the person purchasing food should not be underestimated. The purchaser should know the intended use of each item that is being bought and should select the item for that use. It is a waste to buy a higher quality than is required for production needs, e.g buying whole canned tomatoes rather than broken tomatoes for sauces and soups. To the term **'BUY ONLY THE BEST QUALITY'** should be added **'FOR THE USE INTENDED'**

TO BUY THE CORRECT FOODS AT THE BEST PRICES

Low prices do not necessarily mean low plate cost as there may be loss in preparation in addition to higher labour costs. It is actually the EP (edible portion) cost of an item rather than the AP (as purchased) cost that should be considered. In order to estimate quantities, the buyer should know total portions (and portion size) and losses due to preparation, cooking and portioning. Standards for ordering which have been prepared by the dietitian or food service supervisor should be available to the purchasing agent.

TO SEE THAT FOOD RECEIVED IS ACCORDING TO ESTABLISHED SPECIFICATIONS

Since the purchasing agent seldom has an opportunity to see goods before they are ordered, he must be able to indicate clearly, either verbally or in writing, the exact type and size of product required. It is his responsibility, also, to ensure that items are carefully inspected upon delivery, for quantity and quality. Unsatisfactory goods should always be returned and substitutes ordered if necessary.

TO INVESTIGATE NEW PRODUCTS

A good purchasing agent is continuously on the lookout for new products and he makes it his responsibility to keep up-to-date on products available on the market.

TO KEEP INVENTORIES AS LOW AS POSSIBLE

A large inventory can result in waste and theft. The size of the inventory will depend, to a large extent, on whether a source of supply is near and whether savings can be obtained through quantity purchases.

Considerations When Purchasing

There are many things that determine the kind of food to be purchased. The first item is, of course, the **MENU**. It can be said that the menu starts with buying and buying starts with the menu. **MENU PLANNING AND PURCHASING MUST BE WELL COORDINATED**. The person purchasing the food should advise the person preparing the menus about current market prices, favourable buys, or menu items high in cost. Menus should not, however, be completely dictated by market conditions.

Market prices have a distinct bearing on the type of food to be bought. Market conditions must be followed closely, as quantities and prices follow **seasonal variations.** Usually, items of food are best in quality and lowest in price at the peak of their season. Some products have a more variable price than others, e.g. perishables.

The availability of foods changes with the season (especially fruits and vegetables) and this affects what is purchased.

Some foods require a lot of preparation and if there is insufficient staff to do this, buying such foods would not be practical.

The quantities of foods to be purchased are dependent on:

1. Storage facilities - these may not be extensive enough to warrant buying a large amount of a certain item even though money appears to have been saved.
2. The frequency of purchases and deliveries.
3. The amount of food presently `on hand' and the amount required.

Types of Food Purchases

There are **three basic types** of food purchases. These include:

1.	Perishable items	-	Bought to meet menu requirements only, e.g. meats, poultry, fish, fruits, vegetables, butter, eggs.
2.	Items not readily	-	Foods that are not readily perishable and are kept in perishable `dry' storage, such as coffee, tea, spices, fats and oils, sugars and syrups.
3.	Contract items	-	For example milk, bread
4.	Tender items	-	A vendor agrees to supply the institution with a certain quality over a certain period of time and at a certain price. This is usually on a yearly basis.

Buying

Buying methods are generally established by management and in the case of government agencies by government policy.

Buying procedures can vary with different items of food. Highly perishable items or items infrequently bought in very small amounts, are usually purchased by informal methods, i.e. buying is done by word of mouth using the telephone or having a salesman call. It is important that the buyer have a set of specifications for every item and these should contain:

(a) trade or common name of product

(b) quantity required in a case, kilogram, carton, etc.

(c) trade or brand desired

(d) size of container

(e) unit on which price shall be based, e.g. pounds or kilograms

On the basis of the information received from the supplier (where possible, quotations should be obtained from more than one supplier), the purchasing agent makes the purchase decision.

BUYING BY TENDER OR CONTRACT SYSTEM

This involves a written agreement. For example, a notice is published in the newspapers inviting vendors to submit prices. The vendor, in turn, submits a written quotation. Specifications are required. This type of buying is for contract items and sometimes for staple supplies.

Foods may also be bought by actually visiting the market.

FREQUENCY OF BUYING

The frequency with which food items are bought will depend on the following factors:

1. Location and size of the institution
2. Keeping qualities of product
3. Storage
4. Delivery schedule of firms
5. Amount of contract buying
6. Available foods

These buying practices are usually followed:

1. **Meats** - daily, twice weekly or on contract with deliveries to be made as needed.
2. **Fresh fruits and vegetables** - daily, twice weekly or weekly for citrus fruits and less perishable products.
3. **Butter, eggs, cheese** - daily, weekly or on contract.
4. **Staple groceries** - every two weeks, monthly.
5. **Canned goods** - monthly or on contract.
6. **Milk, bread, ice cream** - contract, with deliveries to be made as needed.

Receiving

The receiving of foods is usually the responsibility of the purchaser. Upon receiving, the following procedure should be carried out:

1. Check foods with specifications.
2. Check quantities with the order by size and/or count and weight before accepting foods.
3. Keep records - date, name of vendor, description of items and the quantities or weights received.
4. Inspect foods on arrival for quality, evidence of contamination, spoilage, insect and rodent infestation. Any foods showing signs of spoilage, deterioration or of a quality inferior to that specified should be rejected - such as bulging and dented cans, slimy meat products and thawed frozen foods.

STORAGE

Dry Storage

1. Storage space should be cool and dry and have a temperature of 10 to 21°C (50°F to 70°F) to prevent spoilage.

2. Housekeeping is important. Space should be free from rodents and vermin. There should be screens on all windows. Walls, ceiling and floor openings should be sealed. There should be a drain for flushing. There should be no overhead dripping water/steam pipes or sewer lines in the storage area.

3. Goods should be arranged so that `first-in´ items will be `first-out´.

4. Items should be kept under lock and key to prevent pilferage.

5. Shelf storage - A good circulation of air is important

   - Shelves should be easy to clean, adjustable and preferably made of metal

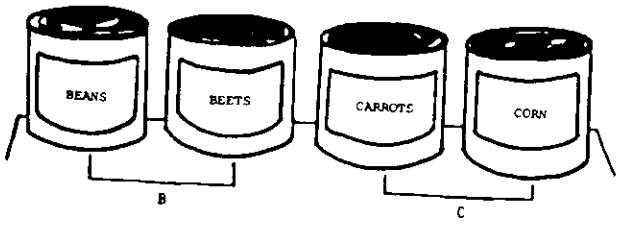
   - The bottom shelf should be 20-30 centimeters (8-12 inches) from the floor

   - Generally, shelves should be at a good height for easy reaching (when possible) and should be at least 5 cm from the wall

6. Use metal or plastic cans with tight fitting lids (e.g. garbage cans) on rollers preferably, for cereals and cereal products, etc.

The proper care of food begins with careful inspection when it is delivered. Adequate storage is the next step. Correct and sanitary methods of preparation follow.

All new stock is placed behind stock dated earlier. Items are arranged in orderly fashion with labels toward the front so there is no confusion as to the category of goods. Cans and boxes should be stacked so that there is no chance of their falling on someone.



Transportation of goods to and from the storeroom is usually on a platform or two-shelf trucks that can be easily rolled from one place to another. Large bagged items such as sugar, flour or potatoes may be placed on movable racks 20-25 centimeters (8-10 inches) off the floor. This is done for cleaning purposes and so as to be easily moved with a hydraulic jack.

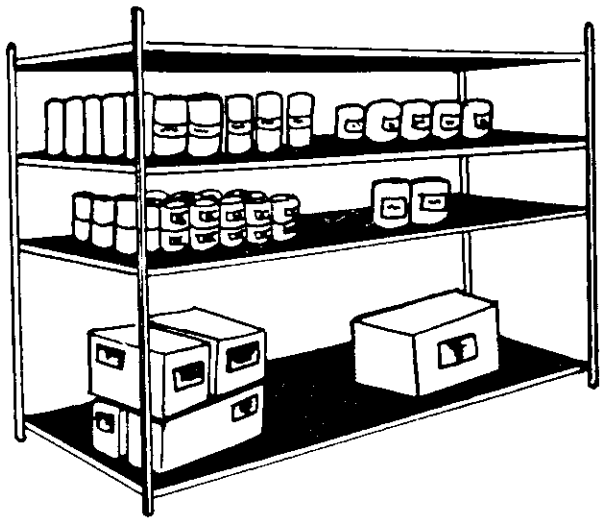
Good housekeeping and sanitation are essential in this department in order to facilitate the flow process and to prevent food damage from pests and spoilage.

Special care should be taken to prevent pilferage. Specific hours should be established and only authorized persons allowed in the storeroom. Some dietary departments require a written requisition from different areas within the department, such as vegetable preparation, bakeshop, salad department or cafeteria.

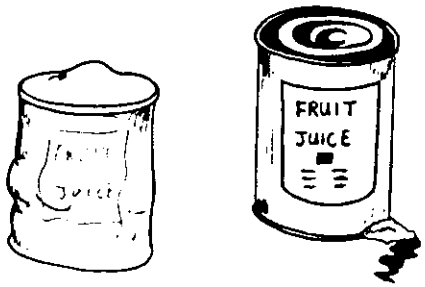
The storeroom should be used **ONLY** for food. Poisonous materials and sanitation supplies, pesticides and cleaning compounds must be kept in a separate area.

Storage of Canned Goods

Cans may be stacked in two or three layers, depending on the width of the shelves and the size of the cans. Cases should be cross-stacked for ventilation, with labels always on the outside. Store canned milk in the coolest section of the storage room.

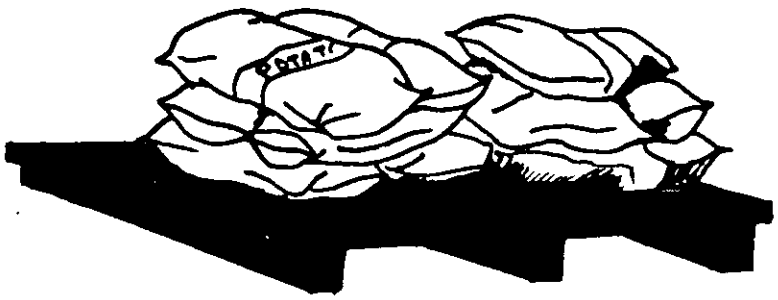


Label all containers and inspect cans regularly for bulges and leaks. Never use the contents of a can that bulges, leaks or is dented at the seams - or if the contents foam, have an off-colour, or contain milky liquid or juice.



Bagged Items

Goods such as sacks of flour, sugar, Irish potatoes and onions should be cross-stacked on a raised platform for ventilation purposes. Your institution may have a separate storage room for these foods. Flour and sugar should be stored in portable metal bins. Store starchy roots and tubers in a cool room, refrigeration is not necessary.



Dried Fruits and Similar Items

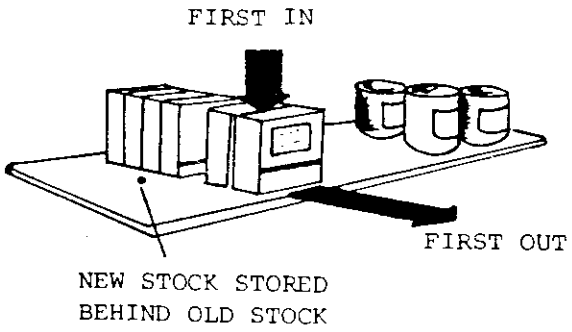
These may be stored in their original boxes. It is necessary to keep dried fruits from molding. In hot weather, these are best kept under refrigeration at 4°-7°C (40°-47°F).

Broken Lots

Items such as dry and bulk cereals, dried beans and peas should be stored in metal or plastic containers with tight-fitting covers to prevent entry of insects and rodents.

Rotation of Stock

Rotate the stock to prevent deterioration by spoilage and to eliminate breeding spots for insects and rodents. Follow the `Fi Fo´ System (First in, First out).



Refrigerated Storage

Perishable foods must be refrigerated at the correct temperature if they are to be kept edible for any length of time. The average temperature should be 3°C (38°F). Every refrigerator should be equipped with a thermometer which is in good working order and temperatures should be checked daily. There must be adequate air circulation in order to maintain a uniformity of temperature and to prevent stale odours. Humidity of 70 - 90% is important since perishable foods contain much moisture. This is measured by a barometer. There are chemicals in special packaged form that they may be used to keep refrigerators fresh and free of odours.

All containers with stored food should be covered in the refrigerator or freezer. No food should be placed directly on the floor of the walk-in refrigerator. No sawdust should be on the floor. Any food requiring preliminary preparation, e.g. sandwiches and salad mixtures, custards, etc., is more susceptible to contamination and requires refrigeration as soon as possible; (no later than one-half hour after preliminary preparation is completed). Refrigerate leftovers as soon as possible; do not cool at room temperature first. Refrigerate, until serving time, any foods containing eggs or milk or other non-acid foods. Shallow pans are better than deep bowls for storing foods in the refrigerator. Rotate stock at regular intervals.

Refrigerated Temperatures

Fish	-	23-30°F - minus 5°C to minus 1°C
Meat	-	33-38°F - 10°C - 3°C
Dairy	-	38-45°F - 3°C - 7°C
Fruit and vegetables	-	40-45°F - 4°C - 7°C
Frozen food	-	0-20°F - minus 18°C to minus 7°C

Food spoilage may occur at any time, thus it is up to each dietary employee to always be on the lookout for it. Report any signs of spoilage to your supervisor immediately.

POINTS TO REMEMBER

1. Good housekeeping and cleanliness are important.
2. Meats should be hung or placed so that there is a good circulation of air.
3. Butter, milk and cream should be separated from foods having strong odours.
4. Refrigerators should be kept under lock and key. They should be kept clean and at the right temperature.

Chapter 4

Food Preparation and Service

FOOD PREPARATION

Preparation is the heart of food service. There is a direct and constant relationship between the methods of preparation and the nutritive value, palatability and attractiveness of the food served.

The quality of preparation depends on:

1. Objectives of the food service.
2. The training and skill of the employees.
3. The type and adequacy of facilities.
4. The recipes used.
5. The thought given to the planning of food production.

Objectives of Food Preparation

The objectives of the food preparation or production process are the same for the institution as for the home. Specifically these are:

1. To retain the original nutritive value.
2. To improve digestibility.
3. To develop and enhance flavour.
4. To retain colour, texture, shape or form.
5. To destroy injurious organisms and substances.

RETENTION OF NUTRITIVE VALUE

It is important to retain food value. Many vitamins, minerals, and other nutrients are destroyed during the process of preparation. Over-cooking, incorrect temperature, mishandling during pre-preparation and preparation and removal of too much of the outer covering of the food are factors which contribute to the loss of the original nutritive value of the food. Suggestions for preserving the nutritive value of foods requiring heat during the preparation process are as follows:

1. Use small amounts of water or no water.
2. Cook only until `tender´ or to the desired degree of doneness - short periods.
3. Cook at low temperature.
4. Avoid soaking.
5. Cover, if process requires - vegetables especially.
6. Canned foods - `heat and eat´.

An axiom to remember: "The shorter the time between preparation and service, the higher the nutritive value."

IMPROVEMENT OF DIGESTIBILITY

Although most foods can be digested in the raw state, in the majority of foods, digestibility can be improved. Cooking will soften the cellulose of vegetables, render starch more digestible, change some types of fats, change the state or form of other foods. The supervisor should avoid the use of excessively high temperatures when meats, eggs, etc., are being prepared, because this factor will cause the protein to become more difficult to digest.

DEVELOPMENT AND ENHANCEMENT OF FLAVOUR

The development and enhancement of flavour is affected by the methods used in preparation, the length of time and temperature at which foods are cooked, the blending of various flavours or types of ingredients, and also the careful and discreet addition of certain spices, herbs, or flavours.

RETENTION OF COLOUR, FORM AND TEXTURE

The retention of colour, form and texture of the foods being prepared also increases their palatability. Many times the attractiveness, palatability and acceptability can be increased by a change in form and/or texture. Halving, chopping, shredding, etc., if done in even and uniform shapes and pieces will add variety to the methods of preparing the same food.

(Example: Bananas may be baked whole, in halves, or sliced.)

Texture may be changed by cooking in moisture to soften the cellulose, by baking to remove moisture (cakes), by refrigeration to crisp or retain original texture. Colour changes frequently occur naturally in foods when they are prepared, but because the change is `natural´, people accept it.

(Example of an acceptable change: green beans change from bright to slightly darker green.)

DESTRUCTION OF INJURIOUS ORGANISMS AND SUBSTANCES

Destruction of injurious organisms and substances is an extremely important objective. Unless these organisms and substances are destroyed during preparation, persons consuming the prepared food will develop infectious diseases or food poisoning. Food in which these factors remain, due to incomplete destruction, spoil more quickly and become unfit for future use. Cooking of food at the proper temperature for the proper length of time to obtain maximum and desired heat penetration is a most important factor in cooking. However, the proper storage of foods after preparation, at the correct temperature, must be regarded as equally important.

It is assumed that all food (especially fruits and vegetables) should be washed and/or cleaned thoroughly before they are prepared and/or served. Also storage facilities used prior to preparation should be regarded as a means of inhibiting the growth of organisms that produce disease or cause toxicity to occur.

Employees and Food Preparation

Employees' time and energy may be conserved, and more attractive and palatable food served, if efficient use of space is made and the equipment placed in order of use. The training and skill of employees influence the types, kinds, amounts, palatability and attractiveness of the foods to be prepared. Training employees is a vital part of preparation and should follow acceptable principles of teaching.

Work Simplification in Food Preparation

Standard work techniques are necessary to simplify the work to be done. These techniques should be developed by the food service supervisor and passed on to the kitchen personnel by instruction, demonstration and practice.

Work simplification is the process of making a job easier. It is the organized use of common sense to find easier and better ways of doing work.

Three steps in work simplification are as follows:

1. Make ready - Tools and supplies should be arranged and pre-positioned.

2. Do - Use correct, standard procedure in proper sequence and avoid unnecessary steps or duplication of steps. Use proper hand, arm and body motions.

3. Put away - Carry all operations through to completion. Clean up and put away supplies and equipment used.

STANDARD METHODS AND PRACTICES

1. Make a plan and organize the work to be done.
2. Use the correct method and proper sequence of operations.
3. Have a regular time for doing all jobs.
4. Collect all proper equipment and pre-position it around the workspace.
5. Collect and prepare all ingredients in order of assembly, thus using fewer motions.
6. Dovetail all operations, performing all like operations at one time.
7. Provide short rest periods or a change of job or position at the point where fatigue sets in.

STANDARD MOTIONS

1. Avoid unnecessary reaching, stretching and bending.
2. Use both hands when possible, starting and completing motions at the same time.
3. Form habits by consistent use of correct motions.
4. Use simple, balanced, continuous and rhythmic and smooth flowing motions.
5. Make use of the momentum of the arm by using smooth curved motions to accomplish tasks.

6. Avoid sudden sharp stops.

7. Use curves rather than straight line motions involving sudden and sharp changes in direction, especially in long processes.

STANDARD WORK SPACE AND EQUIPMENT

1. A functional floor plan with proper equipment, well-selected and efficiently placed.

2. Comfortable work units.

3. A well-planned, adequate work space.

4. Suitable equipment for the job to be done.

RELATION OF PREPARATION AREA TO OTHER AREAS

The even, sequential flow of food from the planning stage to the final disposal or to its return to storage, is determined by the space allowance for various facilities, such as receiving, storage, preparation, service, clean-up and disposal; the layout, amount and kind of equipment in each, definitely affects the preparation of the food. After food is received, it must be stored properly, then brought from storage to the preparation areas. From preparation it is served to the patients and to the personnel. Preparation areas, serving areas, and equipment used will require cleaning. Leftover foods will require storage, and waste from both areas must be disposed of.

Analysis of a particular unit should be made to ascertain changes that would allow for the efficient flow of food through the unit.

Example: Meat - received -- stored in frozen storage -- pre-preparation -- preparation -- clean-up of equipment used in preparation -- service -- patient and personnel -- clean-up.

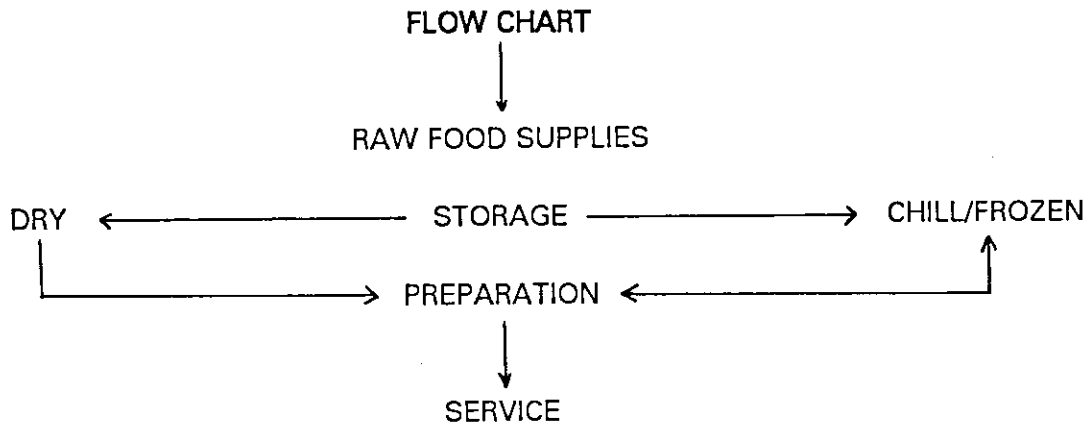
FOOD PRODUCTION SCHEDULLING

Main Aim:

- ☐ Provide an efficient and successful food service
- ☐ Satisfy customers' needs
- ☐ Make profit, in a commercial operation
- ☐ Work within limited budget in a non-commerical institution
- ☐ Make optimal use of the **5 M's** of business:
  <money, manpower, materials (cleaning, food, staff, etc), methods, machinery>

1. Should design the layout of the production area and equipment so it is practical and ensures a smooth flow of employees and materials. One must take account of:
   (a) which equipment should be mounted
   (b) which equipment should be free-standing
   (c) the storage facilities - dry and refridgerated, chill/frozen
   (d) work benches or tables - their heights and size
   (e) lighting and ventilation

2. Movement of material should be planned so that minimal handling is involved. Where possible, material flow should be as direct as possible. Avoid cross-flows of traffic and back tracking as they are time-consuming and may be potential accident hazards.



3. Mechanical aids should be used where possible to help alleviate human handling and save time e.g. trollies, carts, mixing machines, potato peelers, etc.

4. Efficient utilization of labour is important so that specific tasks must be clearly defined and synchronized for maximum productivity. The ever rising labour costs in catering operations necessitate the planning of efficient food production and service areas, therefore financial constraints must be taken into account.

PRODUCTION SUPERVISION

Supervisors are responsible for workers, therefore they must be able to communicate, motivate, co-ordinate, control, organize, lead, inspire, mediate, initiate, make decisions and stand by them.

Worker expects leadership qualities, honesty of supervisor, loyalty, respect, fairness, compassion, coordination. Work schedules - having everything in place.

RECIPE STANDARDIZATION

It is recognized that many "good cooks" do not use recipes and rely on repetitive use of their own recipes for the production of standardized product. The supervisor should insist that a record be kept of every recipe prepared. Credit on the recipe form could be given to the individual in the name of the recipe; for example: "Coconut Cake", T. Coke, Baker.

Standardized recipes have many advantages over the "cook's own" recipes. The quality of the product is the same each time; there is no guess work in amounts, for weights are used instead of measures, and other cooks can use the recipes. The listing of ingredients aids in assembling supplies, materials and equipment. A record is made of the alterations that make the recipe more suitable to the particular situation. Yield or number of portions will be predetermined. Raw food cost, cost per serving, and sales cost are easily determined. A file of standardized recipes could prove helpful as a guide in menu planning.

Standardized Recipe

WHAT IT IS

A standardized recipe is a recipe that has been carefully tested a number of times and found to give the same predetermined result in respect to **QUALITY** and **YIELD.**

PURPOSE

1. To remove guess work
2. Assurance of uniform product - **quality, yield**
3. Helpful in training employees - develop careful consistent work habits
4. To provide portion control thus cost control

STANDARDIZED RECIPES REQUIRE

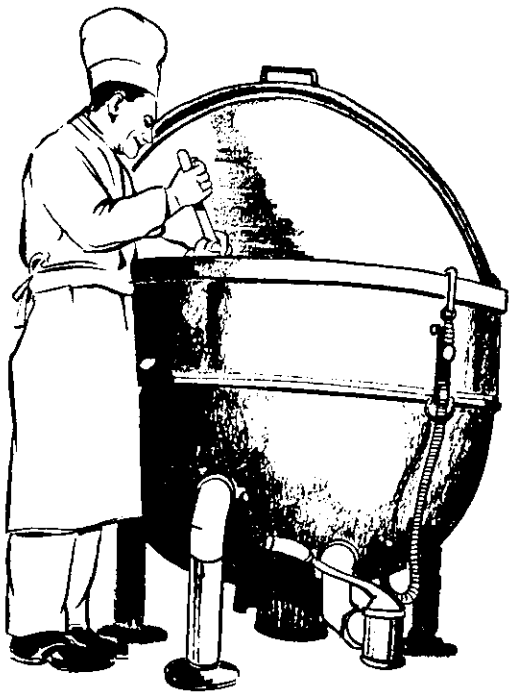
1. Scales to weigh ingredients
2. Standard measures - quarts, pint, cups and spoons
3. Standard size of pans
4. Exact terms
5. Filing system

The size of the recipe card and the quantities to be prepared should be appropriate for each situation. In any event the card should be large enough to allow for spacing of material so that it can be easily read.

THE RECIPE FORM SHOULD INCLUDE

1. Temperature and time.
2. Amount of ingredients listed in order used. Amount by weight or volume. Avoid awkward fractions. Amounts less than one ounce expressed by measure - tablespoons, teaspoons.
3. **Method** - steps in order - simple language - short yet clear - descriptive.
4. Size and shape of pan.
5. Amount to each pan.
6. Total yield.
7. Size of portion - number of portions to a pan.
8. Cost per portion.
9. Equipment or utensils needed.

The recipe must be followed to the most minute degree



Cooking by steam

Refer to the textbooks "Food Service in Institutions" and "Food Service Manual for Health Care Institutions" for examples of recipe forms.

It is easier to start to standardize a large quantity recipe for the individual institution's use than to start from a household size recipe due to different equipment and the methods employed.

Standardized recipes for quantity food service may be obtained from:

Quantity Cook Books
Hospital Journals
Food Service Journals

HOW TO USE STANDARDIZED RECIPES IN PLANNING MENUS FOR FOOD PRODUCTION

1. Go over menus in advance.
2. Gather required recipes for cooks.
3. Note advance preparation needed.
4. Make any adjustment in quantity.
5. Check any calculation carefully.

PROTECT RECIPES

1. Make more than one copy to have on reserve in case of loss.
2. Provide protective cover for recipe when in use in kitchen.
3. A stand or hook to hold recipe at eye level is helpful to the cook and also protects recipe from the work surface.

Standardized recipes may combine the art and science of food preparation. They offer a business-like approach to Food Service Management.

Most hot foods are prepared in any one of the following ways:

BAKING - Cooking by dry heat in an oven at a prescribed temperature. Examples: Breads, fish, macaroni & cheese.

BOILING - Cooking in water or other liquid at a temperature causing bubbles to constantly rise and break at the surface. The temperature depends upon the type and quantity of food being cooked. Examples: Cereals, vegetables.

BRAISING - Browning meat or vegetables in a small amount of hot fat, then simmering (cooking slowly) in a small quantity of water in a covered pan until done. Examples: Beef, pot roast, fricassee, Swiss steak, braised beef with vegetables, braised lamb.

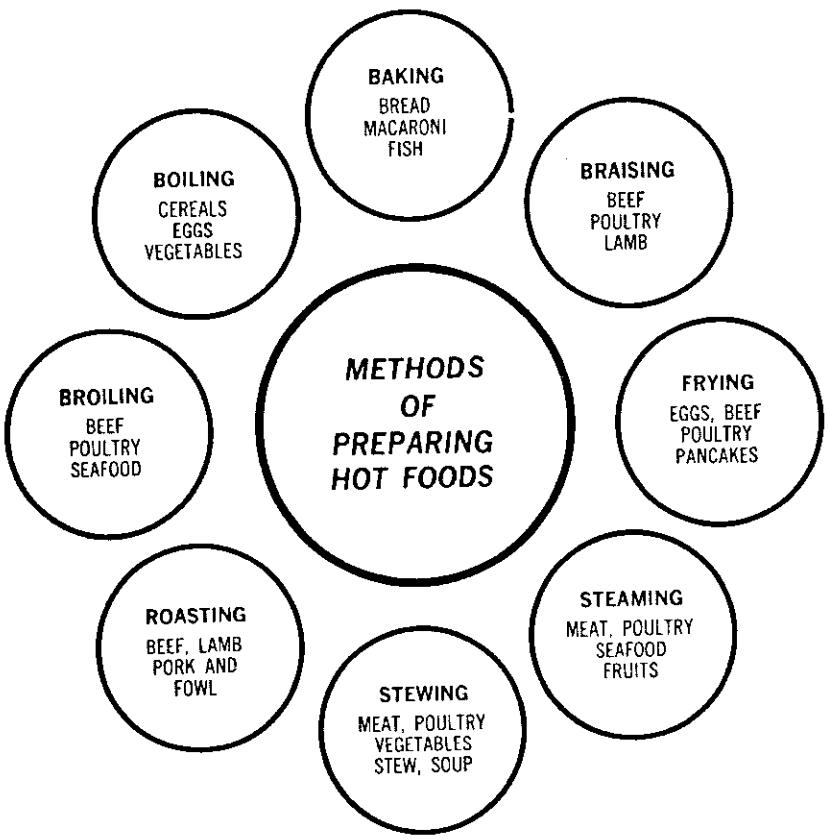
BROILING - Cooking under direct heat. The food is usually placed on a grill below or between fires or heated surfaces. Examples: Meats, poultry, seafood, toasting of bread.

FRYING - Cooking in shallow fat. Examples: Eggs, beef, poultry, pancakes.

ROASTING - Baking in dry heat in an uncovered pan with the meat on a rack above the collected drippings. Examples: Beef, lamb, pork, poultry.

STEAMING - Cooking above boiling water in a closed container or in a pressure steam cooker. Examples: Meat, poultry, seafood, fruits.

STEWING - Cooking in a small quantity of liquid. Meat, poultry, vegetables, soup.



SAMPLE STANDARDIZED RECIPE

MEAT LOAF

INGREDIENTS	AMOUNTS 3 pans	5 pans	6 pans	METHOD
Minced Beef	9 kilos	13.6 kilos	16 kilos	Put beef, veal, pork, celery and onions through mincer
Minced Veal	7 kilos	13.6 kilos	16 kilos	
Minced Pork	4.5 kilos	7 kilos	9 kilos	
Minced Celery	700 grams	1200 grams	1.4 kilos	Blend together in mixer
Minced Onion	500 grams	700 grams	1 kilo	
Milk	3 litres	5 litres	6 litres	Add milk and fresh bread crumbs, salt, pepper, mixed herbs and monosodium glutamate. Mix together until thoroughly blended.
Fresh Bread Crumbs	1.5 kilos	3 kilos	3.5 kilos	
Salt	(60 ml) 1/4 cup	(180 ml) 3/4 cup	(240 ml) 1 cup	
Pepper	(8 ml) 1/2 tbsp	(12 ml) 3/4 tbsp	(15 ml) 1 tbsp	Divide total mixture evenly into pans. Top with piquant sauce.
Mixed Herbs	(8 ml) 1/2 tbsp	(15 ml) 1 tbsp	(8 ml) 1/2 tbsp	
Monosodium Glutamate	(8 ml) 1/2 tbsp	(12 ml) 3/4 tbsp	(15 ml) 1 tbsp	Put in oven to bake.

Weight - 1 Pan of Mixture	7.75 kilos	Equipment:	Mixer + mincer + beater attachments
Total Volume	6 pans		12" x 20" x 2 1/2" pans
Weight per Pan of Meat	7 kilos	Cooking Times:	1 1/2 hrs. approximately
Portions per Pan	75	Serving:	75 servings per pan
Size of Portion	50-60 grams		5 pans = 375 servings
			6 pans = 450 servings
Total Cost }	Will vary with country	Pan size:	12" x 20" x 2 1/2" (30cm x 50cm x 6cm)
Cost per portion }		Temperature:	325°F163°C

RELATIVE PROPORTION OF INGREDIENTS

SEASONINGS

Salt

2-3 ml to 500 g flour
3 ml to 500 g meat
2 ml to 1 litre water (cereal)

LEAVENING AGENTS

Baking Powder, quick-acting (tartrate or phosphate)

30 ml to 500 g flour

Baking Powder, slow-acting (S.A.S. or combination)

15 ml to 25 ml to 500 g flour

Baking Soda

10 ml to 1 litre sour milk or molasses

Yeast

½ to 1 compressed yeast cake to 500 g flour (varies with ingredients and time allowed)

THICKENING AGENTS

Eggs

4 whole eggs to 1 litre milk
8 egg yolks to 1 litre milk
8 egg whites to 1 litre milk

Gelatin

30 ml to 1 litre liquid - plain jellies (gelatin and fruit juices)
30 ml to 1 litre liquid - whips (gelatin and fruit juices whipped)
45 ml to 1 litre liquid - fruit jellies (gelatin, fruit juices, and chopped fruit)
45 ml to 1 litre liquid - vegetable jellies (gelatin, liquid and chopped vegetables)
45 ml to 1 litre liquid - sponges (gelatin, fruit juices and beaten egg whites)
60 ml to 1 litre liquid - Bavarian cream (gelatin, fruit juices, fruit pulp and whipped cream)

Flour [15 ml flour is equivalent to 8-12 ml cornstarch]

15 g to 1 litre liquid - very thin sauce (cream soups, starchy vegetables)
30 g to 1 litre liquid - thin sauce (cream soups, non-starchy vegetables)
60 g to 1 litre liquid - medium sauce (creamed dishes, gravy)
90 to 110 g to 1 litre liquid - thick sauce (souffles)
110 g to 150 g to 1 litre liquid - very thick sauce (croquettes)
500 g to 1 litre liquid - pour batter (popovers)
1 kilo to 1 litre liquid - drop batter (cake, muffins)
1.5 kilo to 1 litre liquid - soft dough (biscuits, rolls)
2 kilos to 1 litre liquid - stiff dough (pastry, cookies, noodles)

FOOD SUBSTITUTIONS AND PORTIONS

(Approximate Equivalent Substitutions)

INGREDIENT	*APPROXIMATE EQUIVALENT*
① ***Thickening Agents***	
3 1/2 whole eggs 7 egg yolks 40g minute tapioca 25g bread crumbs 20g cornstarch	30g flour
② ***Shortening Agents***	
500g margarine 440g hydrogenated shortening plus 3 ml salt 440g lard plus 3 ml salt 440g oil (1 3/8 cup) plus 3 ml salt 440g chicken fat plus 3 ml salt 600 ml 36-40% cream 1.2 litre 18-20% cream	500g butter/margarine
③ **Leavening Agents***	
1 ml soda plus 2 ml cream of tartar 2 egg whites 2 pkg. dry yeast	5 ml baking powder 30g compressed yeast
④ ***Chocolate and Cocoa***	
30g or square chocolate	45 ml cocoa plus 8 ml fat

INGREDIENT	*APPROXIMATE EQUIVALENT*
⑤ ***Milk and Cream***	
60 ml (approximately) dry whole milk plus 240 ml water	240 ml whole milk
200 ml (approximately) non-fat dry milk solids plus 240 ml water and 45 ml butter	240 ml cream, thin 18-20%
120 ml evaporated milk plus 120 ml water	240 ml cream, heavy 36-40%
220 ml milk plus 45 ml butter	240 ml sour milk
200 ml milk plus 80 ml butter	
240 ml sweet milk plus 15 ml lemon juice or vinegar	
⑥ ***Flour***	
270 ml cake flour	
210 ml cornmeal	240 ml all-purpose flour
360 ml bran	
360 ml bread crumbs	
240 ml rolled oats	

APPROXIMATE DIPPER EQUIVALENTS

	APPROXIMATE EQUIVALENT		
DIPPER NO.	*MEASURE*	*WEIGHT*	*SUGGESTED USE*
60	15 ml	15g	Small cookies, garnishes
40	25 ml	20g	Drop cookies
30	30 ml	30-45g	Drop cookies
24	40 ml	45-50g	Cream puffs
20	45 ml	50-60g	Muffins, cup cakes, sauces
16	60 ml	60-65g	Muffins, desserts, croquettes
12	75 ml	65-75g	Croquettes, vegetables, muffins, desserts, salads
10	90 ml	75-115g	Desserts, meat patties, vegetables, hot cereals
8	120 ml	115-140g	Luncheon dishes, creamed meats
6	150 ml	170g	Luncheon salads

APPROPRIATE LADLE EQUIVALENTS

MEASURE	WEIGHT	SUGGESTED USE
30 ml	30g	Sauces
60 ml	60g	Gravies, some sauces
120 ml	115g	Stews, creamed dishes
180 ml	170g	Stews, creamed dishes
240 ml	225g	Soup

APPROXIMATE FRACTIONAL PARTS OF COMMON MEASURES

FRACTION	TABLESPOON	CUP	PINT	QUART	GALLON
1	15 ml	240 ml	500 ml	950 ml	3.8 litres
7/8	12 ml	210 ml	420 ml	840 ml	3.3 litres
3/4	10 ml	180 ml	360 ml	720 ml	2.9 litres
2/3	10 ml	160 ml	320 ml	640 ml	2.6 litres
5/8	10 ml (scant)	150 ml	300 ml	600 ml	2.4 litres
1/2	7 ml	120 ml	240 ml	480 ml	1.9 litres
3/8	5 ml	90 ml	180 ml	360 ml	1.4 litres
1/3	5 ml	80 ml	160 ml	320 ml	1.3 litres
1/4	4 ml	60 ml	120 ml	240 ml	960 ml
1/8	3 ml (scant)	30 ml	60 ml	120 ml	480 ml
1/16	2 ml (scant)	15 ml	30 ml	60 ml	240 ml

Summary of General Considerations

Thought and careful planning are essential to the smooth operation of food service and preparation. Listed overleaf are some general considerations for preparation and service:

1. **Plan the day's work.** Use daily or weekly work sheets so there will be no question among employees as to who will perform which duty. This eliminates confusion and makes for more efficient production and service.

2. **Keep food production records.** From past records, an accurate estimate can be made of the amount of food to be prepared. These records should include the amount of the standardized recipe, total yield of the recipe, the size and number of the servings, and the cost per serving.

3. **Know the approximate yield of raw food items.** Quality, methods of preparation, and the worker's skill all influence the yield.

4. **Control portions.** Determine the size of a serving and use it consistently. Use a standard size for all foods served.

5. Try to use well-planned equipment to its maximum capacity.

FOOD SERVICE

The effectiveness of the dietary department is measured by the manner in which the food is served. All factors employed prior to service of food may have been given very careful consideration, yet the food may reach the client in an unappealing condition. The supervisor should recall that "eye-appeal is appetite-appeal".

The shorter the period between preparation and service to the client, the more attractive, palatable and acceptable the food is to the client. Failure to serve food at proper temperatures often brings about decreased appetites. Foods that are "dried up" in appearance do not have appetite-appeal and are often rejected because clients believe them to be "leftovers".

Several important factors should be considered for foods to be served attractively; they must possess appetite-appeal and be suitable to the client's sociological, psychological and physiological needs.

Chapter 5

Cost Control

INTRODUCTION

Cost control may be defined as a method used to obtain maximum quality of product and efficiency of effort within a specified budget. Various tools are useful in attaining these goals.

Menu planning is a fundamental part of cost control. A menu will form the basis from which you can organize a plan of cost control. This plan will take into consideration such factors as:

1. Menu Planning
2. Price Quotations
3. Purchase Requisition or Purchase Order
4. Control of Receiving and Stores
5. Portion Control
6. Standardized Recipes
7. Effective Supervision
8. Meal Census
9. Food Cost Record
10. Other Considerations

STEPS IN COST CONTROL

Menu Planning

There should be a planned, written menu. This could mean a menu to cover any period of time from one to several weeks. Having decided upon the foods that you will require, you will then need to determine the quantities required of each. This is usually written out in the Diet Scale.

Price Quotations

In order to make the most economical purchases, it is wise to obtain price quotations from more than one supplier if possible. This can be done in two ways. If there is a purchasing agent in your institution, you would give him a list of the specifications. He would then use these specifications to make inquiries of the wholesalers. The purchasing agent would either then consult with you to decide which would be the best buy, or, he would have the authority to go ahead with the purchasing.

The alternative to this procedure would be the situation in an institution that does not have a purchasing agent. In this case it could quite probably be your responsibility to obtain the quotations and make the purchases. This could become a rather time-consuming task which makes it necessary that you organize this procedure. Watch the market for `good buys´, take advantage of seasonal foods, etc.

Purchase Requisition (Or Purchase Order)

When purchasing is centralized, the food service department usually completes a purchase requisition form for the foods required. This is used by the purchasing office or administrative office to make up the order. Administrative policy may require that purchase requisitions be approved by a designated person as authorization to place the order. In such cases, the requisition must be prepared in triplicate.

The purchase order is a legal document authorizing the supplier to deliver merchandise. It is also the institution's record of merchandise ordered. Copies of the purchase order should be distributed in accordance with the purchasing procedures of the institution.

Control of Receiving and Stores

The employee whose responsibility it is to receive and store the food supplies should be instructed to check the orders carefully as they come in. Improperly filled orders may prove costly.

A securely-locked storeroom from which foods may be issued only by requisitions is important in any attempt towards achieving cost control. This requisition form need only be a simple one. The information you would need on it would include the date, quantity ordered, by whom, quantity issued and a signature of someone in charge. The storeman or whoever is responsible for the storeroom should summarize the requisitions at regular intervals so that a record is available of the quantity of the various foodstuffs issued. This information is useful in re-ordering as well as during inventory taking.

If space is available in or near the kitchen, small amounts of frequently-used foods may be stored there. This procedure reduces the amount of traffic to the main store area. Perishable foods should be stored at the proper temperatures. Keep the stored supplies moving. Place incoming orders behind supplies already on shelves. Check refrigerators regularly.

An ***inventory*** of the foodstuffs on hand can be carried out in different ways. A very efficient method of doing this is through the use of bin cards. These are inventory cards on which date and quantity of purchase are recorded. These cards are kept in the storeroom and as foods are issued the quantity and date are recorded on these cards. By using this method the quantities of foods on hand at any time can be quickly determined.

Portion Control

Portion control is another necessary factor in cost control. This requires rather persistent efforts to make all the cooks and those responsible for serving foods aware of the reason for serving a specified portion of a food to both patients and staff. This can be done by reviewing with the employees the sizes of servings to be used for the various menu items. It may also be very worthwhile to post a list of the serving sizes. You can encourage portion control by having adequate supplies of utensils, such as ladles, proper scoops and serving spoons, available for use.

Standardized Recipes

All cooks have their favourite recipes but, in your efforts to achieve portion control, standardized recipes are most useful. A standardized recipe is one which has been carefully tested as to the quantities or weights of various ingredients, methods of combining, cookery processes, the time required and the number and size of servings. If recipes like this are in use, the quality of the finished product will be similar regardless of which cook makes it.

While it is desirable that a file of standardized recipes be developed for each food service operation, this can be a very time-consuming procedure. Prepared standardized recipes are available and it may, however, be possible to exchange recipes with colleagues in other countries.

A standardized recipe lends itself very easily to the calculation of cost per serving. If you know what it costs you to serve a certain item, then you can decide whether or not you can afford to serve it. (See page 34 for a standardized recipe form.)

Effective Supervision

Close supervision of the procedures used in food production and service areas will enable you to develop a close control of these two areas. Any misuse of an employee's time or waste of food is, of course, a waste of money. If you have instructed your cooks as to the amount of food required for the day, they will be less likely to have large amounts of leftovers.

Check tray and plate returns for leftovers, unpopular foods, evidence of too large servings, etc. A regular check of garbage cans is often most revealing, particularly if the amount varies from day to day.

It is not recommended that staff or employees be permitted to eat in the kitchen. Dietary employees should take their meals in the dining room or cafeteria just as the rest of the institution staff do. Cooks and other employees eating as they please in the kitchen can be a slow but steady drain on the food budget.

Meal Census

A daily meal census, a worthwhile record to keep, is the total number of meals served to the patients and staff in the hospital in a day. A meal day is the full amount of food provided for a person during one day. The number of patient meal days corresponds to the number of patient days of care provided to adults and children.

Food Vote

Each institution has an annual estimated budgeted allotment for food which is usually based on the total cost of raw food - you should be familiar with this amount.

Standard Cost

The standard cost of food sold in an institution where profit is the main consideration, represents an ideal cost that could be realized:

1. If there was no waste
2. Where there was optimum efficiency
3. If all supporting standards were followed

The chief purpose of a standard cost is to serve as a comparison in order to evaluate food cost results. It gives management the information necessary to measure the

efficiency of its staff in respect of food costs as the month goes by. Without this information, management would have no way of knowing whether the actual cost of food was in line with what the cost should be.

Other Considerations

So far we have considered cost control in terms of food and food service. However, the operation of a food service department requires other items such as paper goods, equipment (manual, electrical and steam), electricity for light, fuel for cooking, etc. It is only reasonable then to suggest that equipment be used as much as possible and properly serviced. Continual steam leaks, dripping taps, improperly fitted covers on steam kettles, etc., should be repaired.

LABOUR COST CONTROL

One of your chief responsibilities as a supervisor is to keep labour costs at a reasonable level in your department. It is the most expensive single item in a hospital and continues to increase. Therefore, it becomes evident why a food service supervisor should make the most effective use of her employees. Their time at work is very expensive to the institution, therefore, work schedules, which utilize to the fullest extent possible an employee's working hours, should be posted in the kitchen. Only employees who have been given ***adequate training and instruction*** about the responsibilities of their jobs will be able to carry out the duties you expect of them.

Review the layout, conditions of equipment, and present working methods. Look for awkward arrangements of equipment, uncomfortable working conditions, items needing repairs. In general, make your employees feel that they have a very important role in the operation of the institution and that the way in which they do their work has an effect on the quality of patient care.

PILFERAGE

Pilferage can have a very serious effect on your dietary expenses. By utilizing many of the controls discussed in this lesson you will do much to discourage pilfering. The following points may be helpful:

1. Lock all storage areas restricting admittance to designated employees only.
2. Issue foods only on requisition.
3. Check frequently for any signs of foodstuffs being stolen.

4. Discourage employees carrying shopping bags, etc.

5. Keep unguarded entrances or exits locked.

CONCLUSION

If you are the supervisor in charge, you are the person whose responsibility it is to see that your department is functioning as economically as possible while still maintaining a high standard of service. Anyone can lower the cost by cutting down on the quality of the food or minimizing the portion size. The abilities of a trained and capable supervisor are necessary to maintain quality of food and food service as well as employee morale whilst staying within the financial limitations imposed by the dietary budget.

Chapter 6

Sanitation

PREVENTION OF FOOD BORNE ILLNESS

The term `food borne illness´ means any illness transmitted through the medium of food. Food borne illness/food poisoning is one of the commonest reported causes of acute illness throughout the Caribbean. Health care institutions and food service businesses and the staff who work in them should take heed of a caution sounded 2000 years ago by Hippocrates, "Primum non nocere - First do no harm".

The prevention of food borne illness is one of the most important responsibilities of every member of food service departments. People working with food must be aware of the fact that food can be contaminated in many ways and should constantly try to prevent this very serious occurrence. Food should be nourishing, attractive and flavourful but it must also be **SAFE**.

In hospitals, food sanitation is especially important as there is the danger of cross-contamination between patients. Sanitary dishwashing is a very important factor here. Another important factor is the personnel in the dietary department who are preparing the food. If the food handlers have infectious disease, there is the danger that this disease will be spread to persons consuming the food. Diseases which can be spread this way include cholera, hepatitis A, campylobacter, typhoid, dysentery, tuberculosis and colds.

Germs enter the body through the mouth. They get into the mouth through contact with water, foods, cups, knives and forks. They are spread by coughing, sneezing and travel from mouth to hands to food. The growth of these germs can be stopped by refrigerating foods at 4°C (40°F). They can be killed by exposure to temperatures of 82°C (180°F). They can be prevented from spreading by safe practices of food service personnel and by using clean utensils.

There are four major types of food borne illnesses:

1. Food Borne Intoxications
2. Food Borne Infections
3. Chemical Poisoning
4. Poisonous Animals and Plants

All four can result in serious illness or even death.

Food Borne Intoxication

Food borne intoxication occurs when certain germs that contaminate the food have had the opportunity to grow and produce chemical substances that are poisonous - we call these poisons, toxins. Two examples of germs that cause food intoxication are the Staphylococcus and Clostridium botulinum.

Staphylococcus is the most common bacteria causing food poisoning. If staphylococcus gets into food and grows, it forms a poison called a toxin and it is this toxin which causes the illness. Fortunately staphylococcus food poisoning lasts only a short time and persons recover. Sources of staphylococcus bacteria are the skin, nose, sores and cuts. Thus food workers must be clean and free from sores and cuts which could harbour these harmful bacteria. Staphylococcus bacteria are resistent to heat but are killed by exposure to high temperatures. However, cooking the food does not destroy the toxin so that preventive measures are most important. Food most frequently suspected include - custard products, cream-filled products and meat and poultry dishes. To prevent the growth of these bacteria good sanitation practices should be adopted. Proper temperatures for preparing, holding and storing food should be maintained. **HOT FOODS SHOULD BE KEPT HOT AND COLD FOODS COLD!**

Clostridium botulinum is a spore forming micro-organism and produces a toxin that is tasteless, odourless and colourless and thrives without air. Poisonings produced by this organism are quite drastic and often fatal. Home canned meats and low acid foods are the commonest sources of botulism. Although not common in institutions, commercial cans of food which develop leaks or bulges could be a source of botulinum and should be destroyed.

Food Borne Infections

Food borne infections occur when certain germs contaminate the food and have the opportunity to grow and multiply to large numbers before the food is eaten. These germs, which are different from those causing food intoxication, include Salmonella, Clostridium perfringens (welchii), Shigellosis. Also parasitic infections such as amebic dysentery, tapeworms, trichinosis (measly pork). Viruses which are much, much smaller than the other germs can also be transmitted in food causing such diseases as 'infectious' jaundice (infectious hepatitis). The introduction of cholera into the Americas in 1991 adds to the list of bacteria which can be spread by contaminated food.

Salmonella is the most common bacteria causing food borne infection. There is no toxin produced and it is the bacteria itself which results in food poisoning. Salmonella grows in foods which are not refrigerated but it is easily destroyed by heat. However, the

food product can be recontaminated by placing the cooked product back on the unwashed cutting board or unwashed container that was used before cooking the item. Humans and animals are sources. Meats, poultry, fish, dairy products, eggs and cream-filled desserts are more frequently the cause. Fresh meat can be contaminated by salmonella originally in the intestine of the animal which through insanitary abattoir procedures, contaminated the carcass or by a person who has salmonella on his hands. Vibrio Cholera can be transmitted through raw or partially cooked fish or shellfish so always cook these well. It can also be transmitted like salmonella through contamination of wet foods e.g. cooked rice, stews.

Salmonella perfringens (welchii) is found in the intestinal tract of man and is as well a constant contaminant of the soil. These germs can be heat resistant and very difficult to kill by heating or cooking.

Clostridium - common outbreaks of clostridium perfringens food borne infection have occurred when leftover pies and stews have been left unrefrigerated and then reheated.

Three good preventive measures are:

1. Always carefully wash hands after going to the toilet.
2. Always wash hands before preparing or serving food.
3. Promptly refrigerate leftover food and adequately reheat them before serving.

Chemical Poisoning

Food may be contaminated by various poisons which may be added accidentally as one of the ingredients, e.g., when acid foods are mixed in galvanised containers, zinc in poisonous quantities may be dissolved. Contamination may also occur from insecticide or cleaning agents stored with food.

Sometimes poisoning is caused by careless overusage of a normal ingredient, e.g., adding too much monosodium glutamate which can cause severe headaches - `Chinese Food Syndrome´.

Poisonous Animals and Plants

The plant itself may be poisonous, e.g., manchineal apple, unripe ackee, cassava juice.

Fish taken from certain areas of the Caribbean may appear perfectly wholesome but can contain a poison (toxin) which can cause severe poisoning or death - Ciguatera poisoning.

Although there is no practical test to detect the poison, precautions include not using large predator type fish, e.g., large barracuda; purchasing fish from known reliable sources is strongly recommended. Fish liver, especially from large fish, should not be used as the liver can concentrate toxic metals e.g., mercury, and cause severe poisoning.

FOOD SPOILAGE

Food spoilage refers to changes in composition of food brought about by the action of yeasts, moulds and certain bacteria. Food spoilage, though capable of causing illness, is not likely to do so simply because the food tastes and/or smells so bad that people do not eat it.

CONDITIONS FOR BACTERIAL GROWTH AND MULTIPLICATION

The following are needed in order for bacteria to grow and multiply:

Food

They grow and multiply best on foods which are generally much desired by humans, e.g. meat, poultry, milk and milk products, eggs and fish, i.e. protein foods. Typical hazardous menu items include - hamburgers, meat pies, sausages, cooked meat not eaten fresh, custards, cream-filled desserts, ice cream.

Foods rarely associated with food poisoning are bread, cereals, fats, cooked vegetables, fresh fish and pickled foods (due to their acidity). (Note that if/when cholera appears in the Caribbean, fresh fish and shellfish, e.g., oysters and crabs, would be a risk if eaten partially cooked or raw.

Warmth

The majority of food poisoning organisms grow best at blood heat - 37°C, but throughout the range 4°C to 60°C growth and multiplication can occur. (This is called the danger zone.) If food is kept in a refrigerator or freezer, i.e. below 4°C there will be no significant change in the bacteria present, however, if food is heated above 82°C for a few

minutes, virtually all bacteria will be destroyed with the important exception of the spore form which may require boiling 100°C for several hours to ensure their destruction.

Moisture

Like all living organisms, bacteria require water. The sun-drying of food, e.g. meat and fish, was the earliest known method of food preservation.

Time

Although bacteria multiply rapidly, a certain minimum amount of time is required before sufficient are developed to cause illness. If foods are consumed promptly after preparation, even though contaminated by bacteria, the consumers may not get food poisoning because the bacteria have not had a chance to multiply sufficiently. In general **no prepared foods should be exposed between 4°C and 60°C for more than one hour.** In the investigation of many outbreaks of food poisoning in the Caribbean, poor time and temperature control are the most frequent implicated factors.

TESTS FOR FOOD SPOILAGE

Canned Food

1. Swelled top and bottom
2. Dents along side seam
3. Unpleasant odour
4. Foam
5. Milkiness of juice

This applies to canned vegetables, meats, fish and poultry. Home-canned foods should be cooked thoroughly.

Frozen Foods

Frozen foods will spoil if kept out of the refrigerator for any great length of time. Spoilage is caused by growth of bacteria on the food.

Cook frozen vegetables thoroughly before serving to destroy any contamination that may be present.

Fish

1. Unpleasant odour
2. Grey or greenish gills
3. Sunken eyes
4. Flesh easily pulled away from bones
5. Mark of fingernail indentation remains in flesh
6. Not rigid

Raw Shrimp

1. Pink colour on upper fins and near tail
2. Unpleasant odor similar to ammonia

Some types of shrimp are naturally pink. Cooked shrimp are also pink. Both are wholesome if the odour is not abnormal.

Meat

1. Unpleasant odour
2. Slimy to touch

Beef usually spoils first on the surface. Pork spoils first at meeting point of bone and flesh in the inner portions. To test for spoiled pork use a pointed knife to reach the interior of the meat. An off-odour on knife means spoilage.

Dressed Poultry

1. Stickiness under wing, at the point where legs and body join, and on upper surface of the tail
2. Darkening of the wing tips

Dressed poultry should be washed thoroughly before cooking. Wash your hands after handling.

Fruits and Vegetables

White or greyish powder around stems of fruit and at juncture of leaves and stems of cabbage, cauliflower, celery and lettuce.

This powder indicates spray residues. Most of the chemicals used by growers are not dangerous but some may be. All fruits and vegetables must be washed before being eaten or cooked. Cooking will not destroy the chemicals.

Salads

Refrigeration will keep contamination from increasing. Chicken salad, tuna and other fish salads, non-acid potato salad, all types of custard-filled pastries and some types of cold cuts **must** be kept refrigerated at all times. All have been touched with the hands during their manufacture and may be considered slightly contaminated. (Spoilage is often impossible to detect until foods are totally spoiled.) Serve salads immediately after taking from refrigerator.

Cereal

Insects in cereal - spread the cereal on brown paper. If insects are present they will be easily seen. These insects are not dangerous but neither are they appetizing.

Leftover Food

1. Discolouration
2. Off-odour
3. Mould

The off-odour of spoiled food is not always apparent. Keep it hot, keep it cold or don't keep it at all!

Bacterial spoilage of food begins as soon as it become warms. Refrigeration will delay this spoilage, but will not stop it.

HOW CONTAMINATION OF FOOD CAN OCCUR

INSECTS AND RODENTS

Flies, roaches and other insects like to inhabit your busy kitchens and storerooms. Uncovered garbage cans, unclean floors, cracks and openings in tables, cupboards and walls provide them with food and shelter. They may enter the kitchen through open windows, doors and during deliveries of food. Your job is to take persistent and positive steps to deprive them of a "home they can call their own".

Consult your public health inspector about insect and rodent control.

PREVENTION OF FOOD CONTAMINATION

Use Wholesome Food - Safe Source

Food must be in a sanitary condition before it is placed in storage. This means that careful inspection of all foods before storage is necessary.

Store Food Safely - Safe Storage

Soap flakes, insect powders, cleaning supplies and other non-food items should **NOT BE STORED** near food.

Dry/Refrigerated Storage

See Chapter 3 on pages 17-21, Food Purchasing and Storage.

Safe Preparation and Service

Sanitary methods are most important here:

1. Use hands as little as possible.
2. Surfaces which come in contact with food during preparation must be kept clean.
3. Wash fruits and vegetables thoroughly.
4. Prepare food as close to serving time as possible.
5. Correct cooking methods and temperatures are important.
6. Pork, fish and shellfish must be well cooked.
7. Use serving utensils (tongs, etc.).
8. Handle dishes in a sanitary manner, i.e. glasses by the bottoms, cups and silver by the handles.

Clean Equipment

All equipment should be cleaned after each use. The most hazardous machines are meat mincers and slicers, e.g. minced beef particles left in mincing machine at room temperature provide the ideal condition of moisture, food, warmth and time.

The need for cleanliness extends to all counters and tables and the food preparation room itself. The basic principle of easy to clean surfaces applies, and the overall standard of cleanliness is better judged when the lighting is up to the recommended level of 30 foot candles.

All equipment should:

1. Be durable and rust-free with a smooth, easily cleaned surface
2. Have rounded corners to prevent the deposit of dirt and loose particles in areas which might be difficult to clean
3. Be located away from the walls (or sealed tightly to them)
4. Be clean, as there is less chance of food contamination.

Healthy and Clean Food Service Workers

The health and cleanliness of employees handling food is tremendously important. All the best precautions in storage and preparation can be ruined by an employee who is unhealthy or does not practise good habits of personal hygiene. A pre-employment physical examination is wise, followed by examinations at regular periods. The examination should be in sufficient detail to determine freedom from:

1. Any disease in a communicable form
2. Boils or infected wounds
3. A carrier state or an intestinal infection

The supervisor should be alert in the detection of infectious diseases that may develop after employment and should, by precept and example, set a standard to be followed by staff.

Personal cleanliness should be stressed to employees and this includes the importance of: daily baths, clean clothing, deodorants, care of the hair (a hairnet or cap should always be worn on duty), care of the hands (particularly fingernails) and feet.

Personal appearance, including the use of jewelry, clean uniforms, neat hair (covered) and clean shoes must also be stressed. Employees should know the relationship between personal cleanliness and the production and service of sanitary food.

Handwashing

Hands transmit disease germs. Because hands are the point of contact with food and utensils, they must be washed frequently with soap. It is important to practise the following habits:

1. Wash hands before going on duty.
2. Wash hands after a visit to the toilet.
3. Wash hands after sneezing or blowing nose.
4. Wash hands after touching hair, nose or other parts of the body.
5. Wash hands after handling fresh produce.
6. Wash hands after handling money.
7. Keep hands and nails clean when handling food.
8. Wash hands after smoking. Remember the saliva from your mouth that touches the ends of the cigarette contains bacteria.
9. Wash hands before preparing or serving food.

Hand sinks should be strategically placed in the kitchen.

In addition to keeping your hands clean, you need to be sure that your fingernails are kept short, free from nailpolish and clean at all times.

Jewellery, especially rings with stones and grooves can be a lodging place for bacteria and should not be worn if the hands are used in making direct contact with food.

There should be no smoking or combing of the hair in the kitchen.

Personal Practices To Acquire

All persons should wear clean garments and maintain a high degree of personal cleanliness while on duty. The uniform should not be worn off duty if it is to be worn on duty the next day. Individuals who wear uniforms back and forth to work provide

opportunities for the uniform to come in contact with many dirty areas. This could be a source of bacteria in the food service department.

Persons wearing bandages or suffering from any communicable diseases, skin infections or cuts, abrasions and burns on the hands or on parts of the body likely to be contacted by food should not handle food. If suffering from diarrhoea, gastrointestinal and respiratory infections, sore throat, skin rashes, sores, boils and other skin diseases, this should be reported and medical advice and clearance sought before resuming work.

OTHER POINTS TO REMEMBER TO PREVENT FOOD CONTAMINATION

1. Clean all utensils and work table surfaces that have been in contact with raw meat, raw poultry and eggs before these utensils and surfaces come in contact with cooked foods. A brush, hot water and detergent can be used to clean the cutting boards. Cutting boards that are cracked, chipped or have knife cuts should be destroyed because these broken lines are excellent spots for bacteria to grow.

2. Do not mix leftover cooked foods with freshly cooked foods unless all the mixture is in good condition and will be used up immediately.

3. Remove heavy wrapping paper from foods that are to be refrigerated because such paper tends to keep the cold air away from the food, therefore, the food remains at a temperature at which bacteria can multiply.

4. Use only clean cloths. Soiled cloths spread germs and remove only a part of the visible soil.

Cooking That Kills Pathogens Not Patrons

The thicker the joint of meat the longer it takes to raise the centre to a temperature above the danger zone, e.g., a 5.5 kg ham: when the water is boiling the interior is only 77°F/25°C, after 35 minutes the interior is 100°F/38°C, and only after 8 hours boiling will the temperature be between 115°F and 153°F/46°C and 68°C.

THE FIVE FUNDAMENTALS OF SAFE FOOD SERVICE

Clean Hands

Wash hands well with soap and water before starting work, and after using the toilet.

Don't handle food if you have a boil, cut or burned finger.

Cover coughs and sneezes with a tissue and wash hands immediately after.

Clean Dishes and Utensils

Use only clean pots and pans.

Keep them in good repair.

Don't use cracked or split boards and tables, or chipped utensils or dishes.

Take apart and thoroughly clean all food service equipment after each use, especially mincing machines.

Clean Food

Buy only pasteurized milk and milk products from reliable sources.

Buy meat, poultry and fish from reliable sources.

Protect food from rodents, insect infestation and poisonous chemicals.

Right Temperature

Keep perishable food `cool and collected' in refrigerator.

Keep food hot, keep food cold, or do not keep it at all. A walk to the refrigerator may be your most valuable steps.

Thaw frozen foods in the refrigerator **not** at room temperature.

Healthy Workers

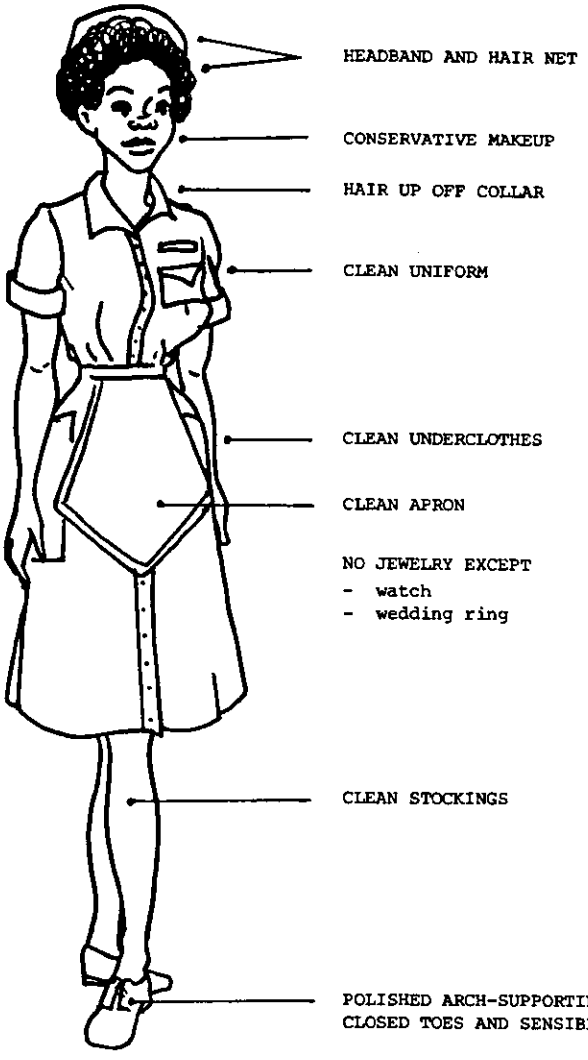
Don't let workers with colds, skin rashes or those complaining of diarrhoea handle food.

Encourage regular health examinations for all workers.

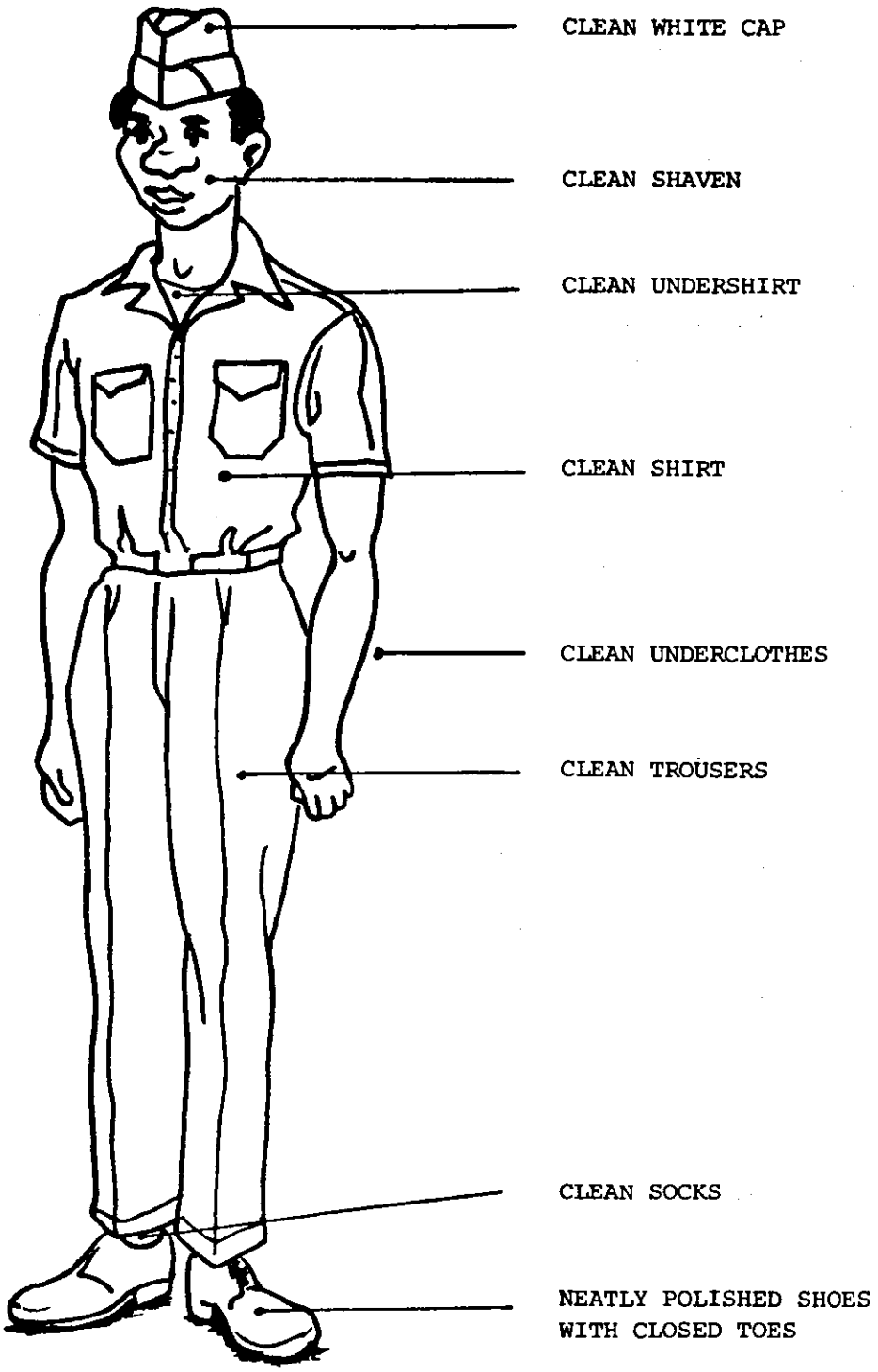
Have ongoing education/reminders about food safety and proper supervision.

Keep lights and ventilating systems in proper working order to ensure safe, pleasant and efficient work areas.

PROPER UNIFORM FOR FEMALE FOOD SERVICE WORKER



PROPER UNIFORM FOR MALE FOOD SERVICE WORKER



INSTRUCTIONS FOR CLEANING KITCHEN EQUIPMENT

Cleaning Compounds

The compounds which are commonly in use for cleaning the equipment in a food service department are detergents and germicides or sanitizers.

DETERGENTS

Detergents are cleaning agents, solvents or any substance that will remove soil from a surface. Soap may do this and it can be called a detergent; however, the detergents used today have a polyphosphate base.

Kinds of detergents:

1. **Alkaline type** is the most suitable for removing fat, grease and heavy soil. Most food deposits are slightly acid and require an alkaline-type detergent to neutralize and dissolve the food deposits. This type of detergent is usually used in the dishwashing machine.

2. **Acid type** is excellent for removing mineral (lime) deposits from the dishwashing machine.

3. **Neutral type** is neither acid nor alkaline. These detergents are used to clean some floors.

4. Combinations are detergents that contain chemical sanitizer.

GERMICIDES OR SANITIZERS

Germicides or sanitizers are chemical compounds which kill or de-activate bacteria. A few of the common chemicals which serve as a base for many different commercial products are chlorine, iodine, bromine and quaternary ammonium.

Germicides and sanitizers can be used for cleaning anything that can be washed with water and they are especially good for cleaning areas such as tables and counters where food is prepared.

DISHES

By Hand

- Prepare equipment. Attend to:
  sink (3 compartments)
  sanitizer
  scraper
  drying racks and cloths
  hot water
  detergent
- Pre-wash or wet-scrape dishes.
- Wash in hot water with a good detergent.
- Rinse in clean, hot water.
- Sanitize. Either submerge in water 82°C for 30 seconds, or use a chemical as directed.
- Air-dry the dishes, inspect, and store in a clean, protected place.

By Machine

- Fill machine, add detergent, turn on heat. Keep wash temperature 66 to 71°C.
- Sort, scrape and pre-rinse dishes.
- Rack dishes so water reaches every surface.
- Run machine 20-30 seconds, or a full cycle.
- Rinse at 82°C for 10-15 seconds or a full cycle.
- Air-dry dishes and glasses. Inspect. Set aside any not clean.
- Take machine apart and clean.

GARBAGE CANS

Daily

- Scrub with cleaning agent
- Rinse
- Air-dry

Weekly

- Rinse surfaces.
- Scrub surfaces with sanitizer - detergent.
- Rinse with warm water.
- Air-dry.
- Sprinkle bottom wtih sanitizer before use.
- BE SURE TO KEEP COVERED AT ALL TIMES.

REACH-IN REFRIGERATORS

- Defrost weekly.
- Remove all food from shelves.
- Remove shelving and loose equipment to sink and wash. Rinse with water containing sanitizer.
- Clean interior and exterior of cabinet with warm water containing detergent.
- Rinse with water containing sanitizer or weak solution of baking soda.
- Wipe with clean dry cloth.
- Give special attention to floor of the box, corners, doors, openings, gaskets.

WALK-IN BOXES

- Mop floor daily.
- Flush drain pipes with hot water and sal-soda frequently.

GAS RANGES

Open-Top Type

- Let range cool.
- Remove top grids, soak in water containing grease solvent. Use a stiff brush or blunt scraper to remove encrusted material.
- Thoroughly wash grates and burners in a detergent solution.
- Clean clogged burners with a stiff wire.
- Wash back apron with a hot detergent solution to remove grease.
- Wipe iron parts with an oiled cloth to prevent rusting.

Closed-Top Type

Wash **DAILY.**

- After top has cooled scrape off any encrusted matter with a blunt scraper.
- Remove grease or dirt.
- Wash back apron with a hot detergent solution to remove grease.
- Wipe iron parts with an oiled cloth to prevent rusting.

OVENS

- Clean **DAILY.**
- Let oven cool.
- Remove racks and shelves and clean.
- Remove encrusted material from oven with a blunt scraper or wire brush.
- Prepare a cleaning solution.
- Brush surfaces with solution.
- Rinse with warm water applied with sponge or towel.
- Dry.

- Clean outside of oven. For black finish ovens use a cloth saturated with light oil.

STEAM KETTLES

- Wash immediately after use.
- If food particles have hardened on the surface of the kettle, fill with water and let stand until food particles are softened.
- Drain soaking water, scrubbing with a scouring pad or brush.
- Scrub inside and outside of kettle.
- Clean drain pipe with bottle brush.
- Rinse kettle thoroughly with hot water.
- Air-dry leaving drain open until ready to use.

COMPARTMENT STEAMERS

- Clean **DAILY**; do not allow food particles to accumulate in pan.
- Wipe out water pan and interior; remove shelves and clean.
- Always leave compartment door ajar when steamer is not in use (this prolongs gasket life).

MEAT GRINDERS

- **Wash after each use.**
- Disassemble equipment such as ring, knife and plate.
- Be sure to unplug electrical grinders before cleaning.
- Wash in hot soapy water.
- Rinse and dry thoroughly.

FOOD SLICER AND CAN OPENER

- Clean AFTER EACH USE.

N.B. Disconnect cord from socket.

- Clean knife blade carefully.
- Use hot water, mild soap and clean cloth to wash thoroughly the parts that have been in contact with food.
- Wash or wipe other parts of the machine with a damp cloth.
- Dry thoroughly

MEAT BLOCKS, SANDWICH BOARDS, WOODEN TABLES

Daily

- Sprinkle the surface liberally with salt as it aids in removing embeded particles and `sweetens´ the block.
- Brush all loose particles free from surface.
- Scrub surfaces with sanitizer/detergent.
- Rinse with warm water containing sanitizer.
- Air-dry.
- Be sure that all bristles are removed in final rinsing of block.

Weekly

- Bleach boards as follows:
- Brush all loose particles from surfaces.
- Wet the surfaces with warm water and sprinkle with bleach powder or liquid bleach.
- Scrub with a stiff brush dipped frequently in warm water.
- Rinse with clean warm water.
- Scrub, rinse and air-dry.
- IT IS IMPORTANT THAT ALL WOODEN SURFACES BE RESURFACED OR REPLACED WHEN DAMAGED.

SINKS

- Clean away the scraps after each job.
- If waste is flowing away slowly, attend to at once.
- Sinks must be thoroughly cleaned with detergent and hot water at the end of each day.

TROLLEYS

- Wash DAILY, taking care to see that crevices around the wheels, shelves and bumpers are clean.
- Food containers should be thoroughly washed in hot soapy water.

GENERAL HOUSEKEEPING PROCEDURES

Preparation, Service and Dishwashing Areas

FLOORS

- After each meal - sweep and scrub, mop.

WALLS

- **Daily** - wash portion of walls splashed with grease, water, etc.
  Weekly - do completely.

COUNTER AREAS

- Clean after each meal.

EQUIPMENT

- See pages 61 to 67.

Dining Area

FLOORS

- Sweep after each meal.
- Mop at least once daily.

TABLES

- Wipe with clean, damp cloth after each meal.
- Wash top, sides and legs periodically.

CHAIRS

- Wipe seat with clean, damp cloth as needed.
- Dust regularly.
- Wash chair legs as necessary.

CARE OF CLEANING TOOLS AND SUPPLIES

Sponges

- Rinse after use in water to which sanitizer has been added.
- Wash thoroughly in open air.

Cleaning Cloths

- Launder and air-dry daily.

Brushes

- Wash thoroughly after use in fresh, hot water containing detergent.
- Rinse in hot water; dip in water to which a sanitizer has been added.
- Shake and hang dry.

Do not allow brushes to rest on bristles. This causes bristles to bend and mat.

Mops

- Wash thoroughly after use, in clean hot water with detergent.
- Rinse in clean, hot water with sanitizer added.
- Wring out.
- Shake to fluff strands. Pick out foreign matter.
- Hang mop to dry with heads up and away from wall.

Buckets

- Rinse immediately after use.
- Allow to drain.
- Store upside down.
- Cleaning tools and supplies should be stored in an area away from food.
- Good ventilation is essential to allow for proper drying of brushes and mops.

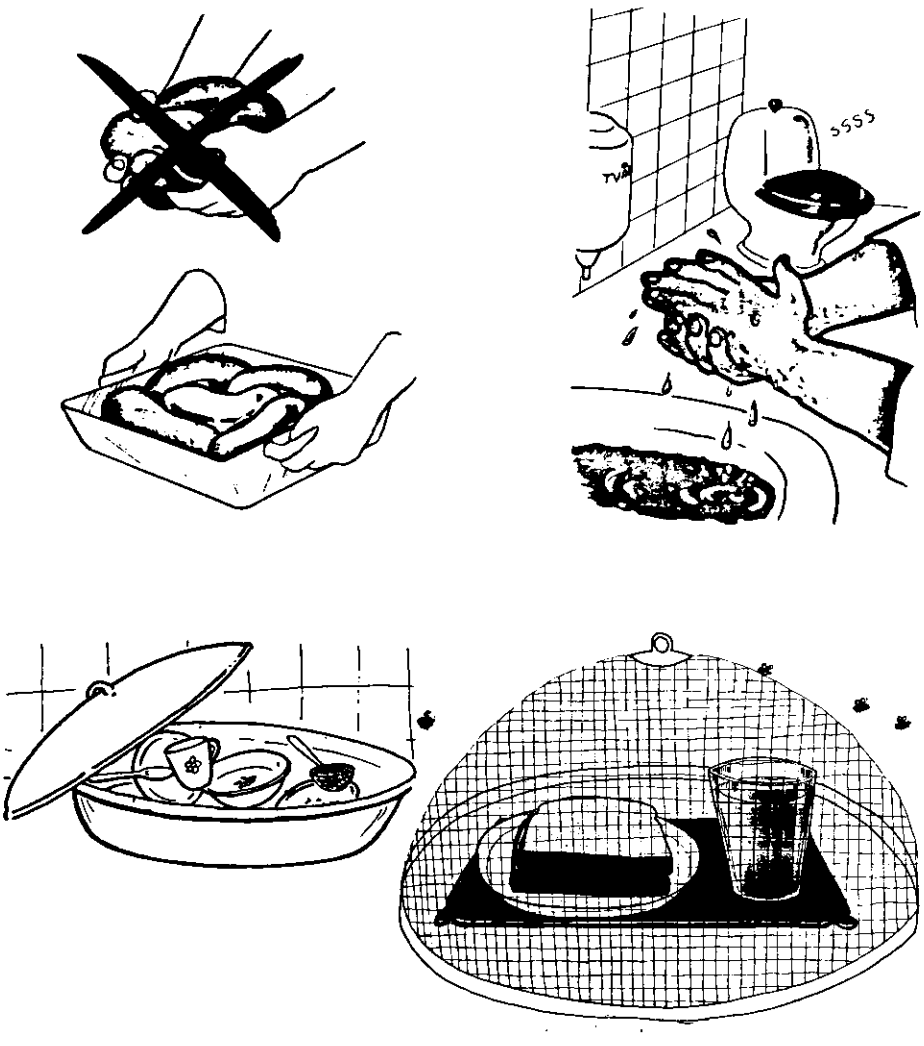
CARE OF UTENSILS AND EQUIPMENT

Cleaning is closely allied to a maintenance and care program since equipment functions better and is less likely to require frequent repairs. When purchasing new equipment, pay particular attention to ease of care and maintenance features. Cleaning and sanitizing procedures for most equipment are essentially the same as follows:

1. Use only clean cloths, sponges or brushes for wiping, scrubbing and/or rinsing equipment.
2. Unplug all electrical equipment before cleaning.
3. Dismantle and remove all detachable parts to the sink.
4. Scrub these detachable parts with hot, soapy water or detergent at about 49-55°C using a stiff brush to clean crevices and holes.
5. Sanitize the detachable parts by using:
   (a) clean, hot water (at 82°C for at least 30 seconds);
   (b) steam; or
   (c) a sanitizing chemical following instructions on the label.
6. Scrub parts which are not detachable (including tops and sides of large equipment) using hot, soapy water or detergent. Rinse well with clean water where permissible or wipe with a clean damp cloth or sponge. **DO NOT ALLOW ANY WATER TO GET INTO ELECTRIC MOTORS OR ON WIRES.**
7. Check relevant instruction manuals for specific care and cleaning procedures. Keep manuals in a safe place. **WRITTEN CLEANING INSTRUCTIONS SHOULD BE POSTED.**

Chapter 7

Food Safety



INTRODUCTION

Hospitals as well as other Food Service Institutions are expected to be safe places for many reasons. Three of these are:

1. They are responsible for the patients or other clientele.
2. They are responsible for the staff and employees who serve the patients or clientele.
3. They are responsible for the public who come as visitors.

Safety is essential for good client care, employee welfare and morale, and good public relations.

Food service workers may be exposed to more varied hazards than any group of employees. Food service is hazardous because dietary employees are handling machinery, dishes, glasses, containers, sharp instruments, hot liquids and hot cooking surfaces.

There can be no doubt that the high rate of injuries in this department is due, in part, to inadequate job instruction and supervision. All the staff must be educated and trained in safety consciousness and become aware of the causes of injury.

COMMON TYPES AND CAUSES OF INJURIES IN THE DIETARY DEPARTMENT

Injuries are caused either by `unsafe acts´ of a person, by `unsafe mechanical or physical conditions´, or by a combination of both.

The greatest proportion are caused by `unsafe acts´.

INJURY	CAUSES	
Falls	Acts	- Not looking where one is going or by daydreaming - Defective eyeglasses or clothing
	Conditions	- Broken steps or handrails - Inadequate lighting - Wet or slippery floors - Spills from food/grease - Garbage left on floor

INJURY	CAUSES		
Bumps, burns, cuts, scalds	Acts	-	Careless handling of equipment
	Conditions	-	Equipment kept in poor condition
Strains and back injuries	Acts	-	Lifting with back and abdominal muscles
		-	Lifting too much at once
Fire		-	Grease build-up on stoves, ovens, exhaust hoods
		-	Hot fat spilling into flame
		-	Smoking in restricted areas
		-	Gas escaping
Bumps, burns, cuts, scalds	Acts	-	Careless handling of equipment
		-	Using sharp tools without guards
		-	Chipped/broken glassware or china
	Conditions	-	Equipment kept in poor condition
		-	Wearing plastic aprons
		-	Holding hot pans with wet cloth
		-	Inattention, daydreaming
Strains and back injuries	Acts	-	Lifting with back and abdominal muscles
		-	Lifting too much at once

No matter how slight the injury may seem, always insist that the employee obtain medical attention.

The following information should serve as a safety reminder for the development of safer operations within each area of the food service department.

Receiving Area

Employees who work in this area are usually required to do some heavy lifting. They should be taught to **use the leg muscles rather than the back muscles for lifting to prevent strains.** (See pages 77-78.)

- Nails on crates can cause injuries and should be removed.

- Correct tools should be used for opening crates.
- Vegetable refuse should not be left lying on the ground as this is a hazard.

Storerooms

- It is important to have adequate storage space and ample strong shelving.
- Separate food items from cleaning items.
- Discourage climbing on shelves. Insist on the use of steps and safe ladders. Over-reaching should be avoided.
- Heavier and bulkier items should be stored on the lower shelves.
- Employees should be taught how to unpack fruits, vegetables and canned goods safely and there should be a place to put garbage.
- All containers should be properly labelled.
- Food containers should be kept covered except when in actual use or service.

Walk-In Refrigerators

The same principles apply here as for storerooms. However, there are other hazards.

- There is a danger of ice forming when foods are spilled.
- Safety releases on door latches are important so that no one will be locked inside.
- Door handles should be as flat to the door as possible.
- Refrigerators should be flush with the floor, i.e. no step up or down.

Food Preparation Areas

- Power operated machinery (including slicing, chopping and mixing machines) is a potential hazard and should be operated only by persons who have been trained to do so.
- Any machine with a revolving or moving knife should have a guard to prevent cuts.

- When cleaning equipment with knives, the power should be turned off, the plug pulled out, if possible, and the blade cleaned from the centre out.
- Permanent signs should be posted on or beside each piece of equipment listing these precautions.
- A wooden tamper rather than the fingers will prevent serious accidents when using the food chopper or meat grinder.
- Mixing bowls should be securely fastened to the base of the mixer and the machine should always be stopped before testing or moving the mixture in the bowl.
- Electrical equipment must be carefully maintained and particularly in wet areas, such as the vegetable preparation room, it must be properly grounded.

Knives

- Knives are a potential danger and should be kept as sharp as possible since it is generally recognized that dull knives cause more cuts than sharp ones.
- Anyone using knives should be taught to cut away from the body and also to pay very close attention to the safety of others working nearby.
- Knives should be properly stored in racks or separate drawers when not in use. Do not leave knives in the sink or where they cannot be easily seen.
- Remember knives are not can openers and should not be used as such.

Hoods

- Hoods are a potential fire hazard to the whole institution. Hoods take off steam and greasy vapours from stoves, grills and fryers. If they are not kept free of dust and grease, a small fire may occur.
- **Hoods filter pick up dust and grease so must be kept clean.**

Fryers and Steam Equipment

- Equipment or machines used in food preparation can be dangerous and should be carefully watched while in use. Never use any machines until you are trained in their use.

- Fryers should have a regularly tested thermostat and a top-limit temperature control.
- Tongs and baskets are necessary equipment for frying, hot fat and any wet foods should be put in slowly.
- It is wise to place the fryer at a distance from the cooking surfaces of the ranges to avoid danger of fire by splattering fat.
- The valves and taps for steam kettles should be easy to reach.
- The doors of steam cookers must be tightly closed before turning on the steam in order to prevent steam burns. When not in use, the doors should be left slightly ajar.

Ovens and Ranges

- Older stoves and ranges present many hazards.
- Oven doors should always be open before lighting gas stoves. Gas burners lit by matches or pieces of paper and gas burners turned on but not lit immediately, are dangerous.
- When cooking with water use small amounts only as this will minimize the danger from steam burns.
- When taking the cover from a pot, direct the steam away from you by holding the top or outer surface toward you and under, wet surface away from you. Use tightly fitting lids.
- Always turn the handles of pans away from the edge of the stove to avoid tippping. Oven mitts, pot holders or **dry** cloths should be used when handling hot utensils.
- Do not leave oven doors open. These can cause falls.
- Heavy roasting pans should be placed on lower racks of ovens as these can fall and cause injuries.
- Heavy pots should be handled by two persons to prevent strains.
- The use of plastic aprons should be discouraged.

Dishwashing Area

- Separate china, glassware and silver.
- Keep the floor area dry as falls and sprains can easily occur.

Floors

- Most accidents occur during rush periods when spilled liquids and grease and dropped food are not promptly cleaned up. **Wipe spills up immediately, to prevent falls.**
- Careful attention to the flow of traffic and the equipment layout can prevent collision.
- When cleaning an area, a portion should be left dry for people to walk, e.g., one half of a room can be cleaned lengthwise, and then the other half. Posting signs indicating wet areas is a good precaution.

China and Glassware

- Be careful when handling glasses and dishes.
- Discard chipped or cracked drinking glasses and china.
- Use a dustpan and brush to sweep up pieces of broken glass or china. Dampened paper should be used to clean up slivers of glass or china. Use a special container for broken pieces. Do not place in waste baskets or garbage or refuse cans.

Safe Clothing

- Wear a safe work shoe - a closed toe gives greater protection. Shoes should have low, flat heels and be kept in good repair. This provides proper balance and prevents slipping.
- Loose sleeves, ties or apron strings are unsafe when working with grinders, mixers, etc.
- No pens or jewellery should be worn as these might drop into the food or cause scratches.

Fire Prevention

- Smoking in the kitchen, is unsanitary and a fire hazard. It must be strictly forbidden.
- Accumulation of waste material may lead to combustion.
- It is important to train employees in fire fighting procedures. Small fire extinguishers should be placed in every kitchen, checked regularly, and each employee should be taught how to use them.

SAFETY TRAINING FOR EMPLOYEES

All employees should be trained in safety consciousness and become aware of the causes of accidents and how they can be prevented. Since nearly all accidents are considered preventable, a sound accident prevention program is necessary.

Employees must learn that every job involves hazards, which, if not put under control, can cause injury, illness or death. Every accident costs money, both the direct costs of medical expenses and the indirect costs of lost services.

Employees should report unsafe conditions and injury to the supervisor immediately.

Training Includes Influencing and Improving Attitudes, Knowledge and Skill of all Employees

ATTITUDE

Some persons think that accidents are inevitable and thus will do little about trying to prevent them. A poor attitude on the part of the employee towards safety can be a stumbling block whereas a favourable attitude is the first step towards making him safety conscious. The success of a safety training programme depends upon the active participation of all levels of the hospital staff.

KNOWLEDGE

Training to impart knowledge involves good common sense, a knowledge of the worker's vocabulary and the ability to be simple and clear in giving instructions. A worker should be given knowledge about unsafe acts in his job which may lead to accidents, unsafe conditions and known hazards, he should be told to **whom** to report unsafe conditions and **where** to report accidents to get medical attention.

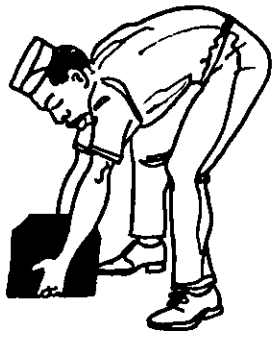
SKILL

Training in the mechanics of the job is best done on the job and by the supervisor. The proper job instruction training procedure should be used.

Lifting Objects

INCORRECT LIFTING TECHNIQUES

- Lifting with your back muscles, rather than your leg muscles may cause injury.



PROPER LIFTING TECHNIQUE

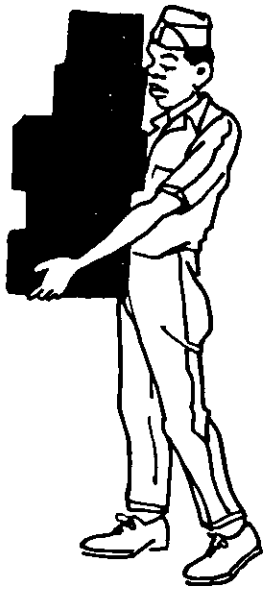
- Place your feet about a foot apart for good balance and a firm base.
- Squat close to the load, keeping your back as straight as possible.
- Grip the object firmly and lift by pushing up with your strong leg muscles. Hold the load close to your body as you rise.

Test the weight of the load or object to be lifted. With knees bent, try lifting a corner. If it feels too heavy:

- Get someone to help you
- Split the load - make two trips
- Get a hand-truck
- Tip it end for end
- Roll it
- Drag it
- `Jog´ it along on the corners

CARRYING

- Don't carry objects too heavy for you.
- Keep the load close to your body.
- Never carry loads that prevent you from seeing where you are going. Watch your step.
- Put down a load by bending hips and knees with your back straight and the load close to the body.
- If the load is too heavy - get help.



Accident Prevention

Accidents in the food service department can be prevented. In this part of your institution, the employee rather than the patient is the person who must guard against accidents. Instruct the employees in the correct use and care of equipment. Be certain that all equipment is in proper condition. Some of the sources of accidents and some preventive measures are listed below:

1. **Fire** - Fire could occur on top of the stove, in the oven, or in the broiler. Two preventives are clean equipment and proper cooking temperatures. Equipment that is clean will not have a residue of soil that can catch on fire. Proper cooking temperatures means that excessive flame or heat would not be used.

   Types of Fire

   Class A - Wood, clothing, paper

   Class B - Grease, oil

   Class C - Electrical

   A fire extinguisher with CO_2, a container with sand and a fire blanket should be available at all times. Staff should be trained in using extinguishers.

2. **Electrical Shock or Burn** - Correct use and placement and proper maintenance of electical equipment would prevent most of these accidents. Post the instructions for the correct use of the equipment where the employees can see them. Place the equipment in an area where there is no through traffic. Be sure that the equipment is in proper working condition. Caution the employees to dry their hands before using electrical equipment.

3. **Burns From Steam-Operated Equipment** - Burns received while using this type of equipment are usually the result of improper use of the equipment. Post the instructions for the correct use of the equipment where the employees can see them.

4. **Injury by Mechanical Equipment** - Carelessness or failure to use safety devices are frequently the cause of injury by mechanical equipment. Be sure the employees know and understand the proper operation of the equipment. Keep the equipment in proper working order by promptly correcting any defective parts.

5. **Back Strain Injury by Heavy Lifting** - Have a sufficient number of employees available to do any necessary lifting and carrying. Use suitable carts or dollies to move items that are heavy.

6. **Injury by Slipping on Wet Floors** - After the floors are wet mopped, dry them by using a clean dry mop. If anything is spilled on the floor, wipe it up immediately.

7. **Cuts From Knives or Other Sharp Kitchen Tools** - Cuts are frequently caused by using improperly sharpened or dull knives. They may also be caused by the employee cutting toward himself rather than away from himself. As with many accidents, cuts may occur when the employee is excessively tired.

Some accidents may occur to a patient in a hospital when food is served to him. To prevent accidents to the patient, be certain that:

1. The patient is in a position to receive his tray before it is brought to him.

2. The bedside stand is sturdy and in good condition.

3. The employees are careful in carrying the tray and in placing it before the patient.

Chapter 8

Supervision

INTRODUCTION

As a supervisor you are really the person in the middle. You are the arm of the owners or managers and they look to you to make sure that their operation runs smoothly, efficiently and profitably. Your subordinates look to you for guidance. They also expect you to look after their welfare. Sometimes the supervisor may even feel confused in trying to meet everyone's needs. In this chapter, we will examine some ways in which a supervisor may manage more effectively.

In their job, supervisors have to carry out three distinct activities - they have to:

1. Organize - make decisions and so on.
2. They have to carry out the technical parts of their job, i.e., make menus, test dishes, etc.
3. They have to carry out certain human relations activities, i.e., motivate, communicate, etc.

It is important that the supervisor tries to develop **all** three of these activities. Many supervisors are content with only being technically proficient but this will limit their opportunities for promotion. Research shows that as supervisors move up within an organization they need less of the technical skills and more of the conceptual and human relations skills. This Chapter is therefore dedicated to these two skills.

ORGANIZATIONAL SKILLS

In order to do a good job a supervisor must be able to:

- Plan
- Organize
- Coordinate
- Control

Plan

The supervisor should look at what needs to be achieved and determine how best to achieve this. He or she should look at the amount of time available, the number of employees available, their level of skill and experience in doing the task and the objectives that need to be met. The objectives should be expressed in simple language and should be measurable. As subordinates will be responsible for carrying out the plan, the

supervisor should spend some time explaining it to them and emphasizing each individual's part in making the plan a success.

Organize

When the plan is made the supervisor should break it down into a detailed organization of how it should be carried out. The supervisor must make sure that specific activities are given to individual employees and that they are properly trained in doing the job and have the right tools and equipment for the job.

Coordinate

Most jobs require that people work together to get it done. It is the supervisor's responsibility to make sure that the various people and departments, operate in harmony with one another without creating unnecessary conflict or even slowing down the activity of each other. Good coordination starts with a good plan.

Control

The supervisor must monitor activities to make sure that they are going according to plan. This means comparing what is actually being done to the goals and objectives set earlier. Over-control is a waste of the supervisor's time but failure to spot problems at an early stage may mean that they grow out of control. Generally the supervisor should set clear standards, ensure that employees understand these standards and have employees report to him or her immediately if there is a problem in meeting the standards. The supervisor should then need only to spot check from time to time. However when an employee is new to the task, the supervisor needs to do more controlling and checking.

Controlling also involves the recording of expenditures, employee times, food costs and so on. The supervisor should spend some time trying to determine the easiest and quickest way of getting the information needed for reports.

Direct

Good leadership skills can be learnt and developed through study and experience.

Finally, the most effective means of control is created when employees understand the need for control and are involved in controlling. The supervisor should therefore spend more time in explaining to employees what items, costs, etc., need to be controlled and make them accountable for control.

Time Management

A skill that every supervisor should try to develop is that of time management. A good time manager will do the following:

1. **Have a daily planner** - This lists all of the activities that have to be accomplished in a particular day and the times needed to accomplish each activity. The planner should not only include what the supervisor needs to do but also what subordinates should be doing. Activities should be put in priority in order to ensure that critical ones are accomplished first.

2. **Delegate** - Delegation means passing on some of your authority and duties to a subordinate. Delegation can be very successful in giving the supervisor more time to do other things, if subordinates are properly trained to do the job and are thoroughly briefed on what is expected. Many supervisors however are afraid of delegating because they fear that the job will not be properly done by their subordinates. To reduce the chance of the job being poorly done, the supervisor must remain available to the employee for consultation and should monitor the employee's progress.

   Employees are sometimes reluctant to accept delegated tasks because they lack confidence in their ability to do the job. The supervisor may overcome this problem by starting employees off with minor responsibilities and gradually increasing these as the employee gains confidence and skill. The supervisor should make a habit of delegating responsibility as it also helps to develop employees and prepares them for promotion. However, the supervisor must ensure that the duties are not merely tasks that he or she wishes to avoid but tasks that will develop new skills in the employee.

3. **Simplify tasks and reduce time wasters** - There are many activities that a supervisor does that can be done differently. One way of identifying such tasks is by keeping a **time log**. A time log is an hourly record of what you spend your day doing. An analysis of the log often reveals that you are spending a lot of time on activities that could either be eliminated, passed on to someone else or made simpler.

HUMAN RELATIONS SKILLS

A supervisor has to assume many roles in carrying out the job. A very important role is that of a leader.

The Supervisor As A Leader

A leader must get things done through other people. This can be done by force or threat but the most effective leader is one who can get people to do their tasks willingly and without close supervision. There are three different types of leaders:

1. ***The Autocratic Leader*** - This person keeps all the power and decision making to himself or herself and does not delegate to subordinates. Subordinates are kept dependent on the supervisor for instructions.

   This leader ties up his or her own time excessively in giving all the orders and tends to frustrate good employees who want an opportunity to show initiative. The autocratic style therefore should be only used when the employee is new to the job or task, or in an emergency when there is no time for discussion.

2. ***The Laissez-Faire Leader*** - This leader leaves the employees to make their own decisions without giving them sufficient guidance. This tends to frustrate and confuse employees and the job is therefore done poorly. A good leader always makes sure that employees are capable of making decisions before leaving them on their own.

3. ***The Democratic Leader*** - This person involves subordinates in making decisions and delegates to employees who are capable of handling the responsibility. Most employees prefer this style as it gives them an opportunity to express their opinion and to help them to develop new skills. However the democratic style is not suitable in an emergency or when employees are new to the task or job.

Which style is most effective? The laissez-faire style is of course the least effective. However there is no one style that is the best in all situations. A good leader will look at the situation and determine which style is the most appropriate. Your type or style should be influenced by the amount of time that you have available and the experience and willingness of your subordinates to become involved. Your goal is to have employees who can do a good job without your having to watch and instruct their every move.

The following are some guidelines that you should observe in trying to be a good leader:

1. Be able to do what you are asking your staff to do.

2. Know your self and seek improvement - be aware of your faults and try to correct them. Learn new and better methods of doing your job.

3. Set the example - people learn better by what you do than what you say.

4. Seek advice and criticism and use it to improve the job that you and your subordinates do.

TEST YOURSELF
ARE YOU A BOSS OR A LEADER?

A boss creates FEAR	--	A leader creates CONFIDENCE
A boss says "I"	--	A leader says "WE"
A boss fixes Blame	--	A leader fixes MISTAKES
A boss KNOWS how	--	A leader SHOWS how
A boss relies on AUTHORITY	--	A leader relies on COOPERATION
A boss DRIVES	--	A leader LEADS

No matter how good a supervisor is as a leader, however, he or she must still have employees who are able and willing to get the job done. Researchers believe that:

Performance = Motivation x Ability

Because these two are multiplied together, an employee who is highly motivated but does not have the ability cannot perform well and similarly if the employee has the ability but is not motivated then his or her performance will be low. It is therefore important that the supervisor concentrate on making sure that the employees under his or her command have both the motivation and the ability to do a good job.

A supervisor may try to enhance the employee's ability by training.

The Supervisor As A Trainer

Some people are born naturally quick or alert but even these people will need to be trained in order to perform to the organization's standards. Training is essential even with experienced employees as they may have learnt to do things in a way that is unsuitable to your organization.

What is training? Training is concerned with improving employees' performances in their present jobs. It helps them acquire the attitudes, skills and knowledge they need to carry out their present and future duties.

The supervisor constantly needs to train. The new employee needs to be trained into the standards of the organization. This type of training is called **orientation.** The more experienced employee may have to be reminded about how to perform tasks and this type

of training is called **coaching**. There are also times when the supervisor may want to change existing methods and will need to **retrain** employees.

It is important that a supervisor be able to determine the need for training in his or her department. Training not only needs to be done with new employees or when there are changes of methods. Training may also need to be done when employees are not performing effectively. **Some pointers that indicate a need for training are:**

1. Fall off in production.
2. A decrease in quality of product or service.
3. Increase in mistakes, accidents, breakages, etc.
4. Problems in meeting deadlines, quotas, etc.
5. Customer complaints.

It is important that when the above or any other problems occur, the supervisor tries to determine whether the problem is one that may be addressed by training, or whether some other intervention is needed. For example, production may fall because employees need training but production may also fall because equipment is faulty or employees are given a poorer quality raw material to work with. In the latter case, training, while generally always helpful, would not solve the problem.

Since the supervisor needs to do so much training it is therefore vital that he or she is skilled in training. A good trainer must:

1. Be very familiar with the subject material.
2. Know the skill level of trainees.
3. Be familiar with the various training methods.
4. Know ahead of time what the objectives of the training are.

Orientation

The new employee is often confused and anxious about his new job. He needs a smooth introduction to the organization, its goals and to his colleagues. **A good orientation will include the following:**

1. A tour of the facilities including the work area, rest room facilities, emergency exits, etc.

2. An introduction to co-workers as well as to others with whom the employee will be relating.

3. Discussion of the rules. The employee will probably react better if the reason for the rule is explained. The employee should also be given a written copy of the rules.

4. Explanation of policies, e.g. lunch breaks, sick leave, etc.

5. A thorough briefing in the operations of the organization. Although the employee will only be working in a small section of the organization, it is important that he or she understands how what they will be doing fits into the overall operation.

6. A thorough briefing on the employee's direct job responsibilities - even an experienced employee should go through this part of the orientation to make sure that he or she understands the organization's methods and expectations.

The new employee is generally very nervous and anxious and this may prevent him from learning quickly. The supervisor should therefore try to put the new employee at ease as quickly as possible. The supervisor should give instructions in short, easy to understand portions and should always accompany verbal instructions with written instructions that the employee may refer to when in doubt.

Procedure For Training

1. **Prepare for the Training** - Before the supervisor begins training it is important that adequate preparations be made. Preparation includes making the physical arrangements such as preparing a room, getting training materials ready, arranging employee schedules so that they are free to attend and so on. Sloppy arrangements create a bad impression on trainees and make the trainer appear very unprofessional. Also prepare the employees who are to be trained. Employees occasionally feel that they know all that they need to know about a particular task and may therefore be reluctant to attend training. In this case the supervisor may have to "sell" the employee on the training by pointing out how the employee will personally benefit.

2. **Training Methods** - One of the most efficient ways of training is by the **SHOW and TELL Method.** In this method the trainer shows the employee how to do the job while telling or explaining what is being done. In the second step the trainer allows the employee to tell what is to be done and in the third step the trainer allows the employee to do the job while the trainer observes. Once

the trainee has finished, the trainer should correct any mistakes and if necessary, demonstrate again. This method allows the trainee to retain what is being taught.

The supervisor should also strive to **vary his or her presentation** to make it more interesting to trainees. The incorporation of videos, films and even handouts will change the pace and hold listener's attention longer. Many people prefer the lecture method of training but research has shown that this is one of the least effective methods since it does not involve trainees and their retention is therefore low. **A method in which trainees are encouraged to actively participate, make comments and ask questions is much more effective.**

Role playing is a very effective method of allowing trainees to practise their new skills. Trainees are given specific roles or personalities and are given particular problems to solve or situations to work out. For example, in trying to train employees to handle complaints, an employee may be given the role of dealing with a customer who is dissatisfied with the quality of the meal. The employee's handling of the situation is observed by other trainees and the trainer and feedback is given at the end of the role play. Role playing is usually enjoyable to trainees but the supervisor must carefully prepare the roles so that they are similar to situations that the trainee is likely to encounter. The supervisor must also ensure that feedback is helpful and not merely critical.

Once the training is finished, **it is important that the employee gets an opportunity to practise as soon and as often as possible.** This will help to reinforce the training and will therefore help retention. The supervisor should observe the employee's performance on the job and make the necessary corrections.

Training involves several costs - the trainer's time, the employee's time and the cost of training materials. It is therefore important that the supervisor checks whether the training has achieved its objective. This may be done by asking trainees opinions on the effectiveness of the training and by observing their performance on the job after the training. The supervisor should carefully note these observations and use them in planning subsequent training programmes.

Coaching

Even when the supervisor has done a good job of training, it will be necessary for employees to be reminded of the correct way. Sometimes employees become careless or neglectful and the supervisor will have to coach them in the right method.

It is very important that coaching be done as soon as the supervisor notices that the standards are not being observed. If too much time elapses the employee may

become too accustomed to doing things the wrong way. Also others will observe the incorrect actions and may follow. The supervisor should therefore act quickly to prevent these problems. As soon as it is convenient, the supervisor should play the employee and demonstrate the correct way. The employee should then be asked to demonstrate his or her understanding of it.

Retraining

When new methods, equipment or technology are introduced, the supervisor will need to retrain employees. Retraining is sometimes difficult because employees may have become comfortable with the old way and are reluctant to relearn. Therefore before starting the retraining exercise the supervisor should set the stage by explaining and demonstrating to employees the benefit of the new method and its superiority over the old method. Whenever possible, the new method should be phased in so that employees can become comfortable with it. However, it is important that the supervisor sets a firm date for final implementation. If this is not done, employees may continue to hold onto the old method indefinitely.

The trainer should take into account employee's fears and insecurities and should, particularly with older employees, allow them to express their concern. Role playing is usually very effective in retraining, as with practice the new method becomes much more familiar and less frightening.

Are you a good trainer?

- Do you spend as much time in preparation as you do in instructing? Preparation involves learning and making arrangements for trainees to attend.
- Do you know the training objectives and do you share these with trainees at the start of training? People learn better when they are given a clear direction and goal. It also helps the trainer to prepare.
- Do you find out what the trainee already knows about the task? This prevents repetition.
- Do you make the learning process as close to the real thing as possible? When realistic conditions are used trainees are better able to relate to the material and transfer their new knowledge to the job.
- Do you recognize that people learn at different rates and adjust your training to fit in with their levels? The learning curve means that people are at

different stages and it is sometimes necessary to slow down to allow them to catch up.

- Do you try to involve all of the senses? People learn more and find the training more interesting when they are using multiple sense e.g. hearing, seeing, touching.

- Do you allow trainees to ask questions? This keeps trainees involved and helps you to check understanding.

There are times when the supervisor may wish to involve experienced employees in the training process. This may happen when a new employee joins the staff. The main advantage of this is that it helps to develop other employees but it also eases the burden on the supervisor. However, before allowing one employee to train another, the supervisor must make sure that the employee selected as a trainer is performing at the required standard and is willing to teach someone else. It is also important that the chosen employee has a positive attitude to the job and will pass on the right values to the other employee. The supervisor must also monitor the process to ensure that the new employee is learning all aspects of the job and is not merely being given routine tasks to do.

Once the supervisor has made sure that employees have the ability to do the job, it is necessary to try to ensure that an employee is motivated to do the job.

The Supervisor As A Motivating Force

An employee's quality of work, initiative and interest in the job increase when he or she is motivated. **Motivation is the drive within a person to achieve a goal.** People are motivated to fill certain needs in their lives and will therefore perform well when they think that a good performance will allow them to obtain their needs.

What sorts of needs do people have? Many people believe that paying employees a good wage is enough motivation but a recent Caribbean study showed that workers valued opportunities for training and advancement more highly than they valued money. Other studies show that most people also value other things such as:

- Security in their jobs
- Good relationships with their supervisors and co-workers
- Recognition for their efforts
- Respect of their supervisors and co-workers
- The chance to use their initiative and to be responsible for something
- Challenge

Researchers have also found that **the job itself can be a motivating force.** Many jobs are routine and boring and as a result employees dislike performing them.

The supervisor should try to ensure that the employee has some control over how a job is done; that there is opportunity for him/her to use different skills; that the job is challenging and that he recognizes that what he is doing is important to the organization.

Another way of adding some interest to the job is by **job rotation.** Job rotation means giving employees different jobs on a temporary basis. This gives them an opportunity to learn new tasks and gives the supervisor some reassurance that others in the department can replace missing employees in an emergency. Job rotation also gives employees a better appreciation for the jobs of their colleagues and may therefore improve relationships on the job.

Sometimes even when the employee is motivated and trained to do the job, he or she may not be able to perform at maximum because of the way the job is organized. The supervisor should attempt to determine whether the job is currently being done in the most efficient way and make the necessary changes. When a job is inefficiently organized there may be:

- Wasted materials leading to higher costs of production
- Wasted human energy leading to unnecessary fatigue
- Accidents because of unsafe practices
- Wasted time

The supervisor should therefore study each job to make sure that it is organized in the most efficient way. One way of doing this is as follows:

1. Inform employees that a **study on the job** and not on them will be conducted. If employees are not prepared they may deliberately perform differently from normal and results will be inaccurate.

2. Observe the job being performed - it is better to observe it over a period of time and as performed by different employees as this will give a more balanced picture.

3. Record the observations asking the what, why, where, when, who and how of the job.

   WHAT - What is done?
   - What actually does this step do?

WHY
- Why is this step necessary?
- Could as good a result be obtained without it or, is it an absolute must?

WHERE
- Where should it be done?
- Could it be done with less time and transportation by changing the location of employees or equipment?

WHEN
- When should this step be done?
- Is it done in the right sequence?
- Could it be combined?

WHO
- Who should do the job?
- What sorts of qualifications are needed for the job?

HOW
- How is the job being done?
- Could it be done better with different equipment or different layout?

4. Once the job is looked at as it is currently being done the supervisor should, along with a team of others, try to determine what changes would make the job more efficient. It is better to use a team approach because the ideas of many people are often superior to those of one individual. It also helps to involve others in the process as they will generally be more willing to accept the changes.

5. The supervisor should record the changes and retrain employees. The supervisor should also monitor the new method to see whether it is working efficiently.

The Supervisor As A Disciplinarian

The supervisor is responsible for making sure that employees follow the rules and policies laid down. This starts with informing employees ahead of time of the rules and policies. The supervisor may re-emphasize these in meetings and by posting notices. When employees break the policies or rules, it is the supervisor's responsibility to respond by administering discipline.

The goal of discipline is not merely to punish an employee but also to try and ensure that the rules are followed for the safety of other workers and to make sure that the work proceeds smoothly and efficiently. If discipline is administered unfairly employees may resent the supervisor and create problems in the department. One researcher likens the disciplinary process to a hot stove:

1. **The hot stove is immediate**

   As soon as it is touched, it burns. The supervisor should act as soon as the rule is broken. Delay may give employees the impression that the incorrect action is condoned.

2. **The hot stove is impartial**

   It burns everyone who touches it. Similarly the supervisor should discipline **everyone** who breaks a rule. Any impression of favouritism breeds resentment and makes it difficult for the supervisor to discipline in the future.

3. **The hot stove is consistent**

   It burns **every time** that it is touched. The supervisor should discipline every time that a rule is broken. When a supervisor disciplines erratically he confuses his employees and loses credibility with them.

4. **The hot stove gives warning**

   A hot stove glows red to indicate that it is hot. The supervisor should warn employees of the seriousness of the rule and remind them of penalties for breaking it.

The supervisor should however try not to embarrass employees by disciplining them in public. Although the supervisor should act promptly he should also give the employee an opportunity to explain his or her actions. This also ensures that the supervisor has all of the facts. The supervisor should also be familiar with the penalties for breaking the rules and stick to these.

The Supervisor As An Appraiser

Some supervisors are very ready to administer discipline but seldom give their employees any positive feedback on their performance. **Employees need to know what they are doing right as well as what they are doing wrong.** Most organizations have a formal performance appraisal system in which the employee's performance is assessed at least anually. Although this is very important it is too infrequent to be of real use to the employee. An employee needs constant feedback on his or her performance. This feedback will help employees to adjust their performance in line with what the supervisor expects or tells them to continue what they are currently doing. The supervisor should therefore make a point of telling employees frequently when they are doing a good job or conversely when they are doing a poor job. The feedback should be given as close to the particular incident of good or bad performance as possible. In this way the employee is

better able to remember and relate to the incident. As a rule, **praise should be given in public but negative feedback should be given in private.**

When giving negative feedback the supervisor should be very aware of the employee's feelings and should try to make sure that criticism does not destroy the employee's self-esteem but acts as a guideline for improvement. Some researchers suggest using **the sandwich approach for giving negative feedback.** In the sandwich approach the employee is first congratulated on some aspect of his performance. He or she is then told of the particular problem and of the consequences of the problem. The supervisor may discuss with the employee ways in which the performance may be improved. Then the supervisor ends the discussion by encouraging the employee to continue doing a good job. The sandwich is thus made up of:

<positive feedback - negative feedback - positive feedback>

Remember that a performance feedback session should answer two questions of concern to the employee.

- How am I doing?
- What should I do in the future?

Summary

1. **The supervisor's job requires organizational and human relations skills.** The supervisor must ensure that both sets of skills are developed as they are crucial to organizational and personal success. The supervisor's skills include planning, organizing, coordinating and controlling the activities of staff. Good time management will help the supervisor to ensure that all activities are completed on time.

2. The supervisor must use human relations skills in leading, training, motivating, disciplining and appraising employees. As a leader the supervisor tries to get an effective job done willingly through employees. The leader has a choice of an autocratic and a democratic style and must adjust his or her style to the particular circumstances.

3. Training helps to improve the employee's performance and the supervisor must be very sensitive to the signs that indicate a need for training as well as the most effective methods of training.

4. Even a well trained employee may not perform well if he or she lacks motivation to do the job and it is the supervisor's responsibility to try to determine individual employee's needs and to try and meet those needs. The supervisor should also try to make the job an interesting, challenging one as the job may also be a motivating force.

5. Employees need feedback in order to perform effectively and the supervisor should attempt to give both negative and positive feedback at regular intervals.

6. The supervisor must make sure that staff adhere to all rules and policies and must administer discipline when these are broken.

7. To be effective, discipline should be administered in a fair, consistent manner in a way that will correct and not merely punish the employee.

REVIEW CASES AND QUESTIONS

1. Time Management

Read the following case study and determine what time wasters exist. Recommend changes to the schedule which will more effectively use the time available.

Leroy Sampson was the supervisor of the morning shift at a small canteen. At his last performance appraisal Leroy's boss had admonished him for the continued lateness of lunch. At least twice per week lunch was late and this created great problems with customers on a tight schedule. Leroy himself was frustrated because he felt that he worked extremely hard but was unable to get the work completed on time. His boss suggested that Leroy record his daily activities. Leroy prepared the following schedule:

7:00 a.m.	-	Arrive at work - open up. Prepare lunch menu
7:30 a.m.	-	Workers arrive and are given instructions and duties.
8:00 a.m.	-	Go to market to get fresh fruit and vegetables

9:00 a.m.	-	Tally previous day's cash and make up bank remittance. Take funds to bank. (On Thursdays Leroy also does the payroll which takes about an hour and a half.)
10:00 a.m.	-	Prepare report on previous day's sale. Work out food cost Prepare bills for payment
11:00 a.m.	-	Supervise final preparations for lunch
12:00-2:30 p.m.	-	Open for lunch
2:30-3:30 p.m.	-	Clean up and close canteen

N.B. Throughout the morning Leroy interrupts his schedule to speak to wholesalers who either drop in or telephone. He also takes telephone inquiries about catering for functions, etc.

SUGGESTED ANSWER

Leroy is not spending enough time supervising and therefore his workers do not have the proper guidance that they need to meet the schedule. Leroy first needs to delegate and reorganize some of his responsibilities.

Some possibilities:

- Either arrange for a supplier of fruit and vegetables or send someone else to do the marketing.
- Use a cyclical menu
- Do the reports and bank transactions at the end of the day instead of the following day.
- Discourage wholesalers from dropping in. Instead encourage them to make appointments and prepare orders for them ahead of time.
- Appoint one of the employees to act as an Assistant Supervisor or rotate this responsibility among the more senior employees.

The above suggestions should give Leroy more time to spend on the floor supervising his employees and ensure that the work is completed even when he is busy.

He should monitor the progress of employees throughout the shift and not wait until the hour just before lunch.

2. Leadership

A good leader is familiar with the different leadership styles and will use them when most appropriate. In your own words describe:

(a) The Autocratic Leader

_____

_____

(b) The Laissez-Faire Leader

_____

_____

(c) The Democratic Leader

_____

_____

In the following situations which style would be most appropriate?

(a) You are asked to cater for a VIP function. Many of the dishes are new to you and to your employees. [ ]

(b) You supervise a team of 12 employees. All except 2 have worked with you for at least two years and are quite skilled. [ ]

(c) The owners have obtained a bank loan to reorganize the kitchen and at the same time they want to reorganize the way that work is currently being done. [ ]

SUGGESTED ANSWERS

An autocratic style would be the most suitable style for (a) since the task is of such a critical nature and employees are unfamiliar with it. In situation (b) a democratic style would be most effective since the employees are skilled and might resent an autocratic style. A democratic style would also be appropriate for situation (c) since the decision will affect the employees. If they are involved they may produce better ideas but they may also accept the final decision more readily if they have been involved.

3. Motivation

Employees do not merely work for money. List some of the other factors which are important to people.

(a) _____

(b) _____

(c) _____

(d) _____

(e) _____

(f) _____

For each factor describe what you would do to make sure that you fill that particular value or need.

4. The Job

The job itself may be an important source of motivation. Employees prefer jobs that are:

(a) _____

(b) _____

(c) _____

For each of the following jobs describe how you would try and make it more motivating.

(a) A dish washer in a restaurant kitchen

(b) A cashier in a take out restaurant

(c) Counter clerk in a cafeteria

SUGGESTED ANSWER

Employees prefer jobs that are meaningful, challenging and allow for the use of a variety of skills.

The dish washer may be given the opportunity to learn another skill in slack times. The supervisor could also make clear to him or her the importance of their job and provide some targets e.g. reduce the number of dishes broken, chipped, etc. The cashier in a take out restaurant could also be given the opportunity to learn another skill and could be given

the challenging job of trying to increase sales by suggesting additional items to customers. The counter clerk could be given the opportunity to learn other skills as well as being given targets to increase the quality of service or number of people served.

5. Discipline

Discipline is not meant only to punish employees but also to ensure that rules and policies are followed. What are the factors that a supervisor should bear in mind when disciplining an employee?

(a) _____

(b) _____

(c) _____

(d) _____

(e) _____

(f) _____

Which of the above factors has the supervisor in the following case study ignored? What should the supervisor do now?

> June Jackson was in charge of a staff of eight on the 2:00-10:00 p.m. shift. Her major problem was late-coming by employees as on any given day at least half of the employees arrived at work between 10 and 30 minutes late. June finally decided to lay down the law and one Friday afternoon stationed herself at the entrance. Ada White, a cook who had been with the company for the past two and a half years, arrived an **uncharacteristic** 25 minutes late. June immediately pounced on her and told her to return home without working. She refused to listen to White's explanation and locked the entrance door to prevent her from entering. Half an hour later June received a call from her supervisor Rita Henry. Henry reported that White had come to her office in tears complaining that June had embarrassed her in front of the entire staff for no reason. Henry felt that White had a valid explanation for her lateness and that she should be allowed to work. She also expressed her displeasure with June's handling of the situation and recommended that she find some other method of dealing with the problem of lateness.

SUGGESTED ANSWER

The supervisor should act in a way that is consistent, impartial, immediate. He or she should also give the employee warning, discipline in private and allow the employee an opportunity to explain his or her actions.

Jackson has not been consistent in applying discipline. Neither has she given any warning. By trying to make an example out of one employee she has acted unfairly. She has embarrassed the employee and has not given her an opportunity to explain her actions.

Jackson has to allow Ada White to work since she has a valid excuse. However, as soon as possible, she should remind all employees of the rules about lateness and of the penalties for continued late-coming. If employees continue to come to work late, she should discipline them according to the "hot stove" and other policies.

6. Training

Training helps to upgrade the quantity and quality of production and ultimately makes the supervisor's job easier. The supervisor needs to be able to determine when training is needed and should be skilled in various training methods.

For each of the following situations indicate whether or not training is appropriate and, if so, what type of training should be used. If you do not recommend training, what would you suggest instead.

(a) The supervisor notices that counter clerks are taking about three and a half minutes to serve each meal. The standard set by management is two minutes.

(b) Two employees are being transferred from another branch of the organization. They have both been with the organization for eighteen months.

(c) A cashier who used to perform quite satisfactorily has started to make a lot of errors and has problems balancing at the end of her shift. A new cash register has recently been installed.

(d) Management has decided to extend opening hours and serve breakfast as well as lunch. Most of the staff have previous experience in preparing and serving breakfast elsewhere.

(e) Customer complaints have doubled in the past month.

SUGGESTED ANSWERS

In situation (a), the slow service may be resolved by training. However, before starting to train, the supervisor should check to see whether the slow down in service has been caused by other factors. A job analysis should be done to determine whether the most efficient method is being used. If training is indicated, the supervisor should practise role playing.

In situation (b), the new employees should definitely be trained. Even though they have been with the same organization they may have been instructed to use different methods. The supervisor should however determine what they already know before starting to train. They may be paired with good employees who are familiar with the task. Orientation is also needed.

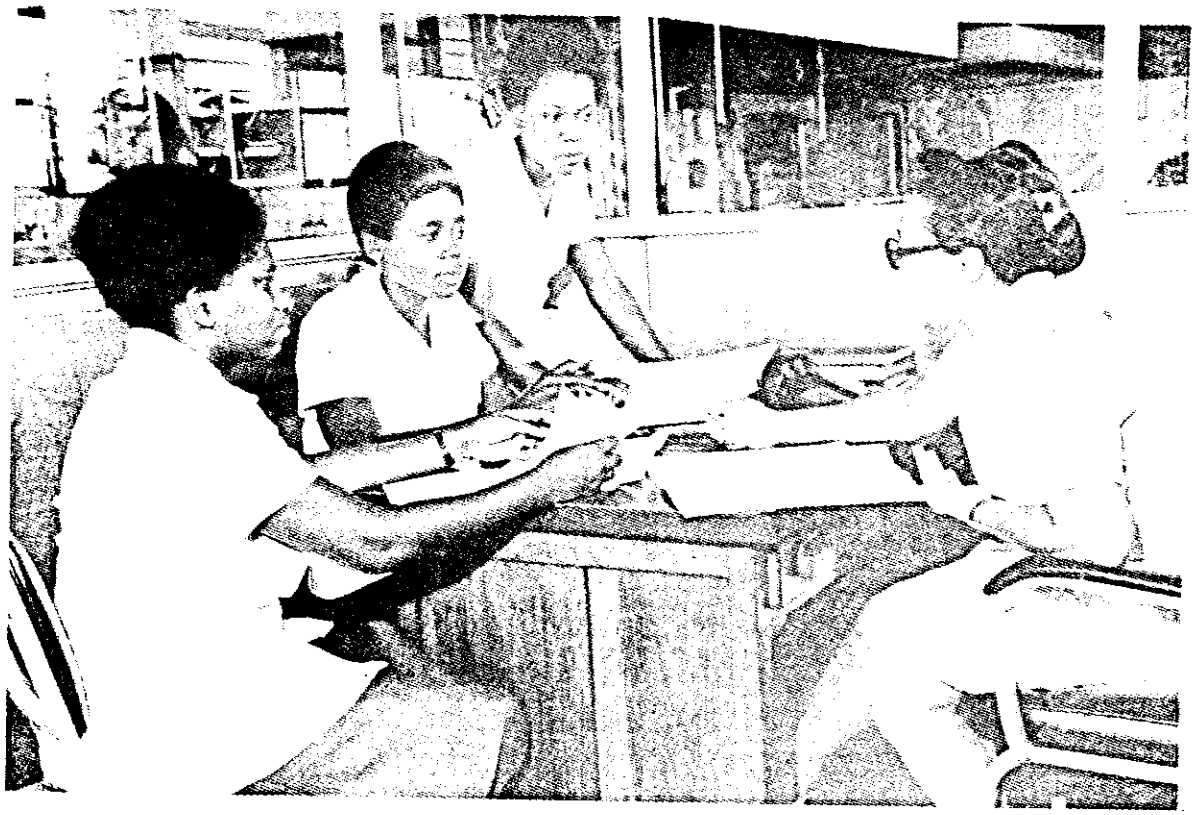
In situation (c), investigation is also needed before the supervisor can determine whether or not training is needed and if it is, the type of training. The employee may need training to operate the new cash register, the cash register may be unsuitable or may need adjustment or perhaps the method being used by the cashier is incompatible with the new register. The "tell-show" approach would be very effective.

In situation (d), training is indicated even though employees are familiar with breakfast service. The supervisor needs to train them in preparing according to the standards of the organization. The "tell-show" approach is appropriate.

In situation (e) as in situation (c), investigation is needed, before training can be conducted. Customer complaints may be caused by any number of factors including faulty equipment, a poor system, etc. If training is indicated then the role play method would be the most effective.

Chapter 9

Communication



INTRODUCTION

What does the word communication mean to you? Perhaps sending a telegram when a relative is ill or telephoning a friend when you have heard some news. These are both examples of communication. A definition of communication might be the passing back and forth of thoughts, facts, ideas and opinions between two or more people.

One of your most common tasks is to communicate with people around you and unless you do this effectively so that others understand the thoughts, facts, ideas and opinions you are passing on to them, and, so that you understand what others pass on to you, you may fail to be a successful supervisor.

This chapter emphasizes some of the better methods of making effective communication work for you as you undertake your daily responsibilities as a food supervisor.

The **four basic essentials of good communication** are:

1. The communicator
2. A medium for transmitting the message, e.g. the written word
3. The message
4. The receiver of the message

However, these four are not quite enough for efficient, effective communication. The end result of all communication should be action or `doing´.

In any interchange of thoughts or ideas, a great deal of responsibility rests with the person sending the message....the communicator. He or she must first explain the purpose of the message and present it in terms which the receiver will understand. He must choose carefully the medium for transmitting the message....should it be spoken, or written, or demonstrated. Of course, the message must have interest and appeal to the intended receiver.

The receiver must be ready to receive the message and also ready to understand and interpret it and put it to work so that you (as a food supervisor) realize your goal.

This may sound complicated and not easy to put into practice but it can be done. When it is, it can both avoid and solve many problems that you and everyone else face on jobs each day.

Effective Communication is at least a two-way process. You, the food supervisor, will often be on one end of the line. At the other end may be your employees, clients or your immediate supervisor. Every communication, whether it be an order, a new employee's job instruction sheet or a new recipe, must be accepted, understood and translated into action by the receiver. The receiver must let you know that the message has been received. Only then will you know that you have been an effective communicator.

Communication can work in three different directions:

1. Downward - To those under our supervision whom we must instruct and persuade to do a job for us.
2. Upward - To those who supervise us and for whom we are doing a job, and to whom we must report our actions and progress.
3. Across - To those in our own department and in other departments with whom we must work and cooperate to provide the best possible service and satisfaction to clients.

Each person has certain basic skills that enable him or her to communicate....and thus get a job done. If these skills are used well the department should run smoothly. The person in charge of the department must also use his own skills effectively and see that his employees are making full use of theirs.

BASIC SKILLS IN COMMUNICATION

Seven basic skills are necessary for effective and successful communication. They are:

1. Thinking
2. Doing
3. Observing
4. Talking
5. Listening
6. Writing
7. Reading

It is the successful combination of several of these skills which often determines success as a supervisor. A successful supervisor spends most of his time communica-

ting...interviewing a new cook...ordering next week's meat...investigating a complaint. In all of these he is making use of his communication skills. Failure to use the right skill at the right time may cause mistakes costing time and money...and goodwill! For example: A new piece of equipment has been installed and you are supposed to provide the operator with instructions for running it. But you are busy and you do not get around to it for a couple of days. In the meantime, the operator experiments but the equipment does not seem to work right. He becomes disgruntled...there are many complaints. Finally the maintenance man has to be called. This has wasted valuable time for you, for your employees and for the maintenance man and has caused general ill-will in the department...all because of poor communication.

Let's examine the seven basic skills of communication and find out how they can work for you.

Thinking

How much time each day do you spend `just thinking´? Some people would say, "I don't have time for that...I have too much to do!" But, to talk or write, you must first think of something to say!

You would not consider going to visit a patient on a therapeutic diet without careful thought and preparation first. Yet sometimes you may find yourself answering the telephone, writing letters, conducting interviews or preparing staff memos without first allowing yourself time to think and prepare for these situations...so that your message gets across more effectively.

The receiver must also think and you may sometimes be the receiver. Thinking will help you understand and interpret the message so that you can answer it and take the necessary action suggested by it.

There are **two kinds of thinking.** The first is **logical thinking which simply means examining carefully all the facts which apply to a situation...and from them, drawing a logical conclusion.** Learn to distinguish between proven facts and opinions (which are personal judgements or feelings and should not influence your honest appraisal). The second is **creative thinking** and it is much more difficult to define. **It is often referred to as perception or intuition or imagination or sensation.** It is your ability to arrive at unusual solutions to ordinary problems which confront you on your job, each day. This is the type of thinking which produces great inventions. We can learn to think creatively. It is not necessarily the result of education and it should be encouraged among all your employees. Present your staff with a problem and ask them to suggest a solution!

Thinking is a skill and it can help you to communicate successfully.

Doing

It is often said that "action speaks louder than words". Many activities and job operations must be demonstrated...so that they can be observed and learned by imitation and practise.

This must be carefully done. The actions must be clear and significant, so that the right meaning is put into the message you are trying to get across. The person who is doing the demonstrating, then, must be skilled at that job.

The gestures we use when we talk are examples of communicating by doing. When you shake your head negatively...throw up your hands in disgust...or when your face lights up with enthusiasm...you are helping to get the message across. **Meaning will be picked up from both our conscious and our unconscious actions.**

We can also convey a message by not doing. In other words, **participation is a form of communication.**

The timing of your `doing´ is important too. Show the new worker all the details of the job the first day and not several days later when trial and error have caused discouragement.

Observing

We can make observations in many ways...by seeing, hearing, smelling, tasting and touching. These are the human body's main senses. But for effective communication we should also learn to observe with our brain.

To observe more accurately and completely, we, first, must always be alert. Try to develop the five basic senses to increase perception. We must cultivate a good memory...especially for unusual happenings or characteristics.

Very few decisions can be made without all forms of observation. This will help us to divide the routine things that happen on the job, from the unusual happenings which might indicate laxity, carelessness, wrong job instruction or merely lack of understanding.

When you observe, you actually gather facts and perhaps write them down or just remember them. But be careful when you interpret these facts. Too many of us tend to interpret facts the way we want them to appear. When interviewing a new cook, for example, look at his or her past record and listen to his/her evaluation of himself/herself and observe his/her present appearance and attitude. **Don't jump to hasty conclusions. Be observant!**

Talking

This is probably the most familiar communication skill and the way most people communicate with one another.

A few simple rules will help you to use this skill more effectively:

1. Talk with people, not to them.
2. In a group, draw everyone into the coversation. Keep the conversation within the general understanding of everyone present.
3. Do not interrupt and do not try to be an 'over-topper' (always the person with a better story).
4. Be constructive and objective in your attitude. Always start a conversation with points of agreement. Instead of criticism, try to find why and how to correct an apparent mistake. Avoid quibbling. Have good talking manners for better human relations.
5. Watch your listener's facial expressions.
6. Get acquainted with employees by talking with them. Make them feel at home...and make them feel needed and appreciated.

SPECIAL TALKING SITUATIONS

Talking to Teach or Instruct

If your teaching (not necessarily formal classroom teaching but also telling people how things should be done and why) is clear and effective, the future work of that particular employee or group of employees will be more effective and your department will run more smoothly.

Try to put yourself in the worker's place so that he or she understands your 'talking'. The **four main steps in the teaching of a new employee** are:

1. Explain the job fully.
2. Demonstrate how it should be done (perhaps by another employee under your supervision).
3. Let the new employee try to duplicate the job.
4. Inspect and appraise his efforts and discuss them with him.

Talking to Handle Problems

When you must deal with complaints, correct mistakes or reprimand an employee, talking is your only reasonable and effective communication tool. You must:

1. Be easy to approach and talk to.
2. Try to reach employees to learn from mistakes, as well as to correct them; i.e., be more severe with criticism if a mistake is made a second or third time.
3. Be sure to hear all the facts.
4. Remain calm, cool and collected throughout any discussion.
5. Take time, once you have all the facts, to think about them and then act promptly.
6. Make reprimands or corrections in private.

The Interview

Conducting an interview is one of your most important working tools. It is used when hiring, counselling, evaluating or disciplining and your purpose in this is to direct the other person to useful action. To be successful:

1. Put the other person at ease. Meet him or her on his/her level.
2. Do not interrupt...always let the other person have his or her say.
3. Do not distract yourself or the other person by going on with desk work.
4. Do not argue...and do not bother to correct minor inaccuracies that have no bearing on the present discussion.
5. Do not try to tell the other person what to say by putting words into his mouth.
6. At the conclusion of the interview, try to reach some decision.

Telephoning

How are your telephone manners? It is unfortunate that more people do not realize how readily their telephone behaviour reflects on them and their department or institution. Some rules of etiquette:

1. Identify yourself when you make or answer a call.
2. Speak in your natural voice...and close to the mouth piece.
3. Make your conversation brief.

Remember that the telephone manners of every employee in your department reflects on the department as a whole.

Listening

The ability to listen is a valuable skill in any supervisory position. Some people listen but do not hear. Although talking may account for about 90% of our communication in any one day, a great deal of what we say is not listened to. Why?

Perhaps we are not aware of all the physical barriers to listening...temperature of the room, noise, amount of light, fatigue or illness and defective hearing.

Mental barriers are not always so obvious...indifference or lack of proper attitude, impatience, prejudice, either for or against the suggested action or theory, preoccupation, misuse of words.

To become a better listener, first take time to listen. Then listen for facts and information and for complaints. And do not make the mistake of listening too much! It is a skill and should not become a bad habit.

Writing

This method of transferring a message from one person to another is used much less often than talking, but is extremely important. Writing does one of three things:

1. Confirms what we say when we talk or think.
2. Verifies what we have observed or listened to, read or discussed.
3. Defines our orders, transactions, standards and objectives.

What you write is permanent.

Many write without ever thinking of the reader. These points will help to keep him in mind:

1. **Know and visualize your audience.** Write in a language they will understand. For a large group, use the simpliest language so that your message will be understood by all.

2. **Organize your thoughts before writing.**

3. **Try to put yourself in the reader's place.** Ask yourself...are you stating your message to him or her? Have you given enough facts? Will they be interpreted as you want them to be?

4. **Use plain, everyday language, short sentences and brief paragraphs.**

5. **Be positive in your writing.** Avoid the words `not' and `don't' and `can't' as often as possible.

6. Use personal pronouns and active verbs to make your writing meaningful.

Simple effective writing is not only easy to understand...it is difficult to misunderstand!

SPECIAL WRITING SITUATIONS

As a food supervisor, these are types of writing you will use often.

Letter Writing

This is a special skill which must be developed. To write better letters:

1. **Know what you are writing about.** If in doubt, find out first.

2. **Write to someone...not merely about something.** Be natural and write as you would talk. Emphasize the `you' rather than the `I' or the `it'.

3. **Be brief.** This means a clear message and encourages a prompt reply from your reader.

4. **Be positive.** Do not make excuses. Be honest.

5. **Pay particular attention to your opening sentence and your closing paragraph.** Both should be related to the subject of the letter...the first stating the subject and purpose; the last summarizing and concluding and perhaps making suggestions for action based on that conclusion.

Report Writing

The word 'report' means 'to carry back'. The report is usually an orderly, factual account of work done...or facts and details found when some matter has been investigated. Usually a report contains suggestions for action or changes in policy. Reports can appear in many different forms and lengths and for many different reasons. Some rules for good report writing:

1. Think about the report and write down a brief plan of what you intend to include in it. This clarifies the project in your mind.
2. Collect all information pertaining to the report.
3. Organize and sort the information and make a fuller outline as you go along.
4. Using your outline, write a rough draft of the complete report. Do all this at one sitting so that your train of thought is not interrupted.
5. Revise and rewrite the draft...making it concise, logical and easy to read.

The form of the report is important too. Always give your summary first. It is not the conclusion, but only says why it is written and what suggestions it contains. The timing is important. The report is successful if it gives information which is not easily obtained elsewhere and which tells about something important in your work right now!

Memos

In every institution, work instructions, notices of activities, new rules and regulations are communicated to employees by written or printed memos...either handed to the person or posted on the bulletin board. When writing memos:

1. Keep the rules of good writing in mind.
2. Visualize your audience.
3. Make it brief and factual and clear.
4. Write in simple words and short sentences.

5. Keep it up to date.

6. Keep in mind the action you want as a result of it.

7. Date it and sign it!

Reading

In any job where knowledge of a special subject is necessary, reading is an important method of training and keeping up to date. We can develop our reading skills. A survey has shown that the average man is a reading 'cripple'. He reads about 250 words per minute and understands only 75% of what he has read. If he could double this rate of reading and remember more, he could save time and still learn more.

Experts say that there are ways to learn to read more quickly and effectively. Most involve practise but here is one skill where practise makes perfect. Unless you read, many of your other communication skills will be more difficult to use or to achieve. You cannot carry on your job as successfully without effective reading.

TEN COMMANDMENTS OF GOOD COMMUNICATION

Seek to Clarify Your Ideas Before Communicating

The more systematically we analyze the problem or idea to be communicated, the clearer it becomes. This is the first step toward effective communication. Much communication fails because of inadequate planning. Good planning must consider the goals and attitudes of those who will receive the communication and those who will be affected by it.

Examine the True Purpose of Each Communication

Before you communicate, ask yourself what you really want to accomplish with your message - **obtain information, initiate action, change another person's attitude.** Identify your most important goal and then adapt your language, tone and total approach to serve that specific objective. Don't try to accomplish too much with each communication. **The sharper the focus of your message, the greater its chances of success.**

Consider the Total Physical and Human Setting Whenever you Communicate

Meaning and intent are conveyed by more than words alone. Many other factors influence the overall impact of a communication, and the manager must be sensitive to the total setting in which he communicates. Consider, for example:

1. **Your sense of timing** - the circumstances under which you make an announcement or render a decision.

2. **The physical setting** - whether you communicate in private, for example, or otherwise.

3. **The social climate** that pervades work relationships within the company or a department and sets the tone of its communications.

4. **Custom and past practise** - the degree to which your communication conforms, or departs from the expectations of your audience.

Be constantly aware of the total setting in which you communicate. Like all living things, communication must be capable of adapting to its environment.

Consult with Others, When Appropriate, in Planning Communication Strategies

Frequently, it is desirable or necessary to seek the participation of others in planning a communication or developing the facts on which to base it. Such consultation often helps to lend additional insight and objectivity to your message. Moreover, those who have helped you plan your communication will give it their active support.

Be Mindful, While You Communicate, of the Overtones as well as the Basic Content of Your Message

Your tone of voice, your expression, your apparent receptiveness to the responses of others - all have tremendous impact on those whom you wish to reach. Frequently overlooked these subtleties of communication often affect a listener's reaction to a message even more than its basic content. Similarly, your choice of language determines in large part the reactions of your listeners; be aware of the fine shades of meaning and emotion in the words you use.

Take the Opportunity, When it Arises, to Convey Something of Help or Value to the Receiver

Consideration of the other person's interests and needs - the habit of trying to look at things from his point of view, will frequently point up opportunities to convey something of immediate value or long-range value to him. People on the job are most responsive to the manager whose practices take their own interests into account.

Follow Up Your Communication

Our best efforts at communication may be wasted, and we may never know whether we have succeeded in expressing our true meaning and intent, if we do not follow up to see how well we have put our message across. This you can do by asking questions and by encouraging the subsequent review of performance. Make certain that every important communication has a 'feedback' so that complete understanding and appropriate action result.

Communicate for Tomorrow as well as Today

While communication may be aimed primarily at meeting the demands of an immediate situation, it must be planned with the past in mind if it is to maintain consistency in the receiver's view; but, most important of all, it must be consistent with long-range interests and goals. For example, it is not easy to communicate frankly on such matters as poor performance or the shortcomings of a loyal subordinate, but postponing disagreeable communication make it more difficult in the long run and is actually unfair to your subordinates and your company.

Be Sure Your Actions Support Your Communication Goals

In the final analysis, the most persuasive kind of communication is not what you say but what you do. When a man's actions or attitudes contradict his words, we tend to discount what he has said. For every manager, this means that good supervisory practices, such a clear assignment of responsibility and authority, fair rewards for effort, and sound policy enforcement, serve to communicate more than all the gifts of oratory.

Last, but by no means least: Seek Not Only to be Understood but to Understand -- Be a Good Listener

When we start talking, we often cease to listen, in that larger sense of being attuned to the other person's unspoken reactions and attitudes. Even more serious is the fact that we are guilty, at times, of inattentiveness when others are attempting to communicate with us. **Listening is one of the most important, most difficult and most neglected skills in**

communication. It demands that we concentrate not only on the explicit meaning another person is expressing, but on the implicit meanings, unspoken words, and undertones that may be far more significant. Thus we must learn to listen with the inner ear if we are to know the inner man.

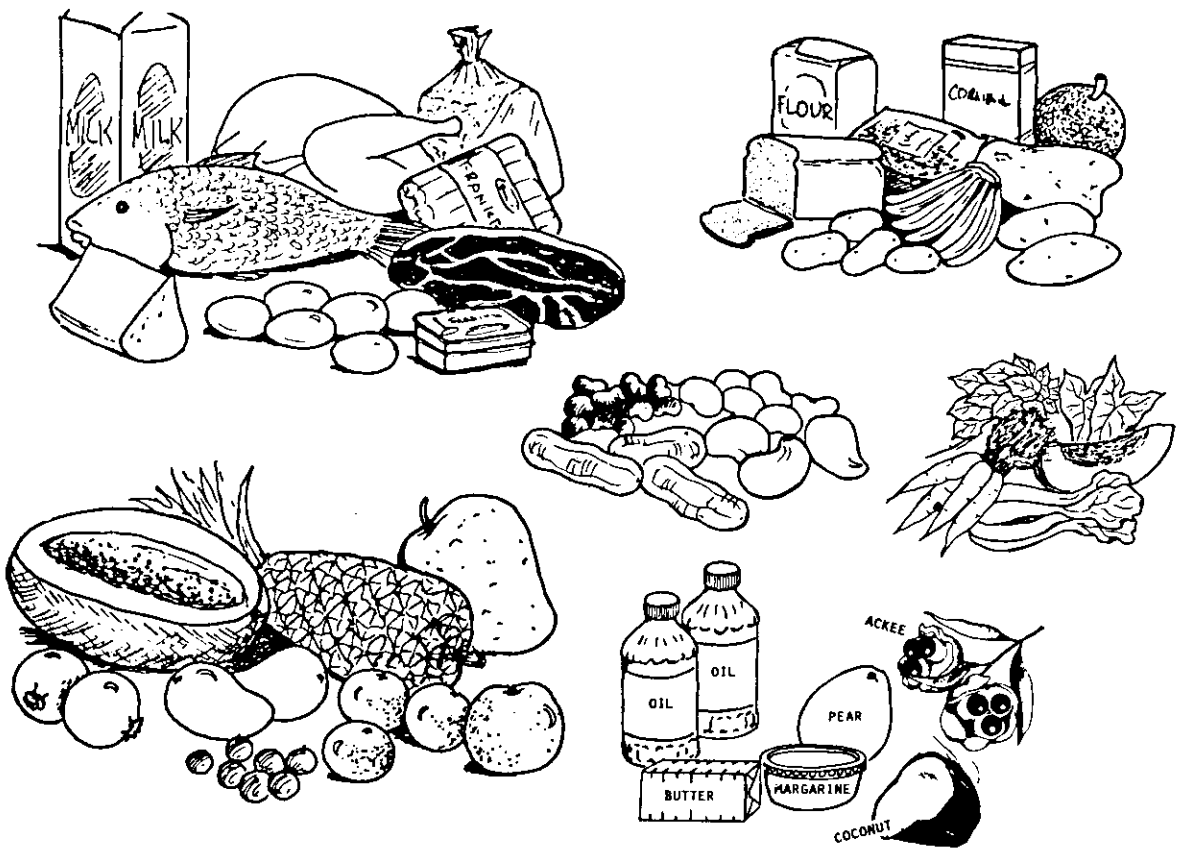
SUMMARY AND CONCLUSION

The purpose of this section has been to discuss communication as a tool of management...a tool which you, as food supervisors, may use to make your work easier and more effective. Since communication takes place between people, we have based our discussion on the **seven basic skills** which every person has: **thinking, doing, observing, talking, listening, writing and reading.** If these skills are used intelligently and effectively, either singly or in combination they can produce a flow of messages and information from one person to another so that your department runs more smoothly and operates more successfully to provide the services and the goods for which it is designed.

It may not be too easy to relate this information immediately to situations in your institution. But as you progress, you will be reminded of many of these points. The success you earn in dealing with other people in getting across to them your thoughts, ideas and opinions, will, to a large extent, determine your effectiveness as a food supervisor. Do not wait to apply these basic principles of communication at some future date. They can be useful now and in the future.

Chapter 10

Nutrition



INTRODUCTION

Nutrition is concerned with food, the substances in food and their relation to health and disease. **These food substances are called nutrients.** In short, nutrition is the science of nourishing the body by food. If the body is to operate properly, this food must contain the right kinds and amounts of nutrients. Nutrition is, therefore, concerned with what nutrients are in food so that we know what food to choose in order to provide the body with what it needs. Everyone needs the same types of nutrients but the amounts will vary depending on age, activity, health status and gender. Except for babies, no one food will provide all the nutrients needed and no one food is more important than the other. Mixtures of foods are required in appropriate amounts. Unfortunately requirements are sometimes not met and this results in undernutrition but imbibing too much and leading sedentary lifestyles has led to our greatest public health problems of obesity and the chronic non-communicable diseases hypertension, diabetes, heart disease and some cancers in the Caribbean today.

The well-nourished person tends to be alert, happy and more disease resistant. Much of the responsibility for improving the adequacy of the diet and, therefore, nutritional health, belongs to the individual and the food business.

Labels are one way food processors inform us about their products. The main ingredients in the product and the major nutrients provided per serving or in the total amount in the containers should be listed. Ingredients should be listed in order of the amounts in which they are present in the product.

NUTRIENTS

Nutrients are chemical compounds, or series of chemical compounds, found in food. They perform one or more of the functions of food and are necessary for the functioning of the living organism. There are **six groups of nutrients**: proteins, fats, carbohydrates, vitamins, minerals and water. Proteins, fats and carbohydrates supply heat and energy for activity; proteins, minerals, vitamins and water are used for building and repair; minerals, vitamins and water are used for protection and regulation but in general **nutrients team up to perform all these functions.** The body has different needs for these nutrients in health depending upon size, sex, age, degree of activity and climate. Alcohol is not regarded as a nutrient but it is almost as efficient as fat in providing energy. Fibres which are a type of carbohydrate are also not regarded as nutrients but are vital for good health.

Adequate amounts of nutrients may be provided naturally from a mixture of foods, fresh and processed. Some processed foods such as wheat flour are fortified with

vitamins B_1, B_2 and B_3 and the mineral iron. Vitamin and mineral supplements are usually not necessary for most people who have good eating habits. Iron and folic acid (a B vitamin) are recommended for pregnant women to ensure that they get adequate amounts for themselves and the developing baby. Some children may also need an iron/vitamin supplement to prevent their getting anaemia and perking up their appetite in general. Dietary supplements may also be needed when a person is unable to consume an adequate diet due to illness, allergies, emotional upsets and stress. The growing number of the elderly may have poor appetites, ill-fitting dentures or poor teeth and therefore do not eat enough. They may need a supplement. Some weight watchers also regularly short change themselves and may need a supplement. Vegans or strict vegetarians may also need a vitamin B_{12} supplement.

AN ADEQUATE DIET

An adequate diet is one which supplies all the nutrients the body requires for good health in the proper amounts and at the proper time. Vegetarians and meat eating people alike can have adequate diets depending on the combinations of food used. Meat eaters should watch the amount of meat they eat and be sure to include adequate amounts of unrefined foods such as local staples, fruits, vegetables and peas and beans in the diet. Consuming less animal products which usually carry a lot of fat, less of other sources of fats, refined sugar and salt make for a healthy diet. Distributing the food throughout the day by eating small balanced meals and healthy snacks regularly and being conscious of food portions are ways to help ensure an adequate diet.

Some vegetarians may have purely vegetable sources of food while others may include dairy products, eggs and fish. Those who include food from animals meet their daily requirements with less bulk than the strict vegetarians. But strict vegetarians meet their requirements by combining a variety of legumes, cereals, nuts, dark green leafy and yellow vegetables and fruits in their diet. Pitfalls the vegetarian should avoid are: limiting the types of food to natural foods, combining foods which do not supply the nutrients in the desired proportions and not paying special attention to the feeding of infants.

The responsibility of those in the dietary department of a hospital in providing adequate diets is great because:

1. Dietary treatment is important in regaining health
2. Food is very important in the day's activities of a sick person
3. People are sick and need extra attention

FUNCTIONS OF FOOD

Food has three main functions:

1. To provide energy for heat and activity
2. To build, maintain and repair the body
3. To protect the body from infections and disease and regulate various body functions

NUTRIENTS IN FOOD

Carbohydrates

Carbohydrates include sugars, starches and fibres. Starches and sugars provide most of the energy in all human diets and fibres help to protect and regulate body functions.

Carbohydrate-rich foods are the most readily available and easily digested of the energy-rich foods and the most inexpensive. The starches and fibre comprise the complex carbohydrates while the sugars are simple carbohydrates. Fibre may be soluble or insoluble. The insoluble fibre is cellulose or roughage and the soluble fibre includes pectin and gums. Together the fibres are called dietary fibre. The bulk of any normal meal should be comprised of complex carbohydrates.

FUNCTIONS OF CARBOHYDRATES

1. **Main source of energy.** 1 gram carbohydrate yields 4 calories.
2. Carbohydrates spare the burning of protein for energy.
3. **As fibre, carbohydrates contribute bulk to the diet.** Fibre can absorb and hold water so that normal elimination occurs from the bowel. Fibre also helps to regulate blood sugar and cholesterol levels.

IMPORTANT FOOD SOURCES OF CARBOHYDRATES

1. Complex carbohydrate:
   (a) Starchy roots, fruits and tubers (ground provisions)
   (b) Cereals - wheat, oats, corn, rice and other grains
   (c) Legumes - peas, beans
   (d) Fruits and vegetables

2. Simple carbohydrate:
   (a) Sugar
   (b) Syrup
   (c) Honey
   (d) Molasses

Complex carbohydrates are required in all meals. The World Health Organization (WHO) recommends that 60-70% of our energy intake should be from carbohydrates and about 10% of this should be simple carbohydrates. Infants and young children need very little fibre but older children and adults need about 20-30 grams per day. This amount of fibre can be provided by 2-3 servings of staples, and one serving each of peas or beans, vegetables and fruits.

Proteins

Proteins are essential components of all living things and as such participate in all vital processes. No living matter is devoid of protein. Proteins consist of very large molecules constructed of simple substances called **amino acids.** Of the 22 amino acids known to be physiologically important, the body is capable of synthesizing some under proper conditions and if a supply of nitrogen is made available. These amino acids are known as the dispensable or **non-essential amino acids.** Others cannot be synthesized by the body and must therefore be supplied by diet. These are called **essential amino acids.**

The **essential amino acids** are:

Leucine	Phenylanine
Isoleicine	Threonine
Lysine	Tryptophan
Methionine	Valine

In addition, histidine appears to be essential to the growth of infants.

FUNCTIONS OF PROTEINS

1. Proteins are essential to growth.

2. Proteins provide the essential amino acids which are the building stones of tissue synthesis. The body is constantly undergoing wear and tear which is repaired by proteins.

3. Proteins supply raw materials for the formation of digestive juices, hormones, plasma proteins, haemoglobin, vitamins and enzymes.

Proteins can be used for energy purposes. One gram of protein supplies about four calories. If the diet does not contain sufficient calories from fat and carbohydrate, the protein will be used for energy rather than for building or replacing tissue.

Proteins in the diet may come from animal or vegetable foods. Animal proteins contain more of the essential amino acids than vegetable proteins and in general have a higher nutritive value. Mixtures of vegetable proteins may present all of the amino acids in adequate quantities. Meals in which bread or cereal are served with peas and beans, dark green leafy vegetables and a small amount of animal protein will provide adequate amounts of all the essential amino acids.

Protein foods are necessary in the diet every day. A varied diet including selected foods provides adequate protein for the **AVERAGE** person. As children grow from babies to adults, their protein needs increase. Their bodies demand more protein for growth and the building of body tissues. Pregnant women, nursing mothers and patients convalescing from illness need large amounts of protein foods to build new tissue. Since growth has ceased in adults, they only require protein for maintenance purposes.

IMPORTANT FOOD SOURCES OF PROTEINS

Milk, eggs, meat, cheese, fish, poultry, game
Dried peas and beans
Enriched, restored, or whole grain bread, flour and cereals
Peanuts and peanut butter

Fats

Fats provide a convenient and concentrated source of energy. One gram of fat yields 9 calories. **Lipid** is another term for fats and fatlike substances such as cholesterol. Fats are esters of glycerol and chains of fatty acids which vary in length and structure. Most fats are tryglycerides. They contain three fatty acids. Fatty acids are classified as saturated or unsaturated. According to whether or not all possible spaces on the fatty acids chains are filled with, or are saturated with hydrogen. If all spaces are not filled, that fat is unsaturated. Food fats contain a mixture of both kinds of fatty acids.

FUNCTIONS OF FATS

1. Add flavour and make meals palatable

2. Fats slow down digestion and retard the development of hunger, thereby having a satisfying (satiety) value.

3. Facilitate the absorption of the fat-soluble vitamins A, D, E and K.

4. Excess fat is stored as adipose tissue reserve and insulates and protects organs and nerves.

IMPORTANT FOOD SOURCES OF FAT

Butter and margarine
Bacon
Lard and other solid shortenings
Salt pork
Cream
Nuts
Chocolate
Vegetable oils
Fatty sections of beef, pork and lamb

SATURATED FAT

A fat is said to be saturated if saturated fatty acids predominate. The fat is usually solid. Saturated fats tend to raise the level of cholesterol in the blood.

Foods high in saturated fatty acids include whole milk, cream, ice cream, cheeses made from whole milk, egg yolk, fatty meats, salt pork, butter, coconut oil, lard, hard margarines, shortening and chocolate.

Coconut oil is made up mostly of medium chain length fatty acids and seem to be used differently from other saturated fats by the body. It has been shown that it neither raises nor lowers blood cholesterol. Because it is not readily oxidized, coconut oil is preferred in therapeutic diets for malnourished children.

UNSATURATED FAT

Fat-rich foods high in polyunsaturated fatty acids are usually liquid oils of vegetable origin and include vegetable oils such as: safflower, corn, cottonseed, soybean, sesame and sunflower. Soft margarines made from these oils, avocado pear and Jamaican ackees are also high in polyunsaturated fatty acids. These oils tend to lower the level of cholesterol in the blood. Olive oil and peanut oil are also vegetable products which have high levels of monounsaturated fats and seem not to have much influence on cholesterol levels.

Polyunsaturated fats are easily oxidized. Many have high levels of vitamin E, an anti-oxidant, which occurs naturally or may be added to the oil. The vitamin E prevents the development of certain types of cancer caused by the oxidation of these fats.

CHOLESTEROL

Cholesterol is a waxy substance related to fats but very different in chemical structure. It is found in all animal tissues and the blood, and has important functions in the body. Food intake or synthesis within the body is responsible for its presence. The body is capable of making all the cholesterol it needs. Cholesterol links with two main types of substances as it moves around the body - high density lipo-protein (HDL) and low density lipo-protein (LDL). The HDLs are termed the "good" cholesterol as they pick up cholesterol from the cells and pass them to the liver for dismantling while the LDLs are termed the "bad" cholesterol. The LDLs transport cholesterol to the cells. When there are consistently high levels of the LDLs in our blood we are at risk of getting heart attacks as the cholesterol and other fatty deposits may clog the arteries giving rise to the condition known as **atherosclerosis**. If the coronary arteries become clogged, and the heart is not provided with enough oxygen and nutrients a heart attack will occur. Saturated fats help to raise the levels of LDLs in the blood.

ENERGY (KILOCALORIES/KILOJOULES)

Energy is defined as the power to do work. Some energy (calories, fuel, heat) is needed for even the slightest movements of the body. Energy is provided by the oxidation (burning) of carbohydrates, proteins, fats and alcohol. Without sufficient kilocalories, called calories for short, in the food intake the body burns its own tissues for needed energy. A calorie is a unit of measure to express the fuel value of these nutrients.

Different nutrients in food produce different amounts of calories; e.g. 1 gram carbohydrate produces 4 calories; 1 gram protein produces 4 calories; 1 gram fat produces 9 calories; 1 gram of alcohol produces 7 calories.

In the metric system the kiloJoule (kJ) is used instead of kilocalorie (kcal) to express the energy value of foods. 4.2 kJ = 1 kcal so, 1 gram carbohydrate and 1 gram protein = 17 kJ; 1 gram fat = 37 kJ and 1 gram alcohol = 29 kJ.

Energy is required for resting metabolism, synthesis of body tissues (growth, maintenance, pregnancy, lactation), physical activity, excretory processes and to maintain thermal balance.

METABOLISM

Metabolism is an inclusive term that describes the process by which food is built up into living material or used to supply energy in a living organism. It comprises anabolism and catabolism.

Anabolism is a term used to indicate the building up of complex substances from simpler substances, e.g. building haemoglobin.

Catabolism refers to the breaking down of complex substances into simpler substances. The breakdown of glucose to yield energy is an example.

The **basal rate of metabolism** may be defined as the number of calories required by a person at bed rest. This basal rate varies with the size of the person, his age, etc. The average rate for a man is 6930 kJ (1650 calories) and for a women 5670 kJ (1350 calories). It must be remembered, these are the **basic** requirements. Additional calories will be required in varying amounts depending on the type of work or activity in which a person is engaged. Any movement requires additional calories over the basic number indicated above. For most persons, the amount of food energy taken in by the body should be adequate to meet the daily needs of work and activity level so that energy intake = output. Excessive intakes of energy can be converted to fat as occurs in obesity.

Minerals

Minerals belong to a group of chemical elements in plant and animal tissues. Unlike carbohydrates, proteins and fats, minerals cannot be used for energy. They are found in all body tissues and fluids.

Calcium and phosphorus are present in the body in the largest amounts. Certain minerals present in very small amounts but having important functions are referred to as **trace elements**.

FUNCTIONS OF MINERALS

Minerals have both building functions, taking part in the structure of all body tissues, hard and soft and also body regulating functions. The trace elements also help enzymes, hormones and vitamins play their roles in the body. Minerals are interrelated in their functioning, with each mineral affecting the performance of one or more of the other minerals.

Calcium

Calcium is the major mineral constituent of the body. The body of an adult normally contains about 1200 grams of calcium. At least 99% of calcium (as calcium phosphate) is present in the skeleton. Calcium provides the hard structure of the bones and teeth. The remainder is found in the blood and other body fluids and soft tissues. Calcium aids in blood coagulation and with other minerals help muscles contract and relax normally. It also helps the nervous system to function properly.

Vitamin D is required for the proper absorption and utilization of calcium.

IMPORTANT FOOD SOURCES OF CALCIUM

Milk and milk products
Cheese
Dark green leafy vegetables
Dried peas and beans
Canned fish with bones

If a mother-to-be dislikes drinking milk, it is recommended that she adds 3-4 tablespoons skimmed milk power in food preparation. For example, to flour when making dumplings or to other products.

Iron

The amount of iron in the body of a healthy adult is about 4 grams. The major portion is present in haemoglobin. Copper, adequate protein and other substances are necessary for haemoglobin synthesis. Iron is an essential component of the processes involved in the transfer of oxygen and is of great importance in human nutrition. A deficient supply of iron may result in nutritional anaemia.

During the reproductive period of a women's life additional losses of iron are inevitable. These occur at the menstrual periods and in the transfer of iron to the infant when in the uterus and at the breast.

In the Caribbean, iron deficiency anaemia associated with folic acid deficiency is common, particularly in pregnant women and pre-school children.

IMPORTANT FOOD SOURCES OF IRON

Liver
Sardines
Lean meats
Molasses
Dark green leafy vegetables
Egg yolk
Dried fruits
Dried peas and beans
Pumpkin and sesame seeds

ENHANCERS AND INHIBITORS OF IRON ABSORPTION

Only about 10% of the iron taken in is absorbed; depending on the form of iron eaten, the combination of foods and the body's iron status. Iron from animal sources of food is more readily absorbed than iron from vegetable sources. Foods with vitamin C and animal protein enhance the absorption of iron. When the body has a great need for iron, more iron is absorbed.

There are many substances which when present in large amounts prevent the body from absorbing iron well. Some of these are tannins in `green' tea and coffee, phytates in whole grains such as oats and calcium and phosphate salts in milk and antacids; so there are enhancers and inhibitors of iron absorption.

Iodine

Iodine is necessary for proper functioning of the thyroid gland, which regulates the rate at which the body expends energy. When too little iodine is furnished to the body, the thyroid gland may become enlarged, a condition known as simple goitre. Sea water is high in iodine content and foods grown in the ocean or in soils near sea coasts contain large amounts of this mineral; so seamoss (Irishmoss) is high in iodine.

IMPORTANT FOOD SOURCES OF IODINE

Saltwater fish
Salmon
Tuna
Shellfish
Sea plants
Iodized salt

Sodium

Sodium is a major mineral in the fluid outside the cells of the body.

FUNCTIONS

It helps to maintain the balance of water, acids and bases. It is a constituent of the pancreatic juice and bile which aid in the digestion of foods. It plays a role in muscle contraction, nerve function and in the absorption of carbohydrates. In moving body water from place to place sodium helps to regulate blood pressure. Excessive sodium intake is associated with high blood pressure.

IMPORTANT FOOD SOURCES OF SODIUM

Salt
Animal sources of food - milk, cheese, meat, pickled fish
Canned foods
Cured meat, fish
Condiments - sauces, seasoning mixtures
Monosodium glutamate (MSG), accent, vitsin
Instant cereals - oats, cornflakes
Dry soup mixes

Zinc

Zinc is present in all living tissues and its availability is greatest from animal products. It is an essential component of at least eight enzyme systems and is important in protein digestion and carbohydrate metabolism. Its role in carbohydrate metabolism may be linked to the fact that it combines readily with insulin in the pancreas.

The need for zinc is greatest during infancy and early childhood when growth is rapid. Zinc promotes growth, the development of secondary sex characteristics and wound healing. Normal concentration of zinc in the blood (120 μg/100 ml) are markedly reduced when there is alcoholic cirrhosis of the liver and energy/protein malnutrition. In diabetes levels of zinc in the pancreas are about half the normal amount.

IMPORTANT FOOD SOURCES OF ZINC

Seafood (especially oysters)
Meat
Eggs
Legumes
Whole grains

Fluorine

Fluorine is required in very small amounts. Traces of the mineral are present in the bones, teeth, thyroid gland and skin. It helps to protect the teeth against decay as it hardens the enamel and reduces the solubility of tooth minerals. It is believed that it also discourages the growth of acid-forming bacteria. Its effect is seen mostly in the development of children's teeth as fluoride is not deposited in fully developed adult teeth. An oversupply of fluoride causes mottling of the teeth and increased density of the bones of the spine, pelvis and limbs. The chief source of fluorine is drinking water to which the mineral is added. This addition is not always consistent. Salt manufactured in Jamaica is fluoridated.

IMPORTANT FOOD SOURCES OF FLUORINE

Drinking water
Seafish
Fluoridated salt
Tea - particularly China tea

Vitamins

Almost everyone is familiar with the word vitamin from drug store displays and newspaper and magazine advertising. It is important to know that vitamins are believed to be essential nutrients and they are widely distributed in foods.

Vitamins are chemical compounds that occur in minute quantities in foods and are necessary for life and growth. They do not provide energy but they facilitate the use of the energy nutrients.

Because most vitamins are not stored in the body for future use, it is important to plan foods which are rich in vitamins in the meals each day. It is also important to watch carefully the preparation of foods because some vitamins can easily be destroyed by improper cooking.

Classification and Properties of Vitamins

Vitamins are generally classified as **fat-soluble and water-soluble.**

Fat-soluble vitamins are absorbed from the intestinal tract with fats and require bile for their absorption. These vitamins are stored in the liver and excessive quantities may be toxic. They are stable to ordinary cooking and processing procedures. The level in foods is reduced by wilting, drying and rancidity.

Water-soluble vitamins are readily absorbed but the body does not store them to any appreciable extent. Therefore they must be provided on a daily basis in the diet.

The following vitamins are of practical importance in meal planning.

FAT-SOLUBLE VITAMINS

VITAMIN A (OR RETINOL)

Vitamin A is essential to the growth of children and to the general good health of adults. It helps to build up resistance to disease.

Functions of Vitamin A

1. Vitamin A is important for the normal structure of the bones and teeth.
2. It is necessary for the maintenance of the epithelium or outer layer of the skin and the mucous membranes that line the nose and respiratory tract, the mouth and gastrointestinal tract, the eyes and glands of secretion.
3. It is needed for the formation of visual purple which enables the retina of the eye to adapt to dim light.

Sources of Vitamin A

Vitamin A is found in foods of animal origin. In most diets, part of the supply is derived from carotenes which are converted into the vitamin within the body. Beta carotene is the predominant carotene in most plant foods. Its absorption from the diet is very variable and usually only about 1/3 of the dietary intake becomes available.

Important Food Sources of Vitamin A

Liver
Dark green leafy vegetables, e.g. callaloo
Whole milk and cheese made from whole milk
Ripe mango and pawpaw
Yellow vegetables, e.g. pumpkin, carrots
Egg yolk

VITAMIN D

Vitamin D is sometimes called the 'sunshine' vitamin because it is produced in the skin by the ultraviolet rays of the sun reacting with cholesterol.

Functions of Vitamin D

Vitamin D is important for use of calcium and phosphorus in making strong bones and teeth. Nursing and expectant mothers need Vitamin D to protect their own teeth and bone structure. (With sunshine so plentiful in the Caribbean, deficiency of this vitamin is rare.)

Important Food Sources of Vitamin D

Cod and other fish liver oils
Vitamin D, milk and other foods fortified with vitamin D

VITAMIN E

Deficiency of vitamin E in humans is unlikely except when diets are grossly lacking in many other nutrients, as vitamin E, is widely distributed in foods.

Vitamin E is an antioxidant which retards the rancidity of fats in the digestive tract; protects the body cells from toxic substances formed from the oxidation of unsaturated fatty acids; minimizes the destruction by oxidation of unsaturated fatty acids and vitamin A in the intestines and in the tissues; is an essential factor for the integrity of the red blood cells and an agent in cellular respiration primarily in the heart and skeletal muscles. Thus vitamin E protects the body against the occurence of certain types of cancers and heart diseases.

Vitamin E is relatively non-toxic. Excesses seem to be excreted in the faeces.

Important Food Sources of Vitamin E

Vegetable oils (except coconut oil)
Sunflower seed kernels
Margarine, butter
Avocado pear
Whole grain cereals
Legumes
Nuts
Dark green leafy vegetables
Seafood
(Supplemental sources - wheat germ)

WATER-SOLUBLE VITAMINS

THIAMINE (OR VITAMIN B_1)

Thiamine is essential for growth, healthy nerves and good appetite.

The thiamine requirements for the various age categories are proportional to the calorie requirement. Thiamine functions in carbohydrate metabolism and is essential for the utilization of carbohydrate in the body. Enriched bread, flour and cereal are enriched with added thiamine.

Important Food Sources of Thiamine

Lean pork, beef, lamb
Liver
Dry beans, peas, nuts
Enriched, restored or whole grain bread, cereals and flour
Poultry, fish
Milk
Eggs

As thiamine is readily soluble in water, considerable amounts may be lost when foods are cooked in an excessive amount of water which is afterwards discarded. It is readily stable to temperatures up to boiling point. If baking powder is used or if soda is added in the cooking of vegetables/peas and beans, almost all the vitamin may be destroyed.

RIBOFLAVIN (OR VITAMIN B_2)

Riboflavin helps to promote general well-being. It promotes growth in children. Like thiamine, it is also necessary to release energy from the food eaten. It is necessary for healthy eyes, skin, lips and tongue.

Important Food Sources of Riboflavin

Milk and milk products
Liver
Lean pork, veal, lamb and beef
Fish
Eggs
Dark green leafy vegetables
Enriched, restored or whole grain bread, cereals and flour

If foods, especially milk, are left exposed to sunshine large losses may occur.

NIACIN

Niacin, another of the B vitamins, plays a role in the mechanisms by which the energy present in carbohydrate, protein and fat is released and made available to the body.

Niacin may be synthesized from tryptophan. Sixty (60) mg of tryptophan are needed to replace 1 mg of dietary niacin.

Important Food Sources of Niacin

Organ meats: liver, kidney, heart
Meat
Poultry
Fish
Enriched cereal products

Cooking causes little actual destruction of niacin but considerable amounts may be lost in the cooking water and `drippings' from cooked meat if these are discarded.

FOLIC ACID

Folic acid also called folacin or folate, is a group of closely related substances. There is no single folic acid vitamin as such. The substances are changed to at least five active enzyme forms in the body. They play very important roles in cell division and reproduction, formation of heme (the iron-containing protein in haemoglobin), the maturing of red blood cells in the bone marrow and the interconversion and formation of certain amino acids and vitamins. Thus folic acid helps to prevent a certain type of anaemia of pregnancy in which the red blood cells are fewer and larger than normal. In children it aids growth.

Important Food Sources of Folic Acid

Liver, kidney
Eggs, fish
Avocado pear
Peas and beans
Dark green leafy vegetables
Oranges, orange juice
(Supplemental sources - yeast and wheat germ)

VITAMIN B_{12}

Vitamin B_{12} is found only in foods from animal sources. It plays a role in carbohydrate, protein and fat metabolism and works in conjunction with folic acid to prevent anaemia. Although 70% is retained during cooking it is poorly absorbed unless a protein enzyme intrinsic factor in gastric juice is present at the same time.

Deficiencies may arise in strict vegetarians (vegans) who take no supplements.

Important Food Sources of Vitamin B_{12}

Liver, kidney
Egg, milk
Lean meat
Oysters

ASCORBIC ACID

Ascorbic acid was first known as vitamin C, or the antiscorbutic vitamin. It has many different and important jobs to do. Ascorbic acid serves as a cementing substance to hold body cells together. It 'helps' the body use iron in food and keeps the blood and blood vessels in good condition. Ascorbic acid increases the body's resistance to certain infections and helps in wound healing. In children, it aids growth.

Important Food Sources of Ascorbic Acid

West Indian cherry	Cashew fruit
Pawpaw	Cabbage (raw)
Mango	Dark green leafy vegetables
Guava	Oranges, limes, grapefruit

Ascorbic acid is the most sensitive of the vitamins to cooking procedures. It is easily destroyed by heat, oxygen, alkalis, high temperature and long cooking.

Food Handling Practices for Vitamin Retention

1. Store vegetables properly to avoid wilting and drying out which cause loss of vitamin A.
2. Cook vegetables whole as often as possible: cutting releases oxidative enzymes and increases cut surfaces where water-soluble vitamins seep out.
3. Use cooking water and canned food juices to conserve soluble nutrients.
4. Avoid use of baking soda in cooking vegetables as it is destructive to thiamine and ascorbic acid; also avoid long cooking for the same reason.
5. Store fats properly to prevent rancidity, a destructive factor for vitamin A.
6. Keep milk in glass bottles away from light which is destructive to riboflavin.
7. Use drippings when cooking meat to conserve thiamine and niacin.
8. Keep fruit juices covered and cold to prevent oxygen from destroying ascorbic acid.
9. Don't stir while cooking foods with ascorbic acid as oxygen destroys vitamin.
10. Cook vegetables covered, quickly, and just until fork-tender. Store leftovers covered and cold; reheating causes further loss of vitamins.

Guide for Meeting Nutrient Requirements

Nutrient requirements have been prepared for countries in the Region. These are referred to as Recommended Allowances.

"Recommended Dietary Allowances" (RDA) have been defined as "the levels of intake of essential nutrients considered to be adequate to meet the known nutritional needs of practically all healthy persons".

They are useful in:

1. Evaluating the adequacy of national food supplies and predicting future food needs.
2. Interpreting food consumption data in relation to the assessment of nutritional status of groups of the population.
3. Estimating and assessing the adequacy of food supplies in health programmes and in school feeding, institutional feeding and other public assistance programmes.
4. Planning normal and therapeutic diets for groups of individuals in institutions such as hospitals and nursing homes.
5. Providing a basis for nutrition education programmes.
6. Providing a basis for regulating the nutrient content of foods and pharmaceuticals, for the control of nutrient claims and for nutritional labelling.

See page following for Recommended Dietary Allowances for the Caribbean developed by the Caribbean Food and Nutrition Institute in 1976.

The RDAs must be transposed into quantities of foods for different age groups. Food Group Plans, Dietary Guidelines and exchanging foods within groups are some of the ways used. These guides are based on the grouping of foods according to their nutrient contribution. **Six food groupings** are recognized in most Caribbean countries. These are:

1. **Staples** - cereals and ground provisions
2. **Legumes and nuts** - peas, beans, nuts
3. **Dark green leafy and yellow vegetables** - callaloo, dasheen leaves, spinach, carrot, pumpkin

RECOMMENDED DIETARY ALLOWANCES FOR THE CARIBBEAN[a]

Age	Sex	Body Weight	Energy[b]		Protein[c]	FAT-SOLUBLE VITAMINS			WATER-SOLUBLE VITAMINS							MINERALS		
						Vitamin A[d]	Vitamin D[e]	Vitamin E[f]	Thiamine	Riboflavin	Niacin[g] Equivalents	Pyridoxine	Ascorbic Acid	Folacin[h]	Vitamin B_{12}	Calcium	Magnesium	Iron[i]
		kg	kcal	MJ	g	R.E. µg	µg	I.U.	mg	mg	mg	mg	mg	µg	µg	mg	mg	mg
0-5 mos.[j]	MF	5.0	Kg x 118	Kg x 0.49	11	400	10.0	4	0.3	0.4	4	0.3	20	40	0.3	400	50	5
6-11 "	MF	9.0	Kg x 108	Kg x 0.45	20	400	10.0	5	0.4	0.5	7	0.4	20	60	0.3	500	50	5
1-3 yrs.	MF	13.4	1360	5.7	23	400	10.0	7	0.5	0.7	9	0.8	20	100	0.9	500	150	7
4-6 "	MF	20.2	1830	7.6	29	400	5.0	9	0.7	1.0	12	1.3	20	100	1.5	500	200	7
7-9 "	MF	28.1	2190	9.2	35	400	2.5	10	0.9	1.2	15	1.5	20	100	1.5	500	250	7
10-12 "	M	36.9	2600	10.9	43	575	2.5	12	1.0	1.4	17	1.8	20	100	2.0	700	300	7
	F	38.0	2350	9.8	41	575	2.5	12	0.9	1.3	16	1.5	20	100	2.0	700	300	7
13-15 "	M	51.3	2900	12.1	53	725	2.5	12	1.2	1.6	19	2.0	30	200	2.0	700	350	12
	F	49.9	2490	10.4	45	725	2.5	12	1.0	1.4	16	1.5	30	200	2.0	700	300	16
16-19 "	M	62.9	3070	12.8	54	750	2.5	15	1.2	1.7	20	2.0	30	200	2.0	600	350	6
	F	54.4	2310	9.7	43	750	2.5	12	0.9	1.3	15	1.5	30	200	2.0	600	300	19
20-30 "	M	65.0	3000	12.6	53	750	2.5	15	1.2	1.7	20	2.0	30	200	2.0	500	350	6
	F	55.0	2200	9.2	41	750	2.5	12	0.9	1.2	15	1.5	30	200	2.0	500	250	19
40-49 "	M	65.0	2850	12.0	53	750	2.5	15	1.1	1.6	19	2.0	30	200	2.0	500	300	6
	F	55.0	2090	8.8	41	750	2.5	12	0.8	1.1	14	1.5	30	200	2.0	500	250	19
50-59 "	M	65.0	2700	11.3	53	750	2.5	15	1.1	1.5	18	2.0	30	200	2.0	500	300	6
	F	55.0	1980	8.3	41	750	2.5	12	0.8	1.1	13	1.5	30	200	2.0	500	250	6
60-69 "	M	65.0	2400	10.0	53	750	2.5	15	1.0	1.3	16	2.0	30	200	2.0	500	300	6
	F	55.0	1760	7.4	41	750	2.5	12	0.7	1.0	12	1.5	30	200	2.0	500	250	6
70+	M	65.0	2100	8.8	53	750	2.5	15	0.8	1.2	14	2.0	30	200	2.0	500	300	6
	F	55.0	1540	6.5	41	750	2.5	12	0.6	0.8	10	1.5	30	200	2.0	500	250	6
Pregnancy[k]		-	+285	+1.2	+13	800	5.0	15	+0.1	+0.2	+2	+0.5	50	400	3.0	1000	300	19[ℓ]
Lactation (first 6 months)		-	+550	+2.3	+24	1200	5.0	15	+0.2	+0.3	+4	+0.6	50	300	2.5	1000	350	19[ℓ]

NOTES:

(a) The allowances are intended to provide amounts of nutrients sufficient for the maintenance of health in nearly all people in the Caribbean.

(b) Based on moderate activity for adults. Adjustments should be made for greater or less activity. 1 MJ = 239 kcal.

(c) Adjusted to NPU = 70 for average Caribbean diet except for 0-1 year-olds which is reference protein.

(d) R.E. = Retinol Equivalents

1 µg R.E. = 1 µg retinol (3.3 I.U.)
= 6 µg beta carotene (10 I.U.)

(e) 1 mcg = 40 I.U.

(f) 1 mg dl-α-tocopheryl acetate = 1 I.U.
1 mg dl-α-tocopherol = 1.1 I.U.
1 mg d-α-tocopheryl acetate = 1.36 I.U.
1 mg d-α-tocopherol = 1.49 I.U.

(g) 1 Niacin Equivalent = 1 mg niacin
= 60 mg tryptophan

(h) Expressed as Free Folacin Activity

(i) Based on 15% absorption for diets containing 14-20% of energy from animal foods.

(j) Nutrients normally obtained through breastfeeding.

(k) Figures refer to varying periods of pregnancy (see text).

(ℓ) Assumes adequate iron stores at conception (see text).

Source: Recommended Dietary Allowances for the Caribbean, CFNI, 1976.

4. **Fruits** - citrus, mango, pawpaw, guava

5. **Foods from animals** - meat, fish, poultry, eggs, milk, cheese

6. **Fats and oils** - cooking oil, butter, margarine, meat fat

Serving portions within these food groups must also be considered. Some suggested serving portions are as follows:

Staples (1 serving has approximately 70-80 calories)

- Cereal: flour, cornmeal, rice (1 oz/30 g uncooked; 1/2 cup cooked); bread - 1 slice; saltine crackers - 5.
- Starchy Root: yam, potato, eddoe, dasheen (4 oz/125 g raw; 1/2 cup cooked)
- Starchy Fruit: breadfruit (5 oz/150 g raw; 1/2 cup cooked); plantain/banana (4 oz/125 g or 1 medium or 1/3 or 1/2 large raw; 1/2 cooked).

Legumes (1 serving has approximately 73 calories)

- Dried peas, beans, peanuts - 1 oz/30 g raw
- Peanut butter - 2 tablespoons - 1 oz/30 g

Fats and Oils - (1 serving has approximately 45 calories)

- 1/6 oz/4-5 g (1 teaspoon) margarine, butter, cooking oil
- 1 rasher streaky bacon
- 1/2 oz/15 g cream cheese
- 1/3 oz/10 g (2 teaspoons) peanut butter

Fruits - (1 serving has approximately 40-50 calories)

- 1 medium sized mango, orange, guava
- 1/2 grapefruit, ripe banana
- 4 oz/125 ml (1/2 cup) juice

Dark green Leafy and Yellow Vegetables - Very few calories per serving of "greens" like callaloo, spinach, pak choi; 36 calories per serving of yellow vegetables [pumpkin, carrots], green peas and string beans.

- 4 oz/125 g raw; 1/2 cup cooked

Food from Animals - (1 serving has approximately 100-200 calories)

- 2 oz/60 g cooked lean meat, fresh fish
- 1 oz/30 g dried salted fish, hard cheese
- 3 oz/100 g cooked chicken, 4 oz/125 g oxtail
- 2 eggs
- 8 oz/250 ml fluid ml; 1 oz/30 g milk powder

Using the abovementioned portions the number of servings and the percent calorie contribution by different food groups is given in the following table.

DIGESTION AND ABSORPTION

Digestion

When food enters the digestive tract it undergoes changes from complex to simpler forms and from insoluble to soluble state to facilitate absorption through the intestinal walls into the circulation for use by the body.

Digestion takes place in the mouth, stomach and small intestine.

Digestion includes the mechanical and chemical processes by which foods are broken down to their nutrients so that they may be absorbed into the circulation. Mechanical and chemical changes take place on the carbohydrates, proteins and fats in foods.

Mechanically, food is broken into small particles (chewing in mouth), mixed with digestive juices (churning in the stomach) and propeled through the digestive tract (peristalsis).

The chemical reactions require helpers called **enzymes.** Sometimes enzymes are called **catalysts.** A catalyst is a substance that hastens a chemical reaction but does not itself become a part of the compounds that are formed. The chemical reactions in digestion involve splitting up of the carbohydrates, proteins and fats into simple soluble forms which can be absorbed.

DAILY FOOD GUIDE IN SERVING SIZES AND PERCENT CALORIE CONTRIBUTION BY DIFFERENT GROUPS OF FOOD IN DIFFERENT AGE GROUPS (Intermediate Goal)*

FOOD GROUPS, NUMBER OF SERVINGS AND PERCENT CALORIE CONTRIBUTION								
	Staples	Legumes	Dark Green Leafy and Yellow Vegetables	Fruits	Simple Sugar	Food From Animals	Fats and Oils	Calorie Contribu-tion**
Male & Female 1-3 years	6 (30.0)**	1 (5.4)	2 (5.1)	3 (8.5)	8½ (10.0)	3 (31.1)	3 (9.6)	1400
Male & Female 4-9 years	9 (33.0)	2 (7.9)	3 (5.6)	5 (10.5)	12 (10.5)	3 (22.8)	4 (9.4)	1900
Male 10-19 years) 20-59 ") 60+ years	14 (35.6)	3 (8.2)	4 (5.2)	7 (10.2)	16 (9.8)	4 (21.1)	6 (9.8)	2750
Females** 10-19 years	11 (35.0)	3 (10.2)	3 (5.0)	5 (9.1)	14 (9.8)	3 (19.8)	5 (10.2)	2200
60+ years	8 (34.8)	2 (9.3)	2 (4.5)	6 (14.9)	10 (10%)	2 (18.1)	3 (8.4)	1600

**Figures in parenthesis indicate the percent calorie distribution by the serving sizes.*

***According to WHO Guidelines.*

The mechanical and chemical reactions result in:

1. Carbohydrates being changed to simple sugars: glucose, fructose and galactose.
2. Fats to fatty acids and glycerol.
3. Proteins to amino acids.
4. Water, simple sugars, salts and vitamins are not changed.

Absorption

Absorption is the passage of soluble digested food materials through the intestinal walls into the blood.

The use of laxatives such as mineral oil and castor oil should be discouraged as they interfere with the absorption of fat soluble vitamins.

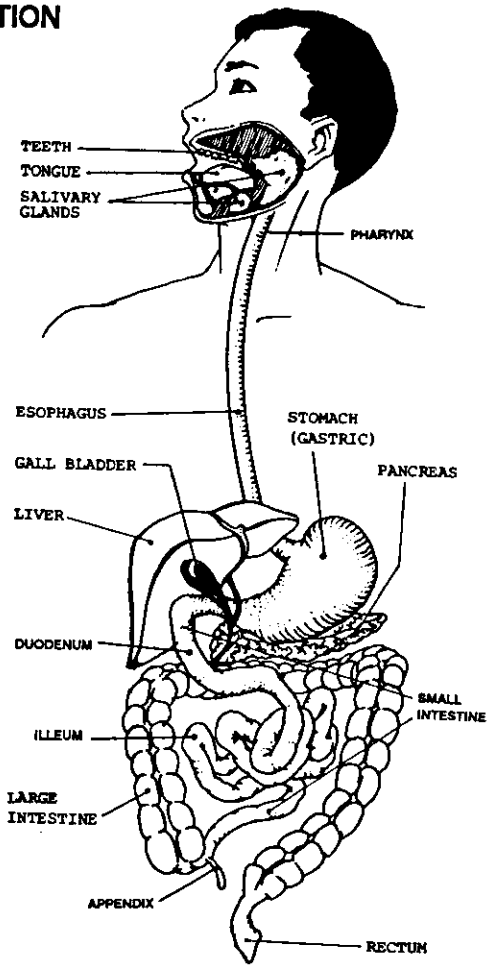
DIGESTION

THE THREE STAGES OF DIGESTION

① SALIVARY DIGESTION

② GASTRIC DIGESTION (STOMACH)

③ INTESTINAL DIGESTION



SUMMARY OF ENZYMATIC DIGESTION AND ABSORPTION

SOURCE	SECRETION	ENZYMES	MATERIAL ACTED UPON	PRODUCTS FROM ACTION	ABSORBED
Salivary glands in mouth	Saliva	Ptyalin (Salivary amylase)	Starch	Starch breakdown of polysaccharides to dissaccharide (dextrins and maltose) a very minor part of digestion	
Gastric mucosa in stomach	Gastric juice	Rennin	Casein of milk	Curdles milk protein (calcium caseinate) and prepares it for pepsin action	
	"	Pepsin (gastric protease)	Proteins	Proteose and peptone (acts only in presence of HCL)	
	"	Lipase	Emulsified fat	Fatty acids and glycerol (small amount)	
Pancreas	Pancreatic juice	Trypsin (protease)	Proteins	Proteoses, peptones and polypeptides	
"	"	Chymotrypsin	Proteoses and peptones	Dipeptides	
"	"	Steapsin (lipase)	Fats	Simple glycerides, fatty acids and glycerol	Mostly in lymph. Small amounts in blood
"	"	Amylopsin (amylase)	Starch and Dextrins	Starch → dextrin → maltose Dextrin → maltose	

SUMMARY OF ENZYMATIC DIGESTION AND ABSORPTION

Intestinal mucosa	Intestinal juice	Erepsin (3 peptidases, carboxypeptidase, amino peptidase, and dipeptidase	Peptones, Polypeptides and dipeptides	Proteose - peptone - Peptone - amino acids	Amino acids in blood to liver
"	"	Enterokinase	Trypsinogen	Trypsin	
"	"	Sucrase	Sucrose (table sugar)	Glucose and fructose	Galactose, fructose and glucose in blood to liver
"	"	Maltase	Maltose	Glucose	
"	"	Lactose	Lactose	Glucose and galactose	
"	"	Steapsin	Fats (small amount)	Fatty acids and → glycerol	Lymph and blood

Chapter 11

Feeding Special Groups

NUTRITION DURING PREGNANCY

Adequate prenatal nutrition is one of the most important environmental factors affecting the health of pregnant women and their infants.

Several studies have established that nutrition during pregnancy affects its course and outcome and that inadequate diets during pregnancy are associated with a higher incidence of complications and difficult deliveries. Stillborns, prematures and infants with congenital defects are more frequent. Supplemental foods have been provided to pregnant women with deficient nutritional status. Adequate maternal weight gain during pregnancy is associated with increased infant birth weight. A low birth weight is associated with increased incidence of neonatal death. Indirect evidence suggests that the cellular growth of all foetal organs including the brain, may be retarded by maternal undernutrition.

Attention should be given to the following concepts:

1. The orderly sequence of foetal development and growth, the mechanisms for nourishment of the foetus, the storage of nutrients in anticipation of labour and delivery and the development of the mammary glands, represent a level of anabolism unequalled in any other time of life. All these needs can be met only through **a diet planned to meet these increased requirements.**

2. Pregnancy is a normal physiological condition, albeit a complicated one, and it is not a pathological process.

3. The degree to which the foetus functions as a parasite superimposed on the ordinary metabolism of the mother has been placed into better perspective. It is now known that the composition of maternal fluids is extensively changed early in pregnancy prior to the significant development of the foetus. Therefore the human foetus may not necessarily be sufficiently supplied with nutrients even though there may be marked maternal depletion and excessive catabolism.

4. The lifetime nutritional experience of the mother in relation to the outcome of pregnancy is emphasized.

Maternal Nutrient Needs

The nutritional elements essential in human nutrition prevail in pregnancy but are increased. Emphasis is on a mixed diet, the attributes of which can extend beyond pregnancy.

ENERGY (CALORIES)

Mixed diets providing sufficient energy value are likely to provide the necessary y amounts of essential nutrients. If energy intake is insufficient, protein will be catabolized to meet energy needs. The Recommended Dietary Allowances for the Caribbean (RDA) suggest an additional 285 calories (1192 kJoules) which means that the average woman should ingest about 2485 kcalories (10,397 kJoules) daily throughout pregnancy but individual needs must be considered.

An adequate weight gain is the best indicator of calorie sufficiency.

Extra energy is required for the growth of the foetus and also to meet the increased physiological needs of the mother.

PROTEIN

The importance of dietary protein during gestation is repeatedly emphasized, RDA specify 54 gm. an additional 13 gm.

Additional protein is needed to meet the demands posed by:

1. The rapid growth of the foetus
2. Enlargement of the uterus, mammary glands and placenta
3. The increase of maternal circulating volume
4. The formation of amniotic fluid
5. Storage reserves for labour, delivery and lactation

If sufficient carbohydrate and fat are not consumed protein will be used for energy and will not be available for the synthesis of body protein.

FOLACIN

The RDA specify an additional 200 μg folic acid/day making a total of 400 μg to protect the foetus as well as the maternal stores of this nutrient. Folic acid is prescribed for pregnant women as a dietary supplement.

IRON

A normal hemoglobin concentration is one of the most essential requisites in pregnancy. Many women enter pregnancy with low iron stores and a low dietary iron

intake. Pregnancy demands for iron are considerable because of the increased demands by the mother and foetus. Most of the increased need occurs during the second half of pregnancy when average daily requirements are estimated to be about 3.5 mg.

Anaemia, a very common complication of pregnancy, exists when the maternal and foetal needs for increased haemoglobin synthesis cannot be met because of a lack of iron.

The absorption of iron is a complex process influenced by the kind and amount of iron in food consumed, intestinal mucosa and dietary factors that increase or decrease the availability of iron for absorption.

The selection of iron-rich foods as often as possible is urged, with consideration of including foods that are known to increase absorption such as citrus fruit and other sources of Vitamin C.

Recommended Dietary Allowances specify 19 mg/day. This is the same as for the non-pregnant woman since no menstruation occurs during pregnancy or early lactation.

Iron is also needed for foetal development - especially for storage of reserve in the liver. About a 3-4 months supply of iron is stored in the developing liver of the foetus to supply the infant's need after birth. This is necessary since his first food - milk - lacks iron.

CALCIUM

A sufficient intake of dietary calcium is particularly important during pregnancy to meet the needs of the mother and the growing foetus, especially during the last trimester of pregnancy when calcium is deposited in the foetus at a rate of 200-300 mg/day. A daily intake of 1,000 mg is recommended.

Of interest: muscle cramping may occur especially of the legs - this may be induced by a transitory imbalance in the serum calcium to phosphorus ratio.

VITAMIN A

Since maternal stores are drawn upon to meet the needs of the foetus to the extent of about 25 μg/day and the efficiency of transfer is not known, the additional allowance of 50 μg Retinol Equivalents (RE) is suggested - which is a total of 800 μg RE/day.

THIAMINE, RIBOFLAVIN AND NIACIN

There is no evidence that extra amounts are needed in pregnancy other than those associated with the higher energy intakes. RDA suggest the following increases: Thiamine

+ 0.1 mg (Total = 1.0 mg); Riboflavin + 0.2 mg (Total = 1.4 mg); and Niacin equivalents + 2 mg (Total = 17 mg).

VITAMIN C

Special emphasis must be laid on the pregnant woman's need for ascorbic acid. Ascorbic acid is essential to the formation of intercellular cement substance in developing connective tissue and vascular systems. It also increases the absorption of the iron that is needed for the increasing quantities of haemoglobin.

It is estimated that women require an additional intake of ascorbic acid during the second and third trimester of pregnancy and lactation. An additional intake of 20 mg is therefore recommended (Total = 50 mg).

Maternal Weight Gain

Weight gain during pregnancy is considered a normal physiologic process. The goal of controlled weight gain during pregnancy is to assure a healthy outome for mother and infant.

All major studies report a positive correlation between maternal weight gain and birth weight of the newborn. Overall both maternal weight gain and the mother's pre-pregnancy weight are the two strongest influences on the infant's birth weight.

Total weight gain alone is not a definite indicator of adequacy or inadequacy of a diet nor does it indicate final newborn size. Quality of nutrition and components of weight gain, together with assessments of needs and lifestyle all must be considered as factors modifying foetal growth and development.

When and how fast a pregnant woman gains weight is just as important as the amount which she gains. A pregnant woman should gain weight smoothly and steadily. If her weight jumps suddenly, she should see the doctor as something may be wrong.

A pregnant woman gains weight slowly at first and then rapidly, especially during the last three months. For the first three months she should expect to gain 2-4 lbs, (approximately 1-2 kilos). During the last six months she gains about 1 lb (almost 1/2 kilo) each week. She may gain more than a pound per week in the last three months as the baby puts on most of its weight during this time. The increased weight helps in developing the baby; developing the placenta which nourishes the baby; developing the uterus or womb and muscles to support it; increasing the amount or volume of blood to supply the placenta; increasing fluid to surround the infant, and storage of fat and increase in size of breasts to prepare the woman for breastfeeding.

Weight reduction regimens should never be used during pregnancy. Restricting weight may result in low birth weight infants with increased risk of neonatal mortality. Another argument against dietary restriction, particularly during the last trimester, is that most of the foetal weight gain occurs during this period.

SODIUM

Sodium is a major electrolyte in extracellular fluid. As normal fluid volume expands in pregnancy and the placenta and foetus develop there is a mandatory need for additional sodium retention of a total of about 25 gms = 100 mg (4 mg/day in early pregnancy and 200 mg/day near term). The retention of sodium and water is a normal physiologic adjustment in pregnancy. This increased sodium is needed to maintain the normal levels of sodium in plasma, muscle, bone and brain during the large prenatal expansion of tissue and fluid.

Sodium restriction has been advocated during gestation because of fear of oedema caused by excess sodium retention. If dietary sodium is restricted during pregnancy, a sodium deficit can be created in the pregnant woman.

The Pregnant Woman at Risk

Every pregnant woman needs nutritional assessment and follow-up.

TEEN-AGE PREGNANCY

Girls younger than 17 years who are pregnant before cessation of their own growth have the extra metabolic requirements of pregnancy superimposed on the normal and special demands of growth and maturation. For these persons, pregnancy creates a dual growth demand - that of the foetus and of the teenager herself.

HIGH PARITY AND FREQUENT CONCEPTIONS

These are factors related to the physical readiness of the pregnant woman for her current pregnancy. The nutritional status of the woman is diminished with the increase in frequency and number of pregnancies. This may result in low birth weight, short gestational periods and perinatal mortality.

LOW PRE-PREGNANCY WEIGHT, INSUFFICIENT WEIGHT GAIN DURING PREGNANCY AND OBESITY

All of the above must be considered as high-risk problems. Both low pre-pregnancy weight and insuffient weight gain during pregnancy may result in low birth weight infants

and other complications. The problem with the obese is the possibility of insufficient intake of specific nutrients due to poor food habits. The obese should be helped to improve the quality of her diet rather than merely attempting to reduce the caloric intake and body weight.

N.B. Low pre-pregnancy weight is defined as 10% OR more under the standard weight for height. Insufficient weight gain during pregnancy is less than 10 kilos total gain during the previous pregnancy. Obesity is defined as excessive fats - a BMI above 30 or 20% above the standard weight for height.

PREVIOUS OBSTETRICAL COMPLICATIONS

Nutrition-related factors include inadequate weight gain, pre-eclampsia and/or toxemia, anaemia, diabetes, antepartum hemorrhage, premature infant and foetal **or** neonatal death and reflect potential problems which might recur in subsequent pregnancies.

EXISTING MEDICAL COMPLICATIONS

Diabetes, anaemia, hypertension, cardiac disease, gastrointestinal liver and kidney diseases are some of the more commonly existing medical complications. Nutritional counselling for patients presenting such complications should combine nutritional guidance for prenatal care and diet therapy recommended for the particular medical condition.

Dietary Faddism and Pica

During pregnancy bizarre appetites **or** pica may develop. Some women have a greatly increased appetite which may lead to obesity. In others there may be a longing for some unusual article of food. The explanation for these whims is uncertain but it may be a manifestation of deficiencies of iron and calcium.

Disorders of Pregnancy

MORNING SICKNESS

In the early weeks of pregnancy most women suffer a little from nausea, especially in the early morning and there may be vomiting. This may be relieved by taking a light snack before rising. Small, frequent meals, fairly dry and consisting chiefly of easily digested sources of energy such as bread and crackers are most easily tolerated.

HEARTBURN AND OTHER SYMPTOMS OF INDIGESTION

These are common, especially in the last trimester when pressure from the enlarged uterus on the stomach may be responsible. Patient should be advised to avoid foods commonly associated with indigestion, and to take frequent small meals.

CONSTIPATION

Increased fluid intake and use of high fibre such as fruits, vegetables, peas, beans, whole grain, cereal and ground provision should help to relieve constipation.

Summary of Dietary Principles During Pregnancy

1. Adequate intake of protein should be ensured.
2. Caloric intake approximately 10% above non-pregnant requirements is advisable for the woman who was well fed prior to being pregnant but may be 30-50% for undernourished women and some teenagers.
3. Weight gain during pregnancy should not be restricted unduly nor should weight reduction normally be attempted.
4. Sodium should not be restricted during normal pregnancy.
5. Dietary supplements of iron and folic acid are indicated during pregnancy. Other dietary supplements such as vitamins may be helpful where deficiencies in nutritional status are determined. Supplementation cannot compensate for poor food habits. Not all the essential nutrients are contained in these supplements; many nutrients must be obtained from an adequate diet.

NUTRITION DURING LACTATION

Diet During Lactation

The same dietary principles apply as during pregnancy. The maternal diet must meet the nutrient requirements for the mother and the child.

Nutrients

CALORIES

The diet of a lactating woman must contain an even higher number of calories than during pregnancy - an additional 300 kcalories (1255 kJoules) are recommended daily. These calories are necessary for milk production.

PROTEIN

65 gms/day for the first six (6) months.

FOLACIN

An additional 100 μg is recommended during lactation to allow for folacin loss in breast milk and possible added metabolic requirements. Recommended Dietary Allowances recommed 300 μg folacin.

IRON

19 mg per day.

CALCIUM

1,000 mg/day - (human milk supplies 250-300 mg calcium per day).

VITAMIN A

During lactation the amount of Vitamin A secreted in the milk of well nourished mothers is estimated to be about 400 μg Retinol Equivalents per day. RDA recommend 1,200 μg RE per day, which is an additional 450 μg RE per day.

THIAMINE, RIBOFLAVIN AND NIACIN

There is no evidence that the requirement is increased beyond that associated with an increased energy intake. RDA recommend the following increases:

Thiamine + 0.2	=	1.1 mg
Riboflavin + 0.3 mg	=	1.5 mg
Niacin equivalents + 4 mg	=	19 mg

VITAMIN C

It is estimated that women require additional intake during lactation. An additional 20 mg is recommended making a total of 50 mg/day.

FLUIDS

The mother should consume the equivalent of 2-3 quarts of liquids daily. This fluid is essential to provide the liquid volume for the breast milk. (A lactating mother may produce 800 ml of milk daily.)

It is well known that the supply of milk is maintained even if the mother's diet is inadequate. Her own stores of nutrients are drawn upon and evidence of malnutrition appears in the mother before it does in the child.

Nutrition Counselling

Patient counselling has a dual focus:

1. Reinforcing beneficial food practices.

2. Attempting to motivate the patient to improve dietary habits.

Nutrition counselling should begin as early as possible in pregnancy, ideally during the first prenatal visit. The woman should understand the importance of food during pregnancy and an explanation of the food and nutrients needed.

CHILD NUTRITION

The Infant

BIRTH - THREE MONTHS

Following delivery, the infant should be fed as soon and as often as the baby needs food. Colostrum is suitable for the new born baby and has valuable anti-infective properties. Glucose or other mixtures are not necessary.

Demand breast feeding is preferable; the infant usually soon establishes a feeding schedule. If the infant is underweight at birth, breastfeed at more frequent intervals.

Breast milk will supply all the water necessary; if it is necessary to give water for some reason it should be given from a cup and spoon and not a bottle or nipple. Bottle

feeding acts as a deterrent to breastfeeding since the feed flows at once from a bottle while the breast needs stimulation to start the milk flow.

Value Of Breastfeeding

Recent scientific studies show that breastfeeding is desirable.

1. It supplies all nutrients needed for the first four months of life, including water. Studies have shown that even inadequately nourished mothers provide milk of sufficient quantity and quality (protein and calories), though vitamin levels may be low if the mothers are themselves vitamin deficient.

2. It is suited to the precise needs of the infant.

3. It is readily available and convenient.

4. It is low cost - it is cheaper to provide a nutritious diet for the lactating mother than to feed the infant on artificial milk.

5. It is relatively sterile and possesses special anti-infective properties.

6. It promotes an ideal close initial mother-child relationship.

7. It has a protective effect against breast cancer in mothers.

FOUR - SIX MONTHS

Breast milk **alone** is sufficient for the adequate nutrition of the infant up to the age of 4 months. The introduction of semi-solid foods between 4-6 months should be individualized and appropriate for the home stituation. We know that the infant's store of iron will be used up by 4-6 months.

New foods are introduced in small amounts and gradually increased. Feed with cup and spoon. Getting used to new tastes and consistencies is part of the child's development.

Breastfeeding should be continued throughout this period, probably five feedings with other food being introduced at three of the feedings such as:

Early morning	-	Breast milk
Breakfast	-	Fruit juice or mashed fruit
Mid-morning	-	Porridge
Lunch	-	Breast milk
Evening	-	Porridge
Bedtime	-	Breast milk

If the mother is at home, she should breastfeed the baby after feeding the porridge. To start porridge or any new food, give it before breast feeding when the baby is more likely to take it because he is hungry.

SEVEN - TWELVE MONTHS

Allow the child to feed himself.

Early morning	-	Breast milk
Breakfast	-	Juice or fruit, porridge, bread and butter
Mid-morning	-	Crackers and milk
Lunch	-	Thick porridge made with milk, cornmeal and mixed with with brown sugar
Afternoon	-	Fruit
Evening	-	Rice + stewed peas + pumpkin + meat
Bedtime	-	Breastmilk

[Strain vegetables which are fibrous or have skins (peas).]

Artificial Feeding

If breastfeeding cannot be undertaken, then use full cream milk which is locally available at a reasonable price. Use according to the instructions given on the label.

Multimixes

Multimixes are mixtures if two or more types of food. The principle is that one food supplements the other; in other words, provides what is lacking in the other.

Example: Rice and peas - rice lacks the amino acid lysine, which the peas provide; peas lack the amino acid, methionine, which the rice provides.

Types of Food

1. Staples
   - Cereal grains - rice, cornmeal, wheat, oats - good sources of protein and calories.
   - Ground provisions and starchy fruits - yam, potato, banana, breadfruit, low in protein, bulky due to water and cellulose. (This type of staple should be used in a multimix, along with a small amount of animal protein.)

2. Legumes	-	20% protein approximately - red beans, pigeon peas, cow peas, lentils.
3. DGLV* and Yellow Vegetables	-	Spinach, callaloo, kale, carrots, pumpkin.
4. Food from Animals	-	Milk, milk powder, meat, fish, poultry, egg, cheese
5. Fruits		
6. Fats		

Multimixes may be made of:

4 parts staple + 2 parts legume + 1 part animal protein and/or 1 part DGLV.

Two Food Groups

The most economical meals may be made with foods from only two groups one of which is a staple. It is important that such meals be carefully chosen. For a two-mix, always use:

Staple (cereal) + legumes
or
Staple + food from animal sources

A two-mix meal of ground provisions with vegetables is **NOT** a nourishing meal. It does not provide enough nutrients needed for growth and is not recommended for infant feeding. Suggested two-mix meals:

Rice + peas
Cornmeal + milk
Green bananas + cheese

Three Food Groups

A good quality meal includes foods from 3 of the 4 groups. Possible combination are:

**DGLV - Dark Green Leavy Vegetables*

Staple + legumes + dark green leafy or yellow vegetables
or
Staple + legumes + food from animal sources
or
Staple + food from animal sources + dark green leafy or yellow vegetables

Examples of three-mix meals are:

Rice + pigeon peas + pumpkin
Green banana + red peas + salted codfish
Cornmeal + fish + okra

Four Food Groups

The best quality meals will include foods from each of the following four groups:

Staple
Legumes (peas and beans)
Dark green leafy or yellow vegetables
Food from animal sources

An example of four-mix meals would be:

Rice + blackeye (cow) peas + carrot + liver

Suggested Quantity of Multimix at Feeding

Age					
4-6 months	-	2 Tablespoons multimix			
7 "	-	4	"	"	
8 "	-	6	"	"	
9-10 "	-	6	"	"	+ 2 additional Tablespoons staple
11-12 "	-	6	"	"	+ 4 " "

When the child reaches 8 months, his food may be mashed rather than strained. It will also be possible to lower the amount of liquid used in the multimix. By 10 months the child should be able to handle small pieces of food.

We do not think of multimix as being specially prepared for the young child but rather foods from the family pot (before the addition of spicy condiments) adapted for the young child.

Multimixes from the family pot can be nutritious and inexpensive; commercial infant foods packaged in small jars are expensive in terms of cost/nutrient value.

CONSIDERATION IN THE SELECTION OF FOODS FOR YOUNG CHILDREN

Nutritional Requirements

It is necessary that the child's diet be adequate in respect of all nutrients to enable him to grow and be healthy. Calories, protein and iron needs are much greater proportionately in young children than in adults.

Inadequacy in calories is more common in this Region than protein inadequacy, yet, of course, the two go hand-in-hand. If the staple food be a ground provision or starchy fruit, it is high in water, high in cellulose, low in protein and low in calories per unit of volume. Cereals, the other type of staple, are superior as a source of calories, protein and other nutrients.

Many children will not get most of their protein from animal sources alone; legumes and cereals will contribute significant amounts. The legume-cereal combination is very acceptable from the nutritional standpoint.

Iron deficiency anaemia is prevalent among young children in the Region, therefore iron-containing foods should be emphasized. In addition, an iron-folic acid supplement for your children (4 months - 2 years) is recommended at child clinics.

Acceptability of Food

The food for the young child needs to be acceptable to the mother, grandmother, etc. In every culture there are ideas regarding foods that are good for children and those that produce disease.

Very often these ideas may:

1. Delay young children from getting a mixed diet.

2. Restrict use of protein.

Suitability of Food

1. **To The Child's Body**

(a) Children need to get used to new foods, therefore introduce gradually beginning with small amounts.

(b) Highly spiced foods may be irritating - young child's portion may be removed **before** adding to the family pot.

(c) Food for the young child needs to be adequately cooked, e.g. legumes, cereals, ground provisions.

(d) The young child's stomach is small - portion size needs to be suitable; if the staple contains much water and cellulose then it is difficult to get enough calories into the small stomach, margarine and avocado may be added to give more `compact' calories; the small stomach requires regular meal times.

(e) Consistency of food must be soft, semi-solid, gradually changing to more solid foods.

(f) Illness, fatigue, fear and anger affect appetite.

(g) Each child is an individual.

2. **To The Household** - Are there the necessities - fuel, water, pot, sieve, etc? Cereal is probably a food which might be prepared specially for the young child. When first introducing foods from the family pot, certain vegetables would need to be strained.

Availability of Food

The use of locally available foods in feeding young children should be encouraged. Cost is a factor; the lower the family income, the greater the percentage of income spent on food. Mothers need to be educated as to nutrient value of local foods and as to the cost in relation to nutritional value.

Food Hygiene

The young child is very susceptible to diarrhoeal disease. The occurrence of diarrhoea may be reduced by a clean environment, clean utensils, properly cooked clean food and special caution of any improperly stored left-over food.

The Pre-School Child

Refers usually in a more strict sense to age 12 months - 59 months or 1-4 years.

GROWTH

Growth continues yet it is not as rapid as during the first year of life. The appetite may fall off around 18-24 months; mothers may become concerned not realizing the reason is linked with rate of growth. The rate of growth of muscle increases in these years. The child is becoming more mobile yet is unable to fend for himself. Teething is also taking place.

INFECTIONS

The second year may be the peak of infectious diseases and parasitic infections.

EMOTIONAL

Another child may have arrived to take much of mother's time and attention; the 1-4 is no longer the centre of attention.

SOCIO-CULTURAL

Learning to talk and to express himself through control of various muscles.

Thus we see that this age period is one of many changes - a transition period, with the second year of life being exposed to the greatest emphasis of change.

The diet of the 1-4 should be adequate in regard to calories, protein, minerals and vitamins. For this age group the following is applicable:

Weight range 22-35 pounds (1016 kg)

Range of calorie requirement 1100-1500 calories (4620-6300 kJoules) per day

Each year there is an increase of around 100 calories (420 kJoules) to the daily requirement.

Range of protein: 17-25 grams per day

Range of iron requirement: 5-7 milligrams per day.

Emphasis needs to be placed on the adequate provision of calories, protein and iron.

Calorie or energy requirement per unit of body weight during this age period is less than during the first year of life but proportionately high in comparison to the adult.

The simplest and most reliable measurement of the adequacy of the nutrition of the young child is growth compared with an appropriate standard. Regular attendance at

young child clinics may assure the mother as to satisfactory growth - that the young child's weight is appropriate for his age.

By one year of age we expect the young child to be eating family foods - bite-size pieces, not just the staple and gravy.

Guide to feeding a child one year and over:

Early morning	-	Juice or fruit
Breakfast	-	Sardine fritter and milk
Mid-morning	-	Crackers with milk
Lunch	-	Porridge made with milk and cereal and mixed with brown sugar
Afternoon	-	Fruit
Evening	-	Sweet potato + callaloo + fish + lemonade
Bedtime	-	Milk

Excessive use of sugar is to be avoided. While it is true that sugar may be used to provide additional calories to bulky staples and fruits, yet if a taste for very sweet food is developed, it may lead to the exclusion of foods with required nutrients. Crude brown sugar is cheaper than white granulated and contains iron.

MALNUTRITION

Results from:

1. Deficiency of one or more nutrients
2. Excess of calories, excess of vitamins A and D.
3. Poor function of organs due to disease condition.

Energy Protein Malnutrition (EPM) is the commonest and most serious form of malnutrition in the Region. There are different degrees of malnutrition - mild, moderate and severe.

MILD Malnutrition is that state in which the child is a little below his expected weight-for-age.

MODERATE Malnutrition - less than 80% of standard weight-for-age. In this state children look thin, are less active than a healthy child, may have had recent bouts of diarrhoea.

SEVERE Malnutrition - less than 60% of standard weight for age.

1. Marasmus - children in the marasmic state may be described as `Skin and Bones', `Balanced Starvation', `Dry Look', `Little Old People'. This condition is due to starvation; the diet lacks both protein and calories.

2. Kwashiorkor - a word from a West African language meaning `disease that occurs when displaced from the breast by another child'. It is due to an unbalanced diet which is very low in protein but which contains calories mainly in the form of carbohydrates.

CAUSES OF MALNUTRITION

Inadequate Food Intake

1. **Poverty** - limited resources in proportion to family size, also poor storage for food.

2. **Food unavailability** - due to poor production, seasonal lack, disasters (floods, hurricanes).

3. **Lack of knowledge** - as to the needs of young children and how to meet these with food, also lack of knowledge as to relationship of nutrition and health.

Other Factors

1. **Infections** - an infection makes the malnutrition worse and the malnutrition prolongs the infection. A feeding bottle may be the main vehicle of infection. With diarrhoea there is poor absorption and loss of appetite. Food may be withheld in illness or sometimes purges are given which only aggravate the condition.

2. **Socio-cultural practices** - abrupt weaning due to another pregnancy may result in the loss of the main protein supply and also have a psychological effect upon the child. There is a tendency throughout the Region to breast feed for a shorter length of time.

3. **Meal pattern** - there may be insufficient number of meals, poor distribution of food to family members in relation to need. A working mother may leave food for the young child which it may or may not receive. Food may be poorly prepared - inadequately cooked.

4. **Incorrect artificial feeding** - expensive milk preparations may cause the mother to `stretch' the tin to last longer resulting in inadequate quantity and quality of the feeding.

5. **Incorrect introduction of solid food** - a survey in one country of the Region showed 10% of the sample getting foods from the family pot by one year and 50% by 18 months; even then not all types of food.

6. Lack of attendance at young child clinics.

PREVALENCE

Over the last fifty years there has been a great decline in infant death rates and severe EPM is less common than previously. In several countries mild to moderate malnutrition is less than 1% of children under five. Guyana and Jamaica now have the highest rates in the Region - 15-20% and 7-10% respectively. Most of the malnutrition which occurs is in defined `pockets' within the countries.

The main age group in which EPM occurs has been 6 months - 2 years.

PREVENTION

1. Prolonged breastfeeding

2. Emphasis on the importance of energy and protein (animal and vegetable)

3. Immunizations

4. Education - needs of young children
   - nutritive value of local foods
   - cost of food in relation to nutrient value
   - family spacing

5. Regular attendance at young child clinics aids in early detection.

The School Child

During the 6-10 year period, the child is **continuing to grow** with a gradual increase in height (approximately 2" [5 cm] annually). He has passed through the period of numerous infections. He is becoming more independent.

As in other age groups, the diet should be adequate in calories and all nutrients. The average daily requirement is 2200 calories (9240 kJoules). The range for daily requirement of protein is 35-40 grams.

These are formative years in which a basis of desirable food habits may be formed - regular meals; a variety of food including some protein at each meal.

It is observed that children may walk long distances to school without breakfast, resulting in restlessness, lack of attention and reduced benefit from the learning experience.

Candy and soft drinks are frequently sold at or nearby schools. Excessive use of these may exclude the use of foods required to provide essential nutrients and also contribute to the problem of dental caries.

A school meal service can be an excellent programme. All aspects need to be carefully studied before its initiation to be sure the programme can be maintained. It is desirable to have a school meal provide at least one-third of the child's daily nutrient requirements.

A school lunch programme may be a valuable educational tool:

1. May be linked with classroom teaching in nutrition.
2. Provides an opportunity to learn and practise good sanitation.
3. The child may be willing to try new foods when eating with other children.
4. Information on nutrition may be carried home.
5. Provides an opportunity to learn the social graces.

Adolescence

This is an age where there is a great spurt in growth; many physical changes are taking place. This occurs in girls around 11 years and boys around 13 years.

Nutritional requirements are greatly increased. Beginning with the pre-adolescence growth spurt, nutritive requirements for both boys and girls are listed separately on tables of recommended allowances for nutrients. An outstanding difference is the increased iron requirement for girls.

When pregnancy occurs in the teenager, additional requirements are added to the already high requirements of adolescence.

The diet should be adequate in all respects.

The adolescent is going through emotional changes which may have an effect on eating habits. Generally speaking, boys may have better eating habits than girls.

GERIATRIC NUTRITION

The Process Of Aging

Aging is a normal process. It begins with conception and ends only with death, but may progress at varying rates, depending upon several factors - among them nutrition. Since good nutrition and good health are inseparable, the efforts of a faulty diet appear sooner or later. Advancements in medicine, health and nutrition have increased life expectancy. This longer life span is increasing the number in the age group over 65, and the maintenance of health and vigour for this group becomes an important consideration.

The role of food in geriatrics is to conserve the health of the individual and delay the onset of chronic degenerative diseases, such as chronic heart disease, atherosclerosis, cerebral hemorrhage, kidney disease, diabetes, arthritis, osteomalacia and asteoporosis.

One must begin early in life to prepare for healthy senior citizenship. The time to start practising good food habits to defer the aging processes is in one's youth, at the latest. Indeed, a woman's eating habits during pregnancy may influence the subsequent aging process in her offspring. At any rate, the earlier in life a start is made in achieving and maintaining optimum health, the more productive the effort will be.

NUTRITION NEEDS OF SENIOR CITIZENS

The needs of aging people do not differ significantly from those of young adults. The chief changes observed are in:

1. The speed and completeness of digestion and absorption
2. Glucose tolerance
3. Utilization of protein, fat, calcium and thiamine
4. Decreased appetite

Lowered metabolism and decreased activity decrease the caloric need. In some of the bones, especially in women, density decreases with age.

Poor food habits, common among the aged, tend to speed up these changes. Oversimplification of diet, with excess calorie intake from empty calories such as sugar, white flour and fats, and with too little intake of meat, fish, poultry, eggs, milk and cheese, fruits and vegetables, is widely practised among the elder population.

MALNUTRITION

Rigidity of eating habits is probably the reason for such universal malnutrition in the aged. Malnutrition, associated with underweight or overweight, is frequently observed in individuals 60 years and over. Poor appetite, impaired digestion and/or absorption, lowered gastric acidity and/or inadequate food intake, as well as poor choice of foods, are some factors that may contribute toward underweight. Increasing the caloric intake with concentrated nutritive foods prepared and served to suit the individual taste will usually correct this condition.

OVERWEIGHT/OBESITY

More often the tendency is to eat more food than needed, with resultant gain in weight. The tendency toward overweight seen in many older adults is not without basis. There is a normal decline in metabolism by some 10 to 15% (or more) after the age of 50. The body size diminishes in height with advancing years. In addition, there is almost always a slackening of physical activity, which lowers the need for calories still further. Unfortunately, there is not always a decrease in appetite to accompany the decrease in need for calories. With the loss of teeth, and the dulling of taste sensitivity, there is a tendency to eat softer, more bland foods, which often have more calories in relation to their value than do the fruits and vegetables which they tend to replace. When the calorie intake is not decreased to fit the lowered rate of metabolism and reduced activity, weight is gained, which is inadvisable because obesity hastens the degenerative processes. Psychological factors, especially emotions, also play an important role in obesity during old age. Much has been said and written about older people eating as compensation for unmet emotional needs.

CARBOHYDRATE AND FAT

It seems advisable that most of the reduction in calories should come from a reduction in the **carbohydrate and fat.** Since aged persons require fewer calories, the foods eaten should obviously contain the essential food elements; namely, proteins, minerals and vitamins. When calories are limited to less than 1800, careful planning is required to provide an adequate diet. Too often `empty calories´ are consumed; e.g. tea

with milk and sugar instead of a nutrient rich food such as milk; or cake instead of fresh or cooked fruit for dessert.

CARBOHYDRATE

It is suggested that elderly people have a reduced capacity to maintain stable blood sugar levels and, therefore, are more subject to temporary hypo- or hyper-glycemia than a younger person. The exact reason for this is not clear, but the use of sugar and sweets may well be restricted to prevent undue load on the sugar-regulating mechanism of the body. Starchy foods are mobilized and burned more slowly than sugar, and in many instances the starchy foods, such as whole grains or enriched cereals, potatoes and dried beans carry B Vitamins, iron and other essential food elements.

FAT

Because of the relationship between serum cholesterol, saturated fatty acids and atherosclerosis, and because of the possible parallelism between dietary fat and the level of serum cholesterol, it is advisable to decrease the proportion of fat in the diet in the later years of life.

Fats are often a cause of indigestion, which may be due to the reduction of gastric, liver and pancreatic activity. The fats that are used in the diet for flavour and satiety value should be largely those which are low in saturated fatty acids.

PROTEIN

Dietary studies of older people frequently show low intakes of the foods which are good sources of protein. The reason may be economic, lack of cooking facilities, poor advice, lack of teeth, or any number of other reasons. Such deficiencies contribute to edema, itching of the skin, chronic eczema, fatigue and/or tissue wastage. Wounds heal slowly and body resistance is lowered. It is known that there is reduced gastric hydrochloric acid in older persons. However, the question arises as to whether the protein deficiencies seen are caused solely by low intake or by a combination of low intake with incomplete digestion and assimilation.

MINERALS

Of the minerals, **calcium** and **iron** are probably of greatest importance in the nutrition of the aged. Fragility of bones may be attributed to a low intake of calcium-rich foods, such as milk, and ascorbic acid-rich foods.

How To Deal With Problems Which May Affect Nutrition In The Elderly

LOSS OF TEETH

- Cut food into small pieces or crush.
- Add gravy or other liquid to food to make chewing easier.

Be sure to give nourishing foods which need little chewing and are easy to digest, e.g. thick soup, porridge and milk drinks.

LOSS OF APPETITE

- Prepare colourful and tasty meals according to the multimix principle.
- Serve small nourishing meals often.
- Serve meals in pleasant surroundings and allow enough time for eating slowly.

POOR DIGESTION AND CONSTIPATION

- Serve fresh fruits and vegetables which do not cause indigestion.
- Serve cooked vegetables and stewed fruit if fresh ones cause indigestion.
- Include staples such as yams, plantain and unrefined cornmeal in the diet.

LACK OF MONEY

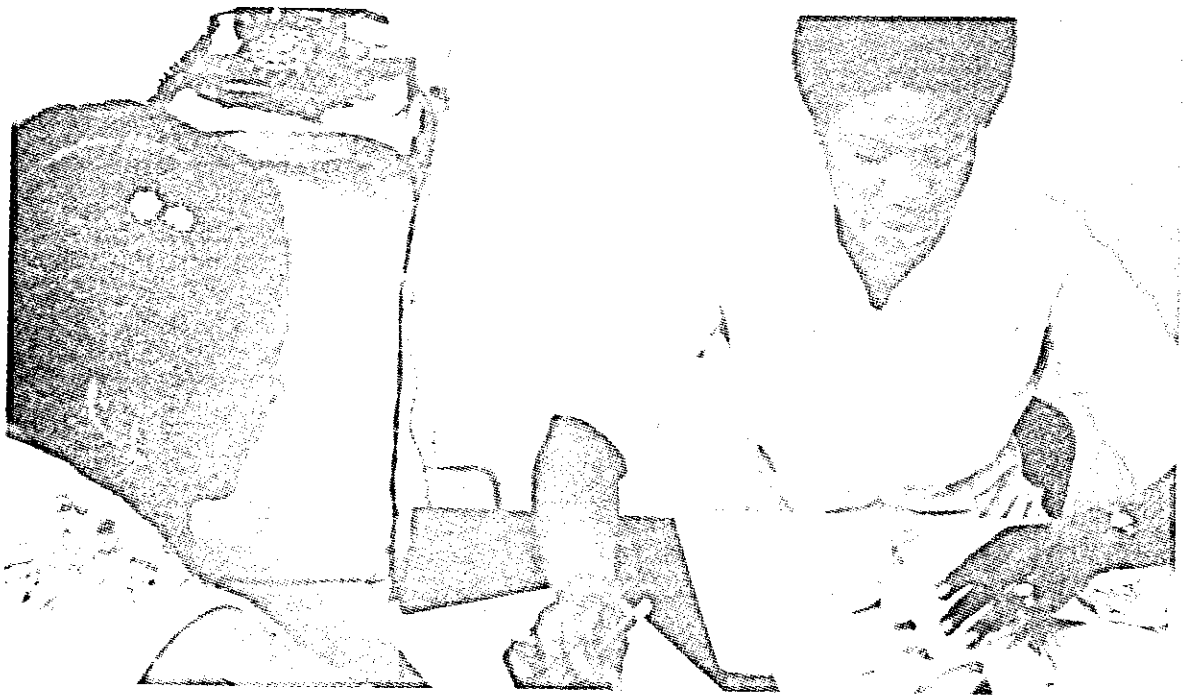
- Help them to buy low-cost, locally produced foods.
- Help them to keep a kitchen garden.

LONELINESS

- Family and friends should spend time with the elderly, especially at meal times. This will encourage them to eat well and regularly.
- Help them feel a part of family and community life by giving them a part to play. For example, they could help to care for young children in the family, if they are able. They could look after a home garden and animals. This will give them useful exercise and make them feel they are making a contribution to the family. Being involved in what is going on is the best tonic available.

Chapter 12

Selected Hospital Diets



INTRODUCTION

Diets while important to know are important only as they benefit human beings. Diet therapy involves more than printed lists of foods and serving trays.

You should be able to answer three questions at the end of each discussion of a diet:

1. Why is the diet used?
2. What foods are used?
3. What do you hope to achieve by using the diet?

WHY DO WE EAT

We eat because we are hungry or because we would die if we did not or maybe because we like to eat. But these are not the only factors that influence people's eating behaviour.

We eat because we are hungry, hungry for many things besides calories. These needs are sharpened by hospitalization. The patient is removed from all the people and things that are familiar and loved. He loses his identity. His food is prepared along with that of many others, and no one pays heed to his special `likes'. The patient is worried about his illness, about financing his hospital bill and meeting his other financial obligations. He is apprehensive or possibly frightened and he is lonely. Accepting hospital routine and diet without protest demands either a person of unusual adaptability or a person who is overawed by authority and dares not complain.

SOME MEANINGS OF FOOD

Love

One of the first things we learned to associate with food was love. Mother feeding baby shows love by the tone of her voice, by hugging, kissing, etc. Mother prepares special foods, e.g. cookies, milkshakes.

Food can also be used as a weapon, a way of rejecting love.

Security

As babies are fed, loved and cared for, mother solves all problems. Later in life when mother can no longer solve all our problems do we turn to food for security?

Familiarity

Foods served in childhood are the best liked as a rule. We have known these foods all our lives. They are familiar and safe. Remember this when offering a patient foods to which he is unaccustomed. The patient is already insecure and frightened. If you wish to attempt to change his food habits, offer some explanation as to why the changes are necessary and show him that you realise how difficult it is for him.

Social Influences

Geography and economics play a part - foods available in the country and the amount of money we have to spend on food.

Food is a means of sharing, of giving something of ourselves to another. When friends come to visit the most natural thing to do is to offer them a snack. Food can also display your social status and prestige.

Identity

Patients may use food as a way of expressing their identity as persons; saying `who they are´.

Reward and Punishment

`Bad´ girls and boys are sent to bed without supper. Prisoners are fed on bread and water. If Mary is a `good´ girl she gets ice cream. Remember there are some `reward´ foods.

You must understand **why** people eat, **what** people should eat to restore or maintain health and to guide them toward improving their eating habits. All this must be understood if you want to be of service.

Take time to listen to your patients and to become acquainted with them as **people.** Do not become so involved with the diet that you forget the person. Involve the patient's family as much as possible in the diet planning.

PATIENT VISITING

Importance

Complaints about food can be common. A patient may hesitate to complain about the medical treatment he is receiving but being an `expert´ on food, he finds it easier to complain about the meals he is receiving.

It is important, then, for a food supervisor to make patient visiting one of her routine tasks. It is a good idea to visit some patients every day, not just those on therapeutic diets, but patients on all kinds of diets to be sure that the meals being served are as palatable and as attractive as possible.

The food supervisor should observe the following principles when visiting patients:

1. Tact and courtesy are important.
2. Always greet a patient by name and then give your name and your reason for being there.
3. Do not sit on the patient's bed.
4. Do not visit longer than necessary. Try to plan your visits to fit in with other treatments the patient may be receiving; and visiting hours.

STANDARD HOSPITAL DIETS

Standard hospital diets are not classed as therapeutic diets. Standard hospital diets (sometimes referred to as Regular Diets) include **full, soft** and **fluid** diets. Certain hospitals include a `light´ diet with their standard diets. The hospital menu should provide a well-balanced diet capable of maintaining, for a person, a state of good nutrition. Food is important to everyone but it is particularly important to the hospital patient. For some, mealtime is the highlight of the day. It may be the only really pleasant part of a stay in hospital. However, there are certain problems when serving meals to patients. Attitudes about food can change. Some foods, which are ordinarily liked, may not taste the same in hospital as they do when at home, often because of medicines or stomach upsets. Worry and lack of exercise can result in a normally healthy appetite becoming poor in hospital.

Regular Diet

DESCRIPTION

Regularly scheduled meals are planned according to the Daily Food Guide to provide the nutrients needed by the average healthy adult. The diet should be well balanced and appealing in colour, texture and flavour as a stimulus to appetite. Current research indicates that the diet should be high in fibre and low in fat.

SUGGESTED DAILY MEAL PLAN WITH SAMPLE MENU: REGULAR DIET

	MORNING	NOON	EVENING
MEAL PLAN	Fruit	Food from animals	Food from animals
	Staple foods	Staple foods	Staple foods
	Food from animals	Legumes	Dark green leafy or yellow vegetables
	Fat	Dark green leafy yellow or other non-starchy vegetables	Fruit
	Beverage	Fruit	Fat
		Beverage	Beverage
		Miscellaneous	Miscellaneous
SAMPLE MENU	Orange juice	Stewed chicken	Fried fish
	Bread	Rice and peas	Crushed yam
	Sardines	Pumpkin	Lettuce and tomato
	Margarine or butter	Stewed fruit	Bread pudding
	Milk	Guava drink	Lemonade
	Coffee or tea		

INDICATIONS

The Regular Diet is indicated for persons who do not require any modifications of diet.

ADEQUACY

The diet will be adequate if the Daily Food Guide is followed. Energy needs are related to body size, age and activity level. These needs may be decreased due to lessened activity or increased due to a high expenditure or to stress caused by illness, injury or other factors. To decrease the energy intake, smaller portions may be offered and the amount of fats, oils and sugar used in cooking reduced. To increase energy, a large or second serving may be provided at meal time or as between-meal snacks and additional butter, margarine, oils or sugar may be used for flavouring and in cooking.

Sugar and sweets should be limited to amounts that will maintain ideal body weight. Spices may be used for flavouring without adding extra energy.

This guide is designed to decrease the incidence of obesity, diabetes, hypertension, cardiovascular disease, anaemia and dental caries.

Light Diet

DESCRIPTION

The Light Diet consists of foods which are tender and easily digested but not ground or puréed. Whole meats, cooked vegetables and fruits of moderate fibre content are allowed. The diet is adequate in all nutrients.

INDICATIONS

The diet is suitable for patients who cannot tolerate highly seasoned, fried or raw foods. It is sometimes used as a transition between the Full Fluid and the Regular Diet in patients convalescing from surgery, trauma or other illnesses. It should be individualized to suit specific patient tolerances.

SUGGESTED DAILY MEAL PLAN WITH SAMPLE MENU: LIGHT DIET

	MORNING	NOON	EVENING
MEAL PLAN	Fruits	Food from animals	Food from animals
	Food from animals	Staple foods	Staple foods
	Staple Foods	Dark green leafy and yellow vegetables	Dark green leafy and yellow vegetables
	Fats	Fruits	
	Beverage	Fats	Fats
	Miscellaneous	Beverage	Beverage
		Miscellaneous	Miscellaneous
SAMPLE MENU	Grapefruit juice	Steamed chicken	Hamburger patties
	Poached egg	Sliced yam	Boiled potato
	Bread	Boiled beets	Green beans
	Margarine or butter	Chilled pawpaw	Margarine or butter
	Jelly	Orange juice	Tea
	Tea with milk		

Mechanically Soft Diet

DESCRIPTION

The Mechanically Soft Diet consists of foods which are lightly seasoned and easy to chew, swallow and digest. All meats are minced and soft textured vegetables and fruits are served. Individual tolerance is an important consideration.

INDICATIONS

This diet can be used when modification in consistency may be necessary for patients who have difficulty chewing and/or swallowing because of lack of dentures, wired or fractured jaws, mouth and throat disease, eye surgery or inability to tolerate solid foods, as in the case of geriatrics.

SUGGESTED DAILY MEAL PLAN WITH SAMPLE MENU: MECHANICALLY SOFT DIET

	MORNING	NOON	EVENING
MEAL PLAN	Fruits	Foods from animals	Foods from animals
	Staple foods	Staple foods	Staple foods
	Food from animals	Dark green leafy and yellow vegetables	Dark green leafy and yellow vegetables
	Fats	Fruits	Miscellaneous
	Beverage	Beverage	Beverage
SAMPLE MENU	Pineapple juice	Minced beef	Steamed fish
	Poached egg	Steamed pumpkin	Boiled carrots
	White bread (no crust)	Mashed tannia	White bread (no crust)
	Margarine or butter	Baked custard with banana	Margarine or butter
	Coffee	Lemonade	Flavoured gelatin
	Milk		Milk

Full Fluid Diet

DESCRIPTION

The Full Fluid Diet provides nourishment in the fluid state and consists of a variety of foods which are liquid or become liquid at body temperature, are easily digested and non-irritating.

Milk and milk products are included. It therefore provides a more complete nutritional regime than the Clear Fluid Diet.

INDICATIONS

The Full Fluid Diet may be used following surgery, for conditions of acute infections and for any patient who has difficulty chewing or swallowing or is too ill to eat solid or semi-solid foods.

SAMPLE MENU: FULL FLUID DIET

MORNING	NOON	EVENING
Orange juice	Lemonade	Pineapple juice
Oatmeal porridge	Cream of pumpkin soup	Clear broth
Milk	Vanilla ice cream	Flavoured gelatin with milk
Cocoa	Tea with milk	Tea with milk
MID-MORNING	**MID-AFTERNOON**	**BEDTIME**
Eggnog	Milkshake	Milk

Clear Fluid Diet

DESCRIPTION

The Clear Fluid Diet is intended to supply fluid and energy in a form that requires minimal digestion.

The Clear Fluid Diet is highly restrictive and is used only for short periods of time. This diet is inadequate in all nutrients except vitamin C and should not be used over extended periods of time without additional nutrient supplementation. **If used for more than 3 days the rationale should be reviewed.**

SAMPLE MENU: CLEAR FLUID DIET

MORNING	NOON	EVENING
Juice	Juice	Juice
	Clear broth	Clear broth
Flavoured gelatin	Flavoured gelatin	Flavoured gelatin
Coffee (no milk)	Tea (no milk)	Tea (no milk)
MID-MORNING	**MID-AFTERNOON**	**BEDTIME**
Juice	Coconut water	Flavoured gelatin

MODIFIED OR THERAPEUTIC DIETS

It is a generally accepted fact that good food is essential for good health but it is rarely recognized how frequently the poor selection of food may be a contributing factor to disease. The wide interest in diet fads makes it all the more necessary for the professional dietary treatment of disease to be scientifically sound.

Definitions

Diet Therapy - The treatment of disease by diet.

Therapeutic Diet - Diet based on the normal diet and designed to meet the requirements of a given situation.

Modify a Diet - To change the kind of food normally given.

Regime - A regulated course of diet.

PURPOSES OF THERAPEUTIC NUTRITION

General

The general purpose of all therapeutic diets, as of the normal diet, is to establish and/or maintain adequate nutritional status.

Specific

A therapeutic diet may have one or more of the following purposes:

1. To rest the whole body or an affected organ (example: a low protein diet to rest the kidneys).
2. To adjust to the body's ability to metabolize a nutrient (example: a diabetic diet to overcome the inability of a person to metabolize all carbohydrates).
3. To increase or decrease body weight (example: a restricted calorie diet in obesity).
4. To overcome deficiencies (example: a high protein diet to overcome a protein deficiency).

The **Regular Diet** can be modified and a diet given that will still supply the various needs of the body. A full diet may be modified in one or more of the following ways, depending on the specific need:

- Total calories may be increased or decreased
- Protein, fat or carbohydrate may be increased or decreased
- Minerals, e.g. sodium, may be increased or decreased
- Vitamins may be added
- Roughage or bulk may be increased or decreased
- Texture may be changed
- Specific articles of food may be omitted or added as in certain food allergies (including seasonings and spices)
- Pattern and frequency of meals may be altered

It is often difficult for a patient to adjust to a therapeutic diet. Therefore, it is very important that every effort be made to present his trays in an attractive way and to have the food as palatable as possible. In order to have any therapeutic value, the food must be eaten. A therapeutic diet which is based on the full diet with only the necessary modification in usually more easily accepted by the patient.

N.B. If patients on therapeutic diets do not mark selective menus, it is important to find out their likes and dislikes and record these on individual cards in your department.

DIET THERAPY

In order to see how diet fits into the medical treatment, it is necessary to know a little more about factors that cause a disease, changes taking place in the body, and treatment other than diet. While our main interest is nutrition, we should consider some of these other aspects.

As we discuss specific diseases, we must keep in mind two important points:

1. **Change** - New information is constantly appearing and it is very important to keep up to date. This may be done through reading journals and new textbooks and by attending seminars.

2. **People** - We can plan diets on paper and talk a great deal about them, but diets are of no use unless the patient accepts them. You may know what is right for a patient but you must remember that food is a very personal matter. A daily food pattern is one of a person's most important habits. This is one reason why patient visiting is so vital. You may not always be able to provide everything a patient wants but by explaining why we must eat certain foods, or by helping him with a selective menu you can show him that you really care.

DIETARY INSTRUCTION OF THE PATIENT ON A THERAPEUTIC DIET

1. Whenever possible, diet instruction should take place soon after the patient has been placed on a therapeutic diet. Then, if necessary, further instruction may be given until he is ready to be discharged. Diet instruction which has been left until discharge day, is not nearly as well retained by the patient. He is probably getting instructions about other aspects of his treatment and often diet instruction has to be rather rushed.

2. Know the diet thoroughly.

3. Find out whether or not a patient is already familiar with his diet. If he has been following it at home, it will make your task much easier.

4. Explain the purpose of the diet, and how it is designed to help the patient. But a word of caution: do not discuss any aspect of the patient's medical or surgical condition. This should only be done by the doctor in charge of the case.

5. Outline the general description of the diet. Tell the patient briefly what changes he will have to make from his normal diet. It is often helpful to have the patient tell you what his normal eating pattern is.

6. Go over the meal pattern. This will give you an opportunity to fit the diet to the patient's own specific needs: likes and dislikes, age, nationality, religion, etc.

7. Go over specific foods he may have and those he must cut down on or avoid completely. It may also be necessary to review methods of preparation.

8. Try to have some follow-up instructions.

THE DIETARY PRESCRIPTION

The physician orders the appropriate diet for each patient, just as he orders medications and other therapy. A given diet should not be arbitrarily prescribed for a given disease condition. Each prescription should be the result of an evaluation of the patient's symptoms, laboratory tests and his nutritional needs. At times it may be necessary to give priority to one aspect of a diet while other requirements are deferred.

SPECIFIC MODIFICATIONS OF COMMONLY USED DIETS IN GASTROINTESTINAL DISEASE

Peptic Ulcer

The human digestive tract may be divided into:

1. The upper gastrointestinal tract - mouth, oesophagus, stomach, small intestine.

2. The lower gastrointestinal tract - large intestine (colon), rectum.

The most frequently occurring disease in the upper gastrointestinal tract is peptic ulcer (gastric or duodenal ulcer). They occur most often in the pylorus or duodenum. A peptic ulcer represents tissue breakdown. It is an open wound, as if a hole were punched in a lining.

Peptic ulcers are related to stomach secretions, that is, materials produced by glands in the stomach. These materials (or digestive juices) contain water, enzymes and hydrochloric acid. Many ulcer patients have high levels of hydrochloric acid, that is, hyperacidity. The breakdown of tissue, i.e. an ulcer, may be caused by:

(a) Trauma - excessive roughage, alcohol, poor chewing

(b) Factors which increase gastric secretions - e.g. emotions

(c) Heredity

The **symptoms of ulcers** are:

1. **Pain** - the most important symptom and probably occurring in 90% of all cases. It occurs in the area just over the stomach, most often one to three hours after food is eaten. Pain may disappear for weeks at a time.
2. **Heartburn**
3. **Some vomiting** - this occurs if there is an obstruction at the pyloric sphincter.
4. **Deficiency symptoms** - for example, weight loss.

The **treatment of ulcers** consists of:

1. Physical rest - when possible bedrest
2. Mental relaxation
3. Drugs - to decrease tensions and to neutralize acids
4. Surgery - an ulcer may be removed by taking out the section of the gastro-intestinal tract in which it occurs
5. Diet - a variety of diets have been used in the past. Meals are provided that will not cause excessive pain and will lead to healing. Foods that **will not** irritate the area are given, e.g.:
    - Thermally irritating foods - foods which are either very hot or very cold.

- Mechanically irritating foods - foods that are thought of as being rough and thus able to rub the ulcer and increase the flow of gastric juices; these foods are those with coarse fibres or cellulose, e.g. raw vegetables or connective tissue in meat; instead of these, give foods which are smooth and soft in texture.

- Chemically irritating foods - foods that contain chemical substances which increase the flow of gastric juices; these foods are the strongly flavoured, gas forming foods such as cauliflower and onions, meat extractives, fried foods, excessively sweet foods, spicy foods and condiments, such as broth and possibly alcohol and beverages with caffeine, i.e. tea, coffee.

The above is an area of much controversy. Sometimes in the past, we have said that a food will be irritating but have not really known. There is also the question of individualization. In other words one person may not be irritated by the same food as someone else.

It is generally recommended that a person with ulcers take smaller meals but take them more often. This will help:

- to prevent distention and discomfort; and

- to neutralize acid.

In-between meal feedings are thus an essential part of the dietary treatment.

The gastric diet which is prescribed for a patient with an ulcer, depends on the severity of his ulcer.

High Fibre Diets

DESCRIPTION

The high-fibre diet is based on the regular diet with a greater emphasis on fibre-rich food sources: fruits, legumes, vegetables, whole grain breads and cereals.

The high-fibre diet promotes regular elimination and increases faecal volume (soft, bulky stools).

Fibre is a collective term used for the indigestible residue of the structural components of plants. The chemical components of fibre can be defined as polysaccharides (cellulose, hemicellulose, pectin, gums, mucilages) and lignin.

Fibre Components and Food Sources

Water-soluble fibres absorb water, resulting in jelly-like substances which are fermented by bacteria in the large intestine.

The food fibre content is expressed either as dietary fibre or crude fibre. Dietary fibre encompasses all of the plant components resistant to human digestive enzymes, whereas crude fibre represents the small fraction of plant material (cellulose, some hemicellulose, and lignin) that remains after chemical extraction with acid and alkali. Crude fibre values greatly underestimate the true available fibre content because the extraction process destroys all of the soluble fibre fraction and variable amounts of the insoluble fibre.

Some studies indicate that excessive intakes of some dietary fibre sources may bind and interfere with the absorption of the following minerals: calcium, copper, iron, magnesium, selenium and zinc. It is hypothesized, however, that long-term adaptation to high-fibre intakes may occur, so consumption of a varied high-fibre diet would not by itself cause mineral or nutrient imbalances in the general population. Intake of adequate fluids is necessary.

INDICATION

High-fibre diets are promoted for the prevention or therapy of a number of gastrointestinal, cardiovascular, and metabolic diseases including: gastric ulcers, diverticular disease, the irritable bowel syndrome, cancer of the colon, constipation, gallstones, hypercholesterolemia, diabetes mellitus, and obesity.

Cancer of the Colon:	Fibre appears to alter large bowel function by increasing faecal bulk and decreasing intestinal transit time, thereby diluting and reducing exposure to carcinogens and protecting against cancer of the colon and rectum. A diet high in fibre-rich foods should be eaten to reduce the risk of large bowel cancer.
Constipation and Irritable Bowel Syndrome:	Dietary fibre, especially water-soluble fibres, contributes to properly functioning colon by increasing stool bulk and volume, accelerating intestinal transit time, and reducing colonic pressure. Although consumption of fruits and vegetables has some effect, coarsely ground brans appear to be more effective fibre sources in relieving constipation.

Diverticular Disease:

Diverticuli are characterised as pouches or sacks occurring normally or created by herniation through the muscular wall of the colon. Most patients with diverticuli are asymptomatic; however, some experience abdominal pain when diverticuli become inflamed. Diverticuli are occasionally responsible for rectal bleeding. Persons who habitually consume a low-fibre diet are more likely to develop diverticular disease. High-fibre diets containing course wheat bran and certain fruits and vegetables alleviate the need to exert considerable pressure when passing stools, thereby preventing segmentation of the colon.

A fibrous diet is not advised for complicated or acute cases of diverticular disease in which there is intestinal bleeding, perforation, or abscess.

Hyper-cholesterolemia:

Elevated blood cholesterol levels are associated with increased risk for the development of heart disease. Water-soluble fibres (gum and pectin found in oats and legumes) are effective in lowering serum cholesterol levels. The suggested mechanisms for the hypocholesterolemia effect of dietary fibre include: reduction of fat and energy intake, reduction of cholesterol and fat absorption, alterations in endocrine response, increased bile acid secretion.

Diabetes Mellitus:

Insulin-dependent and non-insulin dependent diabetics benefit from a high-carbohydrate (55-60% CHO), high-fibre (HCF) diet. Water-soluble fibres form a gel, which adds viscosity, thereby slowing gastric emptying and glucose absorption. The diet appears to improve glucose control and reduces or eliminates the need for drug therapy (insulin/oral hypoglycemic agents).

Weight Reduction:

Dietary fibre reduces the caloric density of the diet and promotes post-prandial satiety, distension of the stomach and proximal intestine. These effects may prevent the development of obesity and/or facilitate weight reduction.

Possible Side Effects

A sudden excessive increase in fibre intake is undesirable since excess fibre may cause abdominal distress, bloating, gas, cramps, and diarrhoea. These symptoms may be avoided or minimized by gradually increasing fibre intake. Side effects are usually temporary and subside within several days; however, if they persist, the fibre content of the diet should be reduced and a physician consulted.

General Guidelines

1. Increased fibre intake should come from a variety of food sources rather than dietary fibre supplements. This approach is more likely to ensure increased intake of minerals and other nutrients.

2. Consumption of adequate amounts of liquid, eight x 240 ml (8 oz) glasses per day in conjunction with high-fibre intake, is recommended.

3. Prior to recommending a two-fold increase in dietary fibre consumption, an assessment of current fibre intake should be made.

4. Advise gradual increase of dietary fibre intake to minimize potential side effects.

Gastritis

Gastritis is an inflamation of the stomach lining. It may be due to some infection, e.g. intake of food which has been infected with staphylococcus, to a chemical, e.g. accidental poisoning, to excessive alcohol (with little food intake) or to severe dietary indiscretions. Symptoms are severe nausea, vomiting and gastric upset. The diet prescribed would depend on the severity of the gastritis.

Gallbladder Disease

FUNCTION OF THE GALLBLADDER

The gallbladder concentrates the bile and stores it. Upon entering the duodenum fat stimulates the secretion of a hormone **cholecystokin**. This hormone is carried by the blood stream to the gallblader and forces contraction so that the bile is released into the common duct and then into the duodenum. Bile emulsifies fats so that they can be hydrolyzed by the fat splitting enzymes, the lipases. If there is any inteference with the flow of bile, the digestion of fat is impaired.

SUGGESTED DAILY MEAL PLAN WITH SAMPLE MENU: HIGH FIBRE DIET

	MORNING	MID-MORNING	NOON	MID-AFTERNOON	EVENING	BEDTIME
MEAL PLAN	1 serving fruit 1 or more servings staple food 1-2 servings food from animal Fats Beverage Miscellaneous	2 servings fruit	1 serving food from animal 1 or more servings staple food 1 or more servings legumes 1 serving dark green leafy and yellow vegetables 1 serving fruit Fats Beverage Miscellaneous	1 serving staple food 1 serving fruits Beverage Miscellaneous	1 serving food from animal 1 serving staple food 1 serving dark green leafy or yellow vegetables 1 serving fruit Fat Beverage Miscellaneous	1 serving staple food 1 serving food from animal
SAMPLE MENU	120 ml (½ cup) fresh pineapple 180 ml (6 oz) oat meal porridge 1 scrambled egg Wholewheat toast 1 tsp margarine/ butter Tea 240 ml (8 oz) milk	1 banana	180 ml (6 oz) callaloo soup 60 g (2 oz) stewed beef 2 slices cassava 240 ml (1 cup) rice and peas 60 g (2 oz) cabbage and carrot salad 1 tsp margarine/butter Plums Water	1 coconut tart 240 ml (8 oz) cherry drink Water	90 g (3 oz) fried fish 120 g (4 oz) yam rissoles 60 g (2 oz) pumpkin 60 g (2 oz) tossed salad with dressing 5 ml (1 tsp) margarine/butter 120 g (½ cup) grapefruit segments Lemonade	3-6 wholewheat biscuits 240 ml (8 oz) milk

Extra fluids should be added to the meal plan.

Inflamation of the gallbladder is known as **cholecystitis** and formation of gallstones is **cholelithiasis**. If the gallbladder is inflamed or if there are stones blocking the flow of bile, there is pain when the gallbladder contracts.

DIET

The aim is to reduce the discomfort by minimizing the contraction of the gallbladder and so avoiding pain.

Foods containing significant amounts of fat should be restricted. Patients with gallbladder disease complain of abdominal discomfort when they eat certain foods such as strongly flavoured vegetables. Individual tolerances should be respected although these foods need not be omitted.

Fat Restricted Diet

DESCRIPTION

The total daily fat content of the Fat Restricted Diet is limited to 40-45 grams by omitting foods with a high fat content.

The amount of fat in this diet is of primary importance. For patients with severe abnormalities requiring modifications in the type as well as the amount of dietary fat, one of the diets for hyperlipoproteinemia should be prescribed.

Traditionally, those foods considered to be gas forming have been restricted in Low Fat Diets prescribed for patients with gallbladder disorders. Based on available evidence which indicates a highly individual response to various foods, gas forming foods are not routinely eliminated from the diet. The patient should be interviewed to determine if certain foods cause discomfort. If so, those foods should be avoided or used in moderation.

The diet is restricted in fat but not necessarily in total energy. **It should not be used as a Controlled Energy Diet for weight reduction.**

INDICATIONS

The Restricted Fat Diet may be used with patients who have disorders involving the pancreas, gallbladder, liver or other disease, resulting in impaired indigestion or absorption of fat.

SUGGESTED DAILY MEAL PLAN WITH SAMPLE MENU: FAT RESTRICTED DIET

	MORNING	NOON	EVENING
MEAL PLAN	Fruit	Food from animals	Food from animals
	Staple	Staple	Staple
	Food from animals	Dark green leafy or yellow vegetable	Dark green leafy or yellow and other non-starchy vegetable
	Fat 1/2 serving		
	Beverage	Fruit	Fruit
	Miscellaneous	Fat	Fat 1/2 serving
		Beverage	Beverage
		Miscellaneous	Miscellaneous
SAMPLE MENU	Orange juice	60 g (2 oz) baked chicken (no skin)	60 g (2 oz) steamed fish
	Codfish with tomato	FF* Crushed yam	FF* Rice
	Bread	FF* String beans	FF* Carrots
	2.5 g (1/2 tsp) margarine	Sliced tomato and lettuce	1/2 grapefruit
	Skimmed milk	2.5 g (1/2 tsp) fat for cooking	2.5 g (1/2 tsp) margarine
	Coffee	Stewed guavas	Skimmed milk
	Jelly	Fruit drink	Tea

Restricted quantities apply only to foods containing significant amounts of fats; amounts of other foods may vary according to individual needs.

**FF - Fat free or cooked without fat.*

Fat Controlled Low Cholesterol Diet

DESCRIPTION

The Fat Controlled Low Cholesterol Diet combines reduced intake of total fat, cholesterol and saturated fat with increased ratio of polyunsaturated to saturated fats. This diet is designed for individuals who are at ideal body weight. When weight reduction is required, a well-balanced Controlled Energy Diet, low in cholesterol and controlled in both amount and type of fat, should be followed.

A Fat Controlled Low Cholesterol Diet is appropriate for preventing an elevation of blood cholesterol which is often correlated with an increased risk of heart disease. Polyunsaturated fats (those fats liquid at room temperature) are substituted for saturated (those fats solid at room temperature) fats in the diet. Major dietary sources of cholesterol are restricted and the total amount of fat in the diet is reduced.

INDICATIONS

This diet is used: (1) when there is a history of cardiovascular disease suggesting a need for some alterations in the diet; and (2) in moderate hypercholesterolemia.

The principal objectives of this diet are to provide daily menu patterns that:

1. Reduce total fat to 30% of total energy intake.
2. Restrict saturated fat to less than 10% of total energy intake.
3. Increase polyunsaturated fat to 10-14% of total energy intake.
4. Include monounsaturated fat up to 10% of total energy intake.
5. Reduce dietary cholesterol to less than 300 mg a day.

To meet these objectives, the following changes in the diet are observed:

1. Saturated fats are reduced by limiting the intake of animal fats including cheese, whole milk, evaporated milk, butter, cream and meat. All meat and poultry should be lean with all visible fat removed. The use of lean beef, lamb, pork and ham should be limited to three servings of 90 g (3 oz) portions (cooked weight) per week.

2. Foods high in cholesterol are restricted, including organ meats (brain, kidney, sweetbreads, heart, fish roe and liver), shellfish and eggs. Egg yolks are limited to two a week.

3. The vegetable oil in the diet is one of the most important foods that must be consumed daily in order to meet the recommended percent of energy from polyunsaturated fat. Olive and peanut oils are good sources of monounsaturated fats.

SUGGESTED DAILY MEAL PLAN WITH SAMPLE MENU: FAT CONTROLLED LOW CHOLESTEROL DIET

	MORNING	NOON	EVENING
MEAL PLAN	Fruits Staple foods Food from animals Polyunsaturated fat Beverage Miscellaneous	Food from animals Staple foods Legumes Dark green leafy and yellow vegetables Polyunsaturated fat Fruits Beverage Miscellaneous	Food from animals Staple foods Dark green leafy and yellow vegetables Polyunsaturated fat Fruits Beverage Miscellaneous
SAMPLE MENU	Orange juice Cornmeal porridge Bread Skimmed milk Guava jelly Coffee	Baked chicken (no skin) Rice Red beans String beans & carrots with oil and vinegar dressing Fruit salad Cherry drink	Steamed fish Mashed potato Lettuce and tomato with oil and vinegar dressing Stewed fruits Skimmed milk Tea

Obesity

DESCRIPTION

The energy-restricted diet for obesity is designed to produce weight loss at a rate that is reasonable for the individual patient. Once a weight goal has been achieved, a modest level of energy restriction may be necessary to maintain weight loss and prevent weight gain.

Estimation of relative weight (actual weight divided by midpoint of medium frame/desirable weight, determined from 1983 or 1959 Metropolitan Life Insurance Tables) or calculation of body mass index (BMI = body weight in kg divided by height in meters squared) are the two methods most commonly used. A Body Mass Index greater than 27 or a relative weight greater than 20% above desirable weight is generally used to indicate obesity.

Because body composition can vary among individuals of the same height and weight, these measurements are only approximate. Some individuals may be "overweight" as measured by the scales but may not be "overfat" if their proportion of muscle to fat is greater than average. Alternative methods such as skinfold or circumference measurements are inexpensive and fairly accurate procedures for predicting body fat and can be used by a competent practitioner with minimum practice.

Some studies suggest that the accuracy of skinfold measures is reduced in grossly obese and formerly obese individuals, making their usefulness limited.

Recent studies suggest that distribution of body fat may be as important if not more predictive of the health hazards of obesity than degree of obesity itself. Excessive fat stores around the waist and flank and in the abdomen are associated with high risks for illnesses commonly associated with obesity. Measuring the ratio of waist to hip circumference can be used to screen obese individuals at greatest risk. A ratio greater than 0.8 for women and 1.0 for men is indicative of upper-body obesity, which holds the greatest risk.

Intensive weight reduction efforts may be of particular importance in such individuals to reduce risk of death and illness.

INDICATION

Obesity has been correlated with a variety of illnesses (diabetes, hypertension, hypercholesterolemia, hypertriglyceridemia and cancer) and imposes burdens on conditions such as heart disease, lung disease and osteoarthritis. Weight reduction should be part of the primary treatment regimen for each of these medical conditions, as each is expected to improve as body fat decreases.

DIETARY GUIDELINES

A controlled energy diet that is well-balanced and provides 1200 kcal (5040 kJ) daily is considered safest and most effective for weight loss in the majority of individuals. Depending on specific food choices, such a diet would be adequate in nearly all recommended nutrients. The diet should encourage patients to learn how to make wise

choices about foods common to their diet and force them to deal with situations in their lifestyle that lead to overeating, all of which must be learned eventually to successfully maintain weight loss. Meal plans for weight reduction are best tailored to individual likes, dislikes, lifestyles, degree of obesity, and specific behavioural eating problems.

It is clear that obesity is not only a disorder of metabolism but also of behaviour. As a result, therapy must not only include a low calorie diet but also focus on modifying those behaviours and lifestyles that lead to obesity. Patients should be made aware of the lifetime commitment to weight control and referred for follow-up to an appropriate health professional to provide long-term guidance.

Very low calorie diets of high quality protein have been shown to be safe only when administered under proper medical supervision. Their attractiveness is lessened, however, by the fact that maintenance of weight loss can be very poor if major modifications in lifestyle are not made through behaviour therapy.

Weight loss followed by rapid regain has been implicated as having both medical and psychological risks. As a result, considerable controversy exists as to the best approach to weight reduction in obesity. Patients should be carefully screened and prepared before being put through any weight reduction regimen.

Several options for the low-energy diet plan exist. Theoretically one pound of body fat is equivalent to 3500 kcal (14700 kJ); therefore, intake must be reduced by 500 kcal (2100 kJ) daily to produce a loss of one pound of body fat weekly - 500 kcal (1200 kJ) x 7 days = 3500 kcal (2100 kJ). An energy deficit of 1000 kcal (4200 kJ) per day is required to lose 2 pounds (approximately 1 kilogram) of body fat weekly. Generally, this is the maximum weekly weight loss recommended since a more restricted diet may not be nutritionally adequate and may be difficult for the patient to maintain over a long period of time.

ESTIMATING DAILY ENERGY REQUIREMENTS

In most cases it is best that the energy recommendation be determined from actual food intake and not from formulas. A detailed 24-hour food recall and/or 3-day food diary are generally adequate to determine intake.

Increased physical activity and long-term follow-up are important components of a weight-reduction programme.

GENERAL RULES

1. The meal plan should include a variety of foods from each food group.
2. Daily walking, running or exercise within the person's tolerance should be encouraged.
3. Special "dietetic" foods are not necessary.
4. Foods high in energy and low in nutrients are not recommended. These include: alcoholic beverages, chocolates, sweetened condensed milk, fried foods, gravies, cakes and pastries, jam, jelly, marmalade, molasses, regular soft drinks, sugar, tonic water.

Fad Diets

Some fad diets do not supply the protein, minerals and vitamins needed by the person who is reducing. Other fad diets are based upon strange food combinations or unusual proportions of carbohydrate, protein and fat. No specific food or combination of foods has any special ability to increase the rate of weight loss.

Reducing pills cause increased excretion of water by the kidney, others lead to overactivity of the thyroid, increase in metabolism and increase of heart rate. The results can be disastrous.

Diabetes Mellitus

Diabetes mellitus is a metabolic disease that affects the endocrine system of the body and the use of carbohydrates, protein and fat. There are two types of diabetes.

INSULIN DEPENDENT DIABETES MELLITUS (TYPE I)

This form of diabetes usually develops in youth but it may appear at any age and incidence among the sexes is similar. This type is found in only 7-10% of diabetic patients in Caribbean countries.

NON-INSULIN DEPENDENT DIABETES MELLITUS (TYPE II)

Patients with this type are usually over 40 years of age, female and have a family history of diabetes. They are usually obese.

MAJOR GOALS OF DIET IN DIABETES

The goals of diet therapy are:

1. To provide a nutritionally adequate diet.
2. To achieve and maintain a desirable or ideal body weight.
3. To control an abnormal blood glucose level.
4. To provide for normal physical growth in children.
5. To provide adequate nutrition for pregnant and nursing mothers.
6. To prevent or delay the complications associated with diabetes.
7. To modify the diet appropriately if complications occur or concurrent diseases are present.

DIETS FOR DIABETES MELLITUS

Description

The Diabetic Diet is a nutritionally balanced diet which aims to maintain the patient at a desirable weight and keep the blood sugar within normal limits.

Meal plans must meet individual needs based on factors such as weight, occupation and activity and should reflect current concepts in the dietary management of diabetes. These include concern for total caloric intake, decreased intake of fat (particularly saturated fat, which has been associated with an increase in blood cholesterol - a possible risk factor in coronary heart disease), more liberal use of complex carbohydrates and fibre-containing foods, restriction of concentrated sweets, and regularity and consistency in timing of meals from day to day.

Management Guidelines

1. Whenever possible, a diet history should be taken prior to preparing the diet plan and every effort made to individualize the diet. Typical questions might be:

   "Do you eat all your meals at home?"

   "Do you carry lunch from home?"

"Do you eat in a restaurant?"

"What do you eat when you are ill?"

The diet counsellor also needs to know the foods the patient prefers, the food the family eats, shopping habits and how much money is budgeted for food.

2. The diet includes a variety of many different foods from the Daily Food Guide. The foods within each group in the food portions listed are approximately equal in their energy, carbohydrate, protein and fat content. The daily carbohydrate intake approximates 55-60% of total kilocalories and should consist mainly of complex carbohydrate and fibre-containing foods.

3. It is important that the intake of energy from protein, fat and carbohydrate be the same every day. The size of meals and time lapse between meals should also be the same to provide glucose at a controlled rate. The kinds and exact amounts of food eaten are important because these affect the energy content.

4. Concentrated sugars and sweets that are rapidly absorbed should be avoided because they result in a greater and more immediate glucose response than calorically equivalent amounts of certain complex starches. A liberalized carbohydrate intake may facilitate a decreased intake of fat and cholesterol and permit lowering of elevated serum lipid levels.

5. Carbohydrate replacement is the primary nutritional consideration for an insulin dependent individual who is ill. The patient should know that foods which are normally prohibited because they are high in simple sugars may be allowed during an illness.*

In a large percentage of persons with Type II Diabetes (Non-Insulin Dependent) weight reduction has a very beneficial effect and may be all that is required to achieve control in mild cases of Non-Insulin Dependent Diabetes (NIDD).

General Rules

1. Meals are served at approximately the same time every day. This is particularly important when patients are receiving insulin or other medication for diabetes.

**For further details, refer to "Meal Planning for Diabetics", Caribbean Food and Nutrition Institute, 1989.*

2. The diet must be followed exactly at every meal. Any snacks must be part of the day's total energy allowance **OR** must be a "no value" or "free" food such as clear tea, black coffee or clear broth.

3. Sugar may not be used on foods or in cooking. Honey, molasses, syrup, jelly, jam, other sugar products or fruits canned with sugar are not included.

4. Food is measured with standard measuring equipment (measuring cups, measuring spoons and ruler) until amounts can be accurately estimated. Checks should be made from time to time to make certain that measurements are accurate. Food is to be measured after it is cooked.

DIET PRESCRIPTION

Assessment

A. Take a **diet history**. This aims to:

1. Individualize the diet.

2. Identify nutrition education needs and lifestyle considerations (include exercise and activity).

3. Identify possible nutritional deficiencies.

4. Estimate energy needs for weight maintenance or reduction.

B. Determine **desirable body weight**:

1. Height and Weight Tables

2. Body Mass Index (BMI) = $\frac{\text{Weight (kg)}}{\text{Height (metres)}^2}$

This index is a good indicator of relative body fatness in adults. A range of BMI values from 20-25 has been set as a boundary for healthy weights. A BMI >27 indicates obesity.

C. Determine **energy needs**:

For Adults

1. Basal kilocalories equals desirable body weight (lb) x 10

2. Add activity kilocalories
   - Sedentary equals desirable body weight (lb) x 3
   - Moderate equals desirable body weight (lb) x 5
   - Strenuous equals desirable body weight (lb) x 10

N.B. This formula requires your use of traditional units not SI.

OR

	Women/kg		Men/kg	
	kJ	Kcal	kJ	Kcal
Sedentary	105	25	126	30
Moderate	126	30	147	35
Very active	168	40	189	45

MANAGEMENT GUIDELINES

1. Variety	Include a variety of foods from the Daily Food Guide.
2. Individualize	Individualize the meal plan if feasible.
3. Portion Control Uniformity	Use the food portion and substitute lists for diabetics to ensure that the intake of protein, fats and carbohydrate is the same every day; allow "free" or "no value" foods as desired. Food should be portion controlled.
4. Snacks	Snacks are not necessary for NIDDM, but if used, they must be part of the day's total energy allowance.**
5. Timing of Meals	Provide meals at the same time, especially for IDDM, so insulin injection and action is coordinated with meals. Regular insulin should be taken 15-30 minutes before meals, otherwise hypoglycemia can occur. For those not taking insulin, regular meal times may help prevent hunger and perhaps prevent eating more than

***Patients with IDDM need regular definite snacks and achieve better control with them as they help balance insulin action and prevent hypoglycemia. Mid-morning snacks are not usually necessary unless there are more than 4 hours between meals. Give the afternoon and evening snack 3 hours after the meal. The evening snack should contain a slowly digested food (starch, protein and fat). Fruit alone is not appropriate.*

	the meal plan recommends. Some people taking oral hypoglycemic agents may experience hypoglycemia with a delay in meals.
6. No sweets	Do not allow sugar (alone, in foods or in cooking), honey, molasses, syrup, jelly, jam, other sugar products or candied fruits, as they are quickly absorbed and result in undesirable glucose responses.
7. Fibre	Encourage high fibre foods.
8. Saturated Fat Cholesterol	Discourage fatty foods high in saturated fats and cholesterol.
9. Sodium	Since many adults with diabetes also have hypertension it is prudent to moderately restrict sodium intake. No more than 3 g per day is suggested. Alternate seasonings such as herbs, lime juice and spices can be used. (Table salt which contains 2 g sodium/teaspoon and processed foods are the major sources of sodium intake.) Discourage use of salt shaker and salty foods.
10. Carbohydrate Replacement	Replace the carbohydrate containing foods not eaten. For patients with IDDM it is preferable to replace carbohydrate foods not eaten with starchy foods. Fluids can also be used keeping in mind their more rapid absorption.
11. Hypoglycemia Reaction Treatment	**Treatment of Hypoglycemic Reactions** - The usual features of hypoglycemia are sweating, tremors, pallor and/or confusion. It may be caused by: • too much insulin or oral hypoglycemic agents • delayed meals • inadequate food intake with no substitution • too much exercise without appropriate compensation

Hypoglycemic reactions are treated by giving a quick source of sugar in order to return the blood glucose to normal.

The appropriate amount of sugar needed is 10-20 grams carbohydrate. 10 g carbohydrate are found in:

120 ml (4 oz) unsweetened orange juice

120 ml (4 oz) regular carbonated beverage

10 ml (2 tsp) sugar or 2 sugar cubes

10 ml (2 tsp) corn syrup

2 regular hard candies

The patient should wait 5-10 minutes until the sugar has a chance to be absorbed. If hypoglycemia is severe, treatment may need to be repeated. If the next meal or snack is not to be eaten immediately, a slow source of glucose (starch) should be eaten as well.

12. Exercise

Exercise for individuals with diabetes has many possible benefits, however there are also some possible risks. For most individuals the benefits of exercise outweigh the risks. Exercise should be included in the diabetes treatment programme. Brisk walking, running, cycling, swimming or playing a ball game are recommended.

The possibility of hypoglycemia during or after exercise in those persons on insulin should be considered. These individuals should be reminded always to carry a source of carbohydrate when exercising as well as identification. Monitoring for hypoglycemia and being prepared to eat more food or reduce insulin dose is important during this period. Individuals with NIDDM usually do not need supplementary food.

13. Alcohol

Alcohol should not be encouraged but the following guidelines are appropriate: use in moderation, i.e. not more than 1-2 drinks of alcohol once or twice a week.

TABLE 1: RECOMMENDED COMPOSITION OF DIABETIC DIET

NUTRIENTS	% TOTAL ENERGY	RECOMMENDATIONS
Energy		Sufficient to achieve or maintain desirable body weight.
Protein	15-20%	Recommended daily allowance is 0.8 g/kg body weight for healthy adults. Intake is modified for children, pregnant and lactating women, the elderly and individuals with special medical conditions, e.g. renal complications.
Fat	30% or less	1/3 saturated fat, 1/3 polyunsaturated fat, 1/3 mono-unsaturated fat. Less than 300 mg cholesterol per day.
Carbohydrate	50-60%	Provide carbohydrate 30% per meal, 10% carbohydrate for snacks/day; 70% carbohydrate as complex, especially high fibre foods; avoid simple sugars.
Fibre		Up to 40g per day; 25g/1000 kcal (4200 kJ).
Sodium		Not to exceed 3g/day. Limit salt intake.

TABLE 2: SUGGESTED DIABETIC MEAL SUBSTITUTIONS FOR DAYS OF ACUTE ILLNESS

CLEAR FLUID

Morning: Regular carbonated beverage/can (300 ml)
Regular gelatin dessert 160 ml (2/3 cup)
Clear Tea

Noon: Apple Juice - 180 ml (3/4 cup)
Clear Soup - 240 ml (1 cup)
Popsicle - 1 whole

Evening: Orange Juice - 240 ml (1 cup)
Broth - 240 ml (1 cup)
Sherbet - 120 ml (1/2 cup)

RESTRICTED SODIUM DIETS

A restricted sodium diet may be prescribed for several reasons. One of these may be cardiac disease. There are many cardiac diseases but the two that will be mentioned are atherosclerosis and hypertension.

Atherosclerosis is the most common form of hardening of the arteries, and refers to the thickening of the inner walls of the blood vessel. It is the most frequent cause of heart attacks and strokes. Atherosclerosis develops gradually throughout life.

Hypertension is one of the most prevalent of the serious chronic diseases. The blood pressure persists above the normal range. Hypertension can be a serious condition since the mortality of persons with the condition is higher than for the general population.

The causes of hypertension are:

1. **Heredity** may be one cause of hypertension, for many studies on family histories show a familial tendency. However, this may be due to environmental conditions which are the same for all members of the family.

2. Many persons consider **emotional strain or stress** one of the most important factors in causing elevated blood pressure. A compulsive, hard-working, aggressive person may be the type inclined to higher blood pressure.

3. A third factor is **race** as hypertension is less common in certain parts of the world, e.g. the Orient. However, this may be due to diet or other factors.

4. **Diet** is the fourth factor. A higher calorie or salt intake may be the cause. Blood pressure increases with **age**. High blood pressure is more common in young men than young women but the reverse is true after the age of forty-five.

5. The final factor in the development of hypertension and one of the most serious is **obesity** and here, the same factors which lead to obesity may lead to hypertension.

One symptom of hypertension may be edema. (Other diseases with edema include toxemia of pregnancy, certain kidney and liver diseases, and other heart diseases.)

Edema may be explained as follows:

1. Water makes up 70% of the lean body mass. Some of this water is found in the cells - `intracellular´, and some is found outside the cells `extracellular´. About three-quarters of the water is found in the cell.

2. Sodium helps to keep the correct balance between the amount of water in the cell and the amount outside the cell. If there is excess sodium in the extracellular water, the sodium pulls out some intracellular water so that the sodium balance will remain unchanged from the normal. This means that there is now excess water outside the cell.

3. This excess water outside of the cell is edema (swelling).

A restricted sodium diet decreases the amount of sodium in the extracellular water and thus the extra water goes back into the cell and the swelling decreases.

DESCRIPTION OF RESTRICTED SODIUM DIET

The four levels of Sodium Restricted Diets are:

1. Strict 500 mg Sodium (22 mEq/mmol)

2. Moderate 1 g Sodium (43.5 mEg/mmol)

3. Mild 2 g Sodium (87 mEq/mmol)

4. No added salt 3-5 g Sodium (130-217 mEq/mmol)

The diets should be prescribed in terms of milligrams (mg), gram (g). milliequivalents (mEq) or millimoles (mmol) of Sodium. **Such terms as low salt, salt free or low sodium are non-descriptive and will be considered as a 2 g sodium restricted diet.**

Salt substitutes are predominantly potassium chloride salts and may be contra-indicated as in renal complications. They should be used only with the permission of the physician.

Many convenience foods contain sodium and should not be used on Sodium Restricted Diets. Effervescent salts, laxatives and other medicines containing sodium must not be used. Labels should be read carefully.

Salt is added to processed foods in the form of MSG (monosodium glutamate), sodium bicarbonate and other compounds containing sodium. With the wide variety of frozen foods and packaged mixes available to the consumer plus the sodium-containing additives found in foods, it is extremely difficult for patients to follow less than a 2 g Sodium Restricted Diet. A 4 g Sodium Restricted or No Added Salt Diet is a practical level for home use.

Indication

Sodium Restricted Diets are indicated in congestive heart failure, hypertension, renal disease with sodium retention, liver disease, oedema and chronic renal failure. Restricting sodium in the diet promotes loss of body water by reducing the sodium content in body tissues.

Sodium Restricted Diets are frequently accompanied by a high or low potassium diet.

1000 mg SODIUM DIET

500 ml (2 cups) milk	120 mg x 2	=	240 mg
1 egg		=	70 mg
150 g (5 oz) meat	25 mg x 5	=	125 mg
3 slices regular bread	125 mg x 3	=	375 mg
15 ml (3 tsp) regular butter or margarine	50 mg x 3	=	150 mg
4 vegetables	9 mg x 4	=	36 mg
3 fruits	2 mg x 3	=	6 mg
	TOTAL	=	1002 mg

2 GRAM (2000 mg) SODIUM DIET (87 mEq) (87 mmol)

① Foods may be cooked or canned with salt but no salt is added after food is cooked. Salt used in preparation of food should be limited to 2.5 g (1/2 tsp) daily.

② Omit the following foods with high sodium content: ham, bacon, corned beef, luncheon meat, frankfurters, sausage, salt pork, saltfish, pig's tail, salt meat, cooked or canned fish or meat, ketchup, chili sauce, mustard, soya sauce, monosodium glutamate (Vte-Sin, Accent), celery salt, onion salt, garlic salt and seasonings containing salt, Worcester sauce, bouillon cubes, canned soups, tomato or vegetable juices, pickles, olives, processed cheese, cheese spreads, salted crackers, potato chips, plantain chips, breadfruit chips, salted nuts.

③ Several spices may be used for flavour. See those listed under "Flavouring Ideas".

SUGGESTED DAILY MEAL PLAN WITH SAMPLE MENU:
SODIUM RESTRICTED DIETS

2000 mg SODIUM

[No more than 2.5 g (1/2 tsp salt) daily in cooking]

	MORNING	NOON	EVENING
MEAL PLAN	Fruits Staple foods Food from animals Fats Beverage Miscellaneous Beverage Miscellaneous	Food from animals Staple foods Legumes Green leafy yellow or other non-starchy vegetables Fats Fruits Beverage Miscellaneous	Food from animals Staple foods Green leafy yellow or other non-starchy vegetables Fats Fruits
SAMPLE MENU	Grapefruit juice 1 boiled egg Bread Margarine or butter Milk Coffee	Beef stew Rice and peas Sweet potato Carrots Banana Lemonade	Baked fish Parslied potato Sliced tomato Bread Margarine or butter Milk

NO ADDED SALT (approximately 3-5 g Sodium) DIET

All foods are allowed as on a regular diet, with a moderate amount of salt permitted in preparation of food. No salt should be added after the food is cooked. Excessively salty foods and the use of salt at the table are not permitted.

Sodium Free Baking Powder

The following recipe can be prepared by a pharmacist:

Potassium Bicarbonate	-	39.8g	Tartaric Acid		-7.5g
Cornstarch	-	28.0g	Potassium Bitartrate		-56.1g

1 tsp regular baking powder = 1 1/2 tsp sodium-free baking powder. Cream of tartar and yeast may be used without restriction.

Flavouring Ideas

SEASONINGS AND FLAVOURING AIDS **ALLOWED** ON SODIUM RESTRICTED DIETS

Allspice
Almond extract
Anise seed
Basil
Bay leaf
Bouillon cube, low sodium dietetic if less than 5 mg sodium per cube
Caraway seed
Cardamon
Chili powder
Chives
Cinnamon
Cloves
Cocoa (1-2 tsp daily)
Coconut
Cumin
Curry (sodium free)
Dill
Escallion (shallot)
Fennel
Garlic, garlic juice or garlic powder
Ginger
Horseradish root or horseradish prepared without salt
Juniper
Ketchup, dietetic
Lemon juice or extract
Mace
Mint
Mustard, dry, or mustard seed
Maple extract
Marjoram
Nutmeg
Onion, onion juice or onion powder
Orange extract
Oregano
Paprika
Parsley or parsley flakes
Pepper, fresh, green or red
Pepper, black, red or white
Peppermint extract
Pimento peppers for garnish
Poppy seed
Poultry seasoning (low sodium)
Purslane
Rosemary
Saffron
Sage
Salt substitute*
Savory
Sesame seeds
Sorrel
Sugar
Sugar substitute
Tarragon
Thyme
Tumeric
Vanilla extract
Vinegar
Walnut extract
Wine if allowed

**Without sodium, and if approved by physician.*

For Meat, Poultry Fish, Eggs

Beef	-	Bay leaf, dry mustard, green pepper, garlic powder, marjoram, nutmeg, onion, sage, thyme
Chicken and Turkey	-	Paprika, parsley, poultry seasoning (low sodium), sage, saffron, tarragon, thyme
Lamb	-	Basil, curry, garlic, marjoram, mint, rosemary, sage
Pork	-	Garlic, marjoram, onion, oregano, rosemary, sage, thyme
Veal	-	Basil, bay leaf, curry (low sodium), ginger, marjoram, mint, oregano, rosemary, sage, tarragon
Fish	-	Bay leaf, curry (low sodium), dry mustard, green pepper, lemon juice, marjoram, mushrooms, paprika, saffron, sage, tarragon, thyme
Eggs	-	Basil, curry, dry mustard, green pepper, marjoram, onion, paprika, parsley, rosemary, saffron, thyme

Salt/Sodium Content Of Selected Items

Each item contains approximately 1 g salt (400 mg sodium):

1/4 teaspoon salt

1 teaspoon soy sauce

4 teaspoons Worcester sauce

2 tablespoons catsup

2 tablespoons chili sauce or barbecue sauce

5 tablespoons mayonnaise

2 tablespoons French salad dressing

Sodium Compounds To Avoid

These are the most common sodium compounds added to foods. The words "soda", "sodium" or the symbol "Na" on labels will indicate products that must be avoided. Do not use foods that contain the following:

Salt	Sodium citrate
Baking soda (bicarbonate of soda, sodium bicarbonate)	Sodium saccharin
Baking powder	Sodium propionate
Monosodium glutamate (MSG)	Sodium sulphite
Brine (salt and water)	Di-sodium benzoate
	Sodium cyclamate

NUTRITIONAL CARE FOR INDIVIDUALS WITH AIDS*

Acquired Immune Deficiency Syndrome (AIDS) is a disease that renders the body defenseless against numerous infections and is thus life threatening. Commonly used names for the virus associated with AIDS are HIV (human immunodeficiency virus) and HTLV III (human T lymphotropic virus type III).

With the onset of AIDS, patients may experience weakness and malaise, shortness of breath, sweats and prolonged fever, thrush and anorexia. Nutritional depletion often referred to as "wasting syndrome" is associated with AIDS, and results from the above problems in addition to depression and/or the patient's inability to care for himself/herself.

General Information

It has been shown that nutrient deficiencies and imbalances produce specific defects in the body's immune system and although not causal may help foster the development of AIDS. Deficiencies in protein and calories as well as numerous vitamins and minerals, including iron, have resulted in or have been associated with impaired T-lymphocyte cell function, impaired antibody production and phagocyte activity. It has been suggested that early nutritional intervention may be useful in the treatment of AIDS. Protective measures to guard the immune system, include eating a nutritionally balanced diet.

Potential Complications

Common problems contributing to malnutrition in this population include lack of appetite, nausea and vomiting secondary to drug therapy, mouth sores and swallowing difficulties. Diarrhea is probably one of the most common and potentially serious complications as it contributes to malabsorption and dehydration. In addition, patients often develop fever which increases their nutritional needs.

**Reference: Manual of Nutrition & Dietetic Practice for the Caribbean. CFNI, Kingston, Jamaica, 1990.*

Nutritional Requirements

Eating both the proper amounts and types of food will provide the body with the energy, protein and nutrients needed during illness. Meeting caloric requirements, which reach almost twice the pre-illness needs, is necessary for maintaining body weight. Consuming adequate protein each day is essential for maintaining muscle mass, minimizing infection, and building body tissue. Protein requirements can be estimated at 1.2 - 1.8 g protein/kg actual body weight. Electrolyte and mineral imbalances should be monitored especially in patients experiencing large diarrheal losses suggesting increased requirements. All patients with AIDS should undergo nutritional assessment and monitoring.

Nutritional Recommendations

Many AIDS patients are able to tolerate a regular diet. More often as a result of swallowing difficulties or other gastrointestinal complications, a soft or low residue diet is indicated to promote optimal nourishment. When malabsorption is present, a lactose-free, low fat diet may also be warranted. All patients should be offered high protein, high calorie snacks in addition to meals. A dietary supplement is often necessary.

Dietary counselling of these individuals is important. Anorexia has been noted in these patients and advantage should be taken of the relatively good appetite at breakfast. It is important that the individual understands that a high calorie, high protein intake takes precedence in this illness.

NUTRITIONAL CARE OF THE CANCER PATIENT

Description

The development, progression and treatment of cancer may adversely affect nutritional status and increase the risk for severe depletion. Nutrition therapy should be instituted early and monitored on a regular basis.

Nutritional assessment is the first step in the nutritional management of the patient with cancer. Based on results of the nutritional assessment, a therapeutic nutrition programme can be tailored to meet individual needs. **Follow-up is essential.**

Foods should be selected as outlined in the Daily Food Guide based on the Six Food Groups for the Caribbean, with modifications to meet the patient's individual needs. It is possible to add significant energy and other nutrients through the use of regular foods.

Nutritional Management

The specific goals of nutritional management include:

1. Achieving and/or maintaining reasonable body weight.
2. Preventing or correcting macronutrient (carbohydrate, protein, fat) imbalances and deficiencies.
3. Reducing incidence of dehydration.
4. Preserving and repairing tissue function.

GENERAL GUIDELINES

Energy intake can be increased through simple dietary modifications such as:

- Adding supplements
- Serving fruit juice or milk instead of water
- Adding extra butter or margarine to foods
- Adding sugar or jelly to foods consumed

Vitamin and mineral supplements should be given if food intake is insufficient to meet the daily nutrient requirements. When more aggressive nutritional support is required, tube feeding or parenteral nutrition may be considered. Parenteral nutrition is usually indicated for patients with inadequate gastrointestinal tract function.

SPECIAL PROBLEMS

Symptoms	Treatment
1. Anorexia	Small frequent meals
	Attractive meals
	Between-meal snacks easily available and appealing
	Nutritional supplements
	Appetite stimulants, e.g. alcohol
2. Body weight loss and muscle wasting	Increase calories and protein in the diet
	Encourage between-meal nourishments
	Add powdered milk to foods and beverages

	Add extra cooked eggs to foods
	Increase fats and gravies
3. Taste Aversions	Serve cold foods with minimal odours
(a) Red meats	Serve cold meats or meat dishes
	Use alternate sources of protein such as eggs, cheese, milk, yoghurt, nuts, fish, poultry
(b) Sweet foods	Use unsweetened foods and drinks
	Use lime/lemon to `cut´ sweetness of beverages, where appropriate
	Use a bland-tasting (less sweet) nutritional supplement
	Use fat as the primary supplemental source of energy
4. Nausea, vomiting	Avoid strong food odours
	Encourage clear fluids such as broth, fruit juice; continual sipping of small amounts of fluid may help to reduce nausea
	Emphasize high carbohydrate, low fat foods e.g. dry toast, crackers, flavoured gelatin, cereal, soft drinks
	Separate dry and liquid foods
5. Diarrhoea	Replenish fluid losses
	Adjust dietary fibre intake
	Use small frequent feedings
	Avoid gas-producing foods
	Consider lactose content of diet
	Use antidiarrheal agents as directed by the physician
6. "Dumping Syndrome"	Small frequent feedings
	Restrict refined carbohydrate and increase protein and fat in the diet
	Restrict fluids to 30 minutes before a meal and 30-60 minutes after a meal

Symptoms	Treatment
7. Excessively dry mouth	Use liquids and very moist soft foods; dry foods should be moistened with milk, gravy, broth, sauces or melted butter/margarine. Encourage fluids with meals
8. Sore mouth and throat	Use soft foods and liquids that are cold or at room temperature Avoid highly seasoned or acidic foods Maintain good oral hygiene
9. Constipation	Increase fibre in the diet, by adding fresh fruits and vegetables, whole-grain cereals Ensure adequate fluid intake Medication as directed by the physician
10. Chewing and swallowing difficulty	Thick consistency liquids, e.g. milkshakes with blended banana or semi-solid foods, e.g. potatoes/yam and gravy

Special Considerations

PALLIATIVE CARE

Palliative care is the compassionate and continuing care of the dying patient. Consequently, medical or nutritional management are supportive, rather than curative, and designed to maximize comfort and pain control.

Optimal nutritional care in the palliative phase should enhance quality of life by:

1. Fulfilling life sustaining requirements for fluids.
2. Respecting patient's choice or preference for type, amount and mode of feeding.
3. Evaluating the benefits of continued adherence to dietary restrictions.
4. Coordinating administration of pain medication to maximize enjoyment of meals.

Annexes

DEFINITIONS OF TERMS USED IN FOOD PREPARATION

BAKE - To heat without a cover in an oven or similar equipment; synonymous with `roast´ if meat is cooked uncovered.

BARBEQUE - To bake in a covered pit or roast or broil slowly on a spit, using glowing heat of some type to cook an item; foods prepared in this way are frequently basted with a spicy sauce or served with such a sauce.

BARD - To lay strips of salt pork, bacon, fatty tissue on top of or in gashes in fish, poultry, or meat to prevent it from drying out while roasting.

BASTE - To moisten foods during cooking with melted fat, meat drippings, juices, sauces, or liquids to add flavour and to retain moisture.

BATTER - To immerse in a soft batter before frying or deep-fat frying; usually stated as `batter-dipping´.

BEAT - To use a vigorous brisk motion, lifting up and over with a spoon or other utensil, or to achieve a similar result using an egg beater, electric mixer, or other tool.

- To create a foam by whipping eggs. The following terms are often used to describe various stages to which whites, yolks and whole eggs may be beaten:

Whites

Beaten stiff: beaten until they stand in peaks that just bend over when the beater or whip is lifted from the bowl; surface is still moist and glossy.

Beaten very stiff: beaten until the surface is dry and the peaks stand up straight.

Yolks

Well beaten: beaten until thick enough to pile and are lemon yellow.

Whole Eggs

Slightly beaten: beaten until the yolks and whites are just blended.

Well beaten: eggs are light and frothy and colour is light.

BLANCH - To immerse briefly in boiling water; purpose may be to partially cook, to aid in the removal of skins, or to inactivate enzymes.

BLEND - To combine two or more ingredients thoroughly.

BOIL - To cook immersed in water or liquid that is boiling; you could say that boiling is making water or liquid `laugh out loud´ while simmering is making water `only smile´. In other words, bubbles rise and break the surface in boiling; in simmering, bubbles come toward the surface but do not break through.

BRAISE - To cook foods in a small quantity of liquid; often meat is browned before the liquid is added. Some foods may be called braised when they are lightly fried or sauteed in butter or fat such as `braised vegetables´. In braising, the food is cooked with a cover to trap the moisture. `Fricasseeing´, `pot roasting´, `casseroling´, and `swissing´ are other terms occasionally used to denote this process.

BREAD - To coat with crumbs of bread or other finely divided food; usually a breaded item is first dipped into seasoned flour, then into a liquid such as lightly beaten eggs or milk, and finally coated with crumbs before being fried.

BROIL - To cook by radiant (glowing) heat.

BRUSH - To brush liquid butter or other liquid on food with a pastry brush.

BUTTER - To cover or brush with butter.

CANDY - To cook in a sugar syrup (or in a mixture of sugar and butter or margarine) until plump.

CARAMELIZE - To heat sugar or foods that contain sugar until they are golden-brown and have a caramel flavour.

CASSEROLE	-	To cook in a casserole dish either covered or uncovered; frequently stated of entree items baked in a sauce.
CHILL	-	To cool to below 45°F but not freeze; may be done by placing in cold water or by storing in the refrigerator.
CHOP	-	To cut into pieces with a knife, cutter, chopper, or other sharp tool; the size should be specified since foods may be coarsely or finely chopped. If the latter, the word `mince´ is preferable.
CLARIFY	-	To remove cloudy materials by decanting, filtering, or using foods that pick up the flocculent material and leave a clear liquid.
COAGULATE	-	To heat protein foods until the protein becomes firm; often this process is accompanied by a colour change.
COAT	-	To cover with a liquid, crumbs, or other substance; the coating process may be done by shaking the food in a bag with the coating material, pouring or sifting the coating material over the food, or dipping the food into the coating.
CODDLE	-	To cook by pouring boiling water over the food and covering while the food is allowed to stand until the proper doneness is achieved; the food most commonly cooked in this manner is eggs.
COOL	-	To reduce the temperature; the temperature is not allowed as much as it is in chilling.
CREAM	-	To work a food with a spoon, utensil, or machine until it is soft and creamy such as creaming butter, sugar, and eggs until they are light and fluffy; to cream also means to cook in or serve with a white cream sauce.
CRIMP	-	To gash the surfaces of fish or meat.
CRISP	-	To soak or moisten and then chill foods to make them crisp, also to fry or cook so that the outer coating or surface is crisp.
CUBE	-	To cut into pieces, usually from one-fourth to one-half inch on a side. If foods such as meat are to be cut into larger pieces, this should be stated in the recipe.

CUT-IN	-	To cut butter, margarine, or shortening into a dry mixture until the fat is in small pieces; knives, a pastry belnder, mixer, or other utensil can be used.
DEEP-FRY	-	To cook immersed in hot fat or oil.
DEVIL	-	To cook or bake in tangy sauce; deviled eggs or some other deviled foods are foods that are made tangy.
DICE	-	To cut into small cubes, usually about one-fourth inch in size.
DISSOLVE	-	To add a dry substance to a liquid and mix or stir until it is completely in solution and no longer can be seen.
DOCK	-	To prick, pierce, or cut to assist in proper baking; a single pie crust is pricked to prevent steam bubbles forming under it during baking; rye bread or hard breads may be slashed (docked) to prevent them from bursting during baking.
DOT	-	To scatter small bits, such as nuts, fruits, butter or margarine, over the surface of food.
DREDGE	-	To coat with flour.
DRESS	-	To garnish; to cover.
DUST	-	To lightly sprinkle until thinly coated.
EMULSIFY	-	To make two immiscible (non-mixing) liquids such as water and oil into a uniform mixture by dispersing one of the liquids as very fine drops in the other liquid.
FILLET	-	To cut into strips; to remove bone from raw meat or fish. (Also spelled filet.)
FLOUR	-	To dredge or coat with flour; the flour is usually seasoned.
FOLD	-	To use a delicate over-and-under motion that carries and buries light delicate substances such as egg whites, whipped cream, or whipped gelatin into a product to give lightness. This term also can mean to place in layers by lapping or laying one part over another such as in done with bread.
FREEZE	-	To subject to such a low temperature that ice crystals form throughout the food.

FRICASSEE	-	To cook by braising, such as is done with fowl, rabbit, or veal; frequently the item is not browned before liquid is added.
FRY	-	To cover in shallow fat; also called sauteing, pan-frying, and skillet- or griddle-frying.
GEL	-	To thicken into a solid mass such as occurs in gelatin or pectin mixtures.
GLAZE	-	To cover with a shiny coating such as glazing with sugar or covering a pie crust or bread with an egg and milk mixture and allowing it to develop a rich, golden-brown, shiny crust; covering meat or other foods with a rich sauce that gives a pleasing sheen to the food.
GRATE	-	To rub on a grater to produce fine, medium, or coarse particles; to rasp.
GRATINEE	-	To cover with crumbs, cheese, or other food and delicately brown under an oven flame or glowing heat; often called `au gratin´.
GREASE	-	To coat a pan or food with oil or fat.
GRIDDLE	-	To saute on a griddle.
GRILL	-	Used to mean to broil but is no longer used to indicate this; it now means to cook on a griddle.
GRIND	-	To divide food by cutting or crushing with a grinder or chopper.
HOMOGENIZE	-	To divide into small particles so that the particles stay in suspension; usually done to keep cream from rising and forming a separate layer in milk; also frequently done in the making of mayonnaise to develop very fine oil droplets, resulting in a more stable emulsion.
ICE	-	To chill; sometimes, to freeze. Frequently, to ice may mean chill by covering with chopped ice.
JUGGED	-	To braise in a covered casserole such as `jugged hare´.
JULIENNE	-	To cut into strips one-fourth to one-eighth inch thick.

KNEAD	-	To work with a vigorous, pressing motion in which the pressure folds and stretches the food at the same time; commonly done to bread dough to develop better texture.
LARD	-	To pull strips of fat through a food (usually very lean meat).
MARINATE	-	To soak food in a marinade (acidic, seasoned liquid) to add flavour or to tenderize; sauerbraten, a German pot roast, is made by marinating a roast in such a mixture for several days before braising; sometimes salad foods are marinated a short time to give them extra flavour.
MASK	-	To cover or coat completely with a sauce, mayonnaise or other substance.
MEASURE	-	To divide into a desired quantity.
MELT	-	To liquefy.
MINCE	-	To cut, chop, or divide into very small pieces.
MIX	-	To incorporate foods into an even mixture.
MOLD	-	To shape by putting foods into a utensil that gives form.
MOUND	-	To heap so that the food gives some shape.
PAN BROIL	-	To cook uncovered in a frying pan or griddle without fat; any fat coming from the food is removed as it collects.
PAN FRY	-	To saute or cook in shallow fat.
PARBOIL	-	To boil or blanch until partially cooked.
PARCH	-	To brown or dry out completely with dry heat, usually applied to grains, but sometimes nuts.
PARE	-	To remove the outside skin or covering with a knife or peel.
PASTEURIZE	-	To destroy pathogenic bacteria or other microorganisms with moist heat.
PEEL	-	To pare; usually we say a potato is pared and an orange is peeled.
PIPE	-	To put a border around food.

PIT	-	To remove seeds or pits.
PLANK	-	To broil meat, fish, or other food on a wooden plank with a border of Duchess potatoes around the outside and vegetables around the boiled food.
POACH	-	To cook immersed in hot liquid, usually under boiling.
POELER	-	To saute in butter or fat until browned and then to cover and braise.
POT ROAST	-	To braise; usually said of larger cuts of meat that are browned before liquid is added.
PRESERVE	-	To retard spoilage by the use of sugar, salt, or other preservations. Preserves are small whole fruit or uniform pieces of larger fruit cooked in a sugar syrup and stored in the thick syrup or jellied juice.
PREHEAT	-	To bring up to a desired temperature before baking or cooking.
PUNCH	-	To fold over or press down a bread dough during the rising period.
PUREE	-	To press through a fine sieve or food mill.
RASP	-	To grate; to divide into very fine particles.
REDUCE	-	To remove liquid by evaporating; the quantity or reduction should be stated.
RENDER	-	To separate fat from connective tissue, using low heat.
RICE	-	To put cooked potatoes through a ricer, which divides the food into small rice-like particles.
RISSOLE	-	To over-brown.
ROAST	-	To bake in dry heat in an uncovered pan with the meat on a rack above the collecting drippings.
ROLL-IN	-	To layer or dot with butter, other fat and then fold dough over, and to continue the process until many layers of dough and butter are obtained; done for Danish pastry, puff pastry, and some other baked foods.

SAUTÉ	-	To fry in shallow fat.
SCALD	-	To heat until all bacteria and enzymes are inactivated; to dip into very hot liquid (see blanch). Also, to heat a liquid, usually milk, until bubbles appear around the edges - not boiling.
SCALE	-	To weigh or measure.
SCALLOP	-	To bake food in a sauce or other liquid.
SCORCH	-	To burn lightly; a slight off-flavour may result.
SCORE	-	To cut or mark; an omelet may be dusted with powdered sugar and then scored by caramelizing some of the sugar with a hot instrument; sometimes used to describe the marking of ham, but crimping is the term commonly applied to this process with most meats and fish.
SCRAPE	-	To remove thin layers from food with a sharp or blunt instrument; similar to pare and peel.
SEAR	-	To brown the surface of food with dry; intense heat.
SEASON	-	To flavour.
SHAKE	-	To toss in a container.
SHAPE	-	To mold; to give form.
SHIRR	-	To bake, as eggs.
SHRED	-	To cut or tear into fine pieces; sometimes to cut into small julienne strips.
SIFT	-	To put through a flour sifter or fine sieve; often dry ingredients are sifted once and then measured and sifted three times to thoroughly blend them before they are added to a batter or dough that will not be mixed vigorously.
SIMMER	-	To cook in liquid that is just below boiling.
SKEWER	-	To hold in place by means of metal or wooden skewers; to string onto a wooden or metal rod such as in making shishkabobs.

SKIM	-	To remove the surface layer.
SLICE	-	To cut into layers; to carve.
SLIVER	-	To cut or split into long thin pieces.
SMOTHER	-	To cook covered with some food; liver is often served covered (smothered) with onions.
SNIP	-	To cut into small pieces with a scissors.
SOAK	-	To allow to stand immersed in a liquid.
STEAM	-	To cook above boiling water in a closed container.
STEEP	-	To allow a food to stand in a liquid to remove or to take on flavour, colour, or other qualities.
STERILIZE	-	To completely destroy microorganisms.
STEW	-	To cook in a small quantity of liquid; more liquid is used than is added for braising, but then quantity is less than is used for simmering.
STIR	-	To mix food with a circular motion.
SWISH AND SWIRL	-	To remove drippings by a process in which the drippings are scraped from the pan while being worked into the liquid; usually done over heat.
SWISS	-	To pound meat to aid in tenderizing it and then to braise; usually a tomato sauce is the liquid added.
TOAST	-	To brown with heat.
TOSS	-	To flip lightly to mix ingredients or to coat them with a dressing.
TRY-OUT	-	To render; to remove fat by low heat.
WARM	-	To heat to a temperature of 105 to 115°F.
WHIP	-	To beat rapidly to bring air into a product, thus giving a light texture and increased volume; to make foamy.

FOOD INTAKE (24-HOUR RECALL)

Name: _____

Date: _____

INSTRUCTIONS

List the amount of everything, even water, that you ate and drank yesterday. State whether it was raw or cooked; how it was prepared (e.g. fried, boiled); how it was served, e.g. added margarine, syrup, sugar, salad dressing. If you are uncertain about the quantity, please estimate. Include snacks, sweets, etc.

TIME	PLACE	AMOUNT AND FOOD ITEM(S) EATEN	HOW PREPARED

Is this intake typical of your usual pattern? Yes ____ No ____

If 'No', how does it differ? _____

How does your weekend food intake compare with weekdays?

_____

_____

Level of activity _____

ASSESSMENT OF NUTRITIONAL STATUS DIET HISTORY - ADULT*

Clinic/Ward: _____

GENERAL INFORMATION

IDENTIFICATION:

Name: _____ Registration No.: _____
(Surname) (First Name)

Address: _____

Phone: (Home)_____ (Business)_____

Marital Status: S____ M____ W____ D____ CL____ Age_____ Sex_____

Ethnic Origin: Negro_____ East Indian_____ Chinese_____ Mixed_____

Religion_____

CLINICAL INFORMATION

Diagnosis:_____

_____

ANTHROPOMETRIC DATA

Height_____cm (ft ins) Weight_____kg (lbs) BMI_____

Lowest Weight_____ Usual Weight_____ Desirable Weight_____

Recent loss/gain in weight_____ Was weight change planned?_____

PERTINENT LABORATORY DATA

Serum:

Urine:

OTHER INFORMATION

IV Fluid, length_____

NPO, length_____

Liquid Diet, length_____

EDUCATION: Primary_____ Secondary_____ Post Secondary_____

OCCUPATION: _____

INCOME RECEIVED FROM:

Employment_____ Pension_____ Public Assistance_____ Other_____

HOUSING:

Lives alone_____ Lives with family_____ Single family home_____

Room_____ Apartment_____

**Developed by Mrs. June Holdip, Clinician Dietitian, Eric Williams Medical Sciences Complex, Trinidad & Tobago.*

NUMBER IN HOUSEHOLD:_____ Adult_____ Children_____ Infants & Toddlers_____

COOKING: Who does the cooking?_____ Cooking facilities_____

STORAGE: Do you have a refrigerator?_____

SOURCE OF FOOD SUPPLIES:

Purchased_____ Home Garden_____ Donated_____

SHOPPING: Who does the shopping?_____ How much wk/mth_____

LIFESTYLE: Work Hours_____

Exercise_____

Leisure Activities_____

Parties per Week_____

Sleep Hours_____

Rest-day Hours_____

Smoking_____

Alcoholic Beverages_____

Meals eaten away from home_____

NUTRITION HISTORY:

Special diets in the past: Name_____ How long_____

Results_____

Reducing aids_____

Best liked foods_____

Least liked foods_____

Food fads_____

Meals per day - Where?_____

Appetite_____

Dental condition_____

Food intolerance/allergies_____

Fluid intake_____

Sight_____

Vitamin supplements/tonics_____

Kind/frequency_____

Medicines_____

Laxative (kind and frequency)_____

Bowel regularity_____

Impression as to accuracy of History and General Information_____

_____

_____

_____

_____

Evaluation and Plan_____

_____

_____

_____

_____

Interviewer: _____

Position: _____

Date: _____

FOOD FREQUENCY CHECKLIST

INSTRUCTIONS

Indicate whether or not the following foods are eaten by checking the appropriate column for each item. For each food checked, write the approximate number of times eaten in a day or week. A space has been provided at the end to write in foods which are not listed and are eaten regularly.

FOOD FREQUENCY	SERVINGS DAILY	SERVINGS WEEKLY	RARELY	NEVER
Do you eat the following?				
1. **STAPLES**				
(a) Bread, Rice and Cereals				
Bread/biscuits/bakes				
Salted biscuits				
Sweet biscuits				
Rice				
Other Cereals (corn, oats, or other flour products)				
(b) Ground Provisions				
Potato (sweet, Irish)				
Breadfruit				
Yam				
Other starchy vegetables				
2. **PEAS AND BEANS**				
Dried peas and beans				
Nuts				
Peanut Butter				
3. **DARK GREEN LEAFY, YELLOW AND OTHER VEGETABLES**				
Callaloo				
Pumpkin				
Cabbage				
Carrots				
Greens or spinach				
Lettuce				
Tomatoes				
Beets				
Green beans				

FOOD FREQUENCY	SERVINGS DAILY	SERVINGS WEEKLY	RARELY	NEVER
4. FRUITS				
Grapefruit				
Grapefruit juice				
Orange				
Orange juice				
Pineapple				
Pawpaw				
Golden apples				
Bananas				
Sweetened canned fruits				
5. FOODS FROM ANIMALS				
Beef				
Lamb				
Mutton				
Liver				
Pork				
Chicken				
Turkey				
Ham				
Frankfurters				
Canned meats, sausages				
Cheese, cheddar				
Eggs				
Fish, fresh				
Fish, canned				
Shell fish				
Other meats, specify				
Milk - whole				
Milk - skimmed				
Milk - evaporated				
Milk - low fat 2%				
Milk - condensed				
6. FATS AND OILS				
Bacon				
Butter/margarine/shortening				
Cream				
Mayonnaise				
Salad dressing				
Oil - coconut				
Oil - vegetable, e.g. corn, soya				
Nuts				

FOOD FREQUENCY	SERVINGS DAILY	SERVINGS WEEKLY	RARELY	NEVER
7. SNACKS AND SWEETS				
Diet "soft drinks"				
Other "soft drinks				
Malt/stout				
Artificial sweeteners (identify)				
Sugar, honey, molasses				
Popcorn				
Potato chips				
Plantain chips				
Candy				
Cake				
Pie				
Ice cream				
8. MISCELLANEOUS				
Alcoholic beverages (whiskey, rum, gin, etc.)				
Beer, stout, malt				
Coffee				
Tea				
Soy sauce				
Salted meat/fish				
Seasoned salt/stock cubes				
Tomato ketchup/sauces				
9. "TAKE-AWAY" FOODS				
Chicken and chips				
Fish and chips				
Hamburger				
Roti				
Pizza				
Other, specify				
10. OTHER FOODS NOT LISTED				

RECOMMENDATIONS AND ANY REFERRALS MADE:

DEFINITIONS OF TERMS USED IN CLINICAL DIETETICS

ANAEMIA	-	A condition in which the haemoglobin content of the blood is low; red cells may be decreased in number or altered in appearance
ANOREXIA	-	Lack or loss of appetite for food
ASCORBIC ACID	-	A water soluble unstable vitamin also called Vitamin C
CALORIE	-	The unit used to express food energy
CARBOHYDRATE	-	Carbohydrate of foods available to the human body to be used (starches and sugars)
CATHARTIC	-	A medicine which evacuates the bowels
CHOLESTEROL	-	A fat-like substance found in animal tissues
DAILY NUTRIENT INTAKE, RECOMMENDED	-	The amounts of various nutrients recommended for various age groups by gender
DIET	-	Daily allowance or intake of food and drink
DIET, HIGH CALORIC	-	A diet which has a prescribed caloric level above the total energy requirement
DIET, LOW CALORIC	-	A diet which has a prescribed caloric level below the total energy requirement
DIET, FULL HOSPITAL	-	A normal diet for patients who do not require dietary modifications
DIET, GLUTEN-FREE	-	A diet without the gluten found in wheat, oats and rye
DIET, SODIUM RESTRICTED	-	A diet in which the sodium content is limited to a prescribed level
DIET, SOFT	-	A diet modified in consistency
DIET, TEST	-	A meal or meals used for diagnostic purposes
DIET, THERAPEUTIC	-	A diet based on the normal diet and designed to meet the requirements of a given situation
DIETARY FIBRE	-	Soluble and insoluble materials in foods from plants

DIETARY STANDARD	-	The amount of various nutrients considered to be necessary for normal persons; based on body size, age, sex, kind of activity
DIETETICS	-	The combined science and art of feeding individuals or groups according to the principles of nutrition and management
DIETITIAN	-	One who has a degree and advanced education in the sciences of nutrition and management
DIGESTION	-	The process of converting food into substances which can be absorbed by the body
DISTENTION	-	A stretching apart
EDIBLE PORTION	-	As used in food value tables, this term refers to that part of a food which is most commonly eaten
ENRICHED BREAD	-	May be made from enriched flour or by the addition of the required substances (vitamins and iron) to the baker's formula
ENRICHED FLOUR	-	White flour to which vitamins and iron, and sometimes calcium have been added
FALILIAL DISEASE	-	A disease appearing in individuals by heredity
FOOD EXCHANGES	-	Lists of foods grouped in terms of approximate equivalents in carbohydrate, protein and fat content; used for the purpose of planning diabetic, low calorie and other measured diets
FORTIFIED FOOD	-	A food to which a vitamin or other dietary essential has been added in such an amount as to make the total content larger than that contained in any natural (unprocessed) food of its class - for example, Vitamin A in fortified margarine
HYPERLIPIDEMIA	-	Very high levels of fat in the blood
INSULIN	-	The hormone produced by the pancreas essential for normal carbohydrate metabolism
LIPIDS	-	Fat or fat-like substances
LIPOPROTEIN	-	
MALNUTRITION	-	A condition of the body resulting from an inadequate supply or impaired utilization of one or more of the essential food constituents
METABOLISM	-	All chemical changes which occur to substances within the body after absorption

NIACIN	-	A water-soluble, heat-stable member of the Vitamin B complex
NUTRIENT	-	Substance which nourishes the body, for example, proteins, fats, carbohydrates, minerals, vitamins, water
NUTRITION	-	The combination of processes by which the living organism receives and utilizes the materials necessary for the maintenance of its functions and for growth
PROTEIN	-	A compound which yields amino acids; proteins are essential constituents of all living cells
PYLORIC SPHINCTER	-	A band of muscle encircling the opening between the stomach and the intestine
REGIME	-	A mode or system of rule (diet regime - a regulated course of diet)
RIBOFLAVIN	-	A member of the Vitamin B complex; a water soluble, heat-stable vitamin
SALT, IODIZED	-	Table salt (sodium chloride) to which iodine has been added
STAPHYLOCOCCUS	-	A type of bacteria
SYNDROME	-	A number of characteristic symptoms occurring together
THERAPY	-	The treatment of disease
THIAMINE	-	A member of the Vitamin B complex; a water soluble heat-labile vitamin
VITAMIN	-	An organic substance occurring in minute quantities in plant and animal tissues

TABLE OF WEIGHTS, MEASURES AND CONVERSIONS

U.S. Measurements	Metric Measurements	
	Liquid	Dry
1 teaspoon	5 milliliters	5 grams
1 tablespoon = 3 teaspoons	15 milliliters	15 grams
1 ounce = 2 tablespoons	30 milliliters (actual 28.35 milliliters)	30 grams (actual 28.35 grams)
1 cup = 8 ounces	240 milliliters	240 grams
1 pint = 2 cups = 16 ounces	480 milliliters	480 grams
1 quart = 2 pints = 32 ounces	960 milliliters	960 grams
1 gallon = 4 quarts	3.785 litres	
1 inch		2.54 centimeters
1 pound		454 grams

To convert	To	
Inches	Centimeters	Multiply by 2.54
Centimeters	Inches	Divide by 2.54
Pounds	Kilograms	Divide by 2.2
Kilograms	Pounds	Multiply by 2.2
Kilograms	Grams	Multiply by 1000
Grams	Milligrams	Multiply by 1000
Milligrams	Micrograms	Multiply by 1000
Ounces	Grams	Multiply by 30
Grams	Ounces	Divide by 30
Milligrams	Milliequivalents/ Millimoles	Divide milligrams by the atomic weight of the ion and multiply by the valence number $\frac{\text{milligrams of an ion}}{\text{atomic weight of ion}} \times \text{valence}$
NaCl	Na	Multiply by 0.4
Na	Nacl	Multiply by 2.5

THE KILOJOULE

Atwater Factors

The derived rounded kilojoule factors (by method of Merrill and Watt) for mixed diets are:

Protein	17 kJ/g	replaces	4 kcal/g
Fat	37 kJ/g	replaces	9 kcal/g
Carbohydrate	17/kJ/g	replaces	4 kcal/g
Alcohol	29 kJ/g	replaces	7 kcal/g

Rounding the Kilojoule

For the individual foods and for one serving of food, the energy value should be rounded off to the nearest 10kJ:

Example: 40 kcal x 4.2 kJ = 168 kJ = 170 kJ

FORMULAE FOR CONVERSION

From **PROTEIN** to **NITROGEN**

$$\frac{\text{g protein}}{6.25} = \text{g nitrogen}$$

From **Na** to **NaCl** - **NaCl** to **Na**

Na to NaCl: Na x 2.5 = NaCl
e.g. 400 mg Na x 2.5 = 1000 mg NaCl

NaCl to Na: NaCl x 0.4 = Na
e.g. 1000 mg NaCl x 0.4 = 400 mg Na

From **KILOCALORIES** to **KILOJOULES**

1 kcal = 4.2 kJ

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