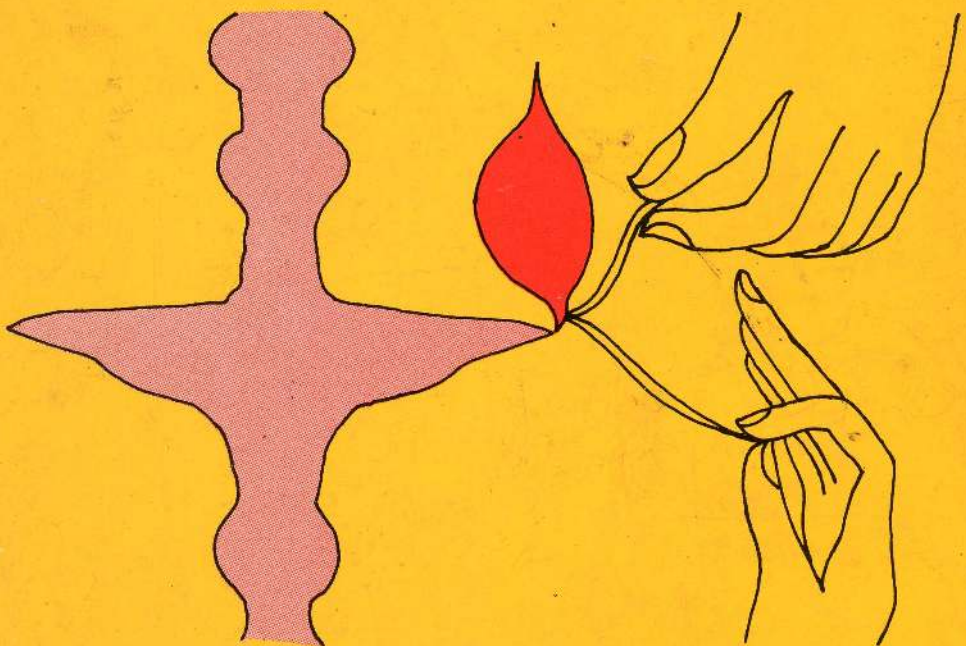
A Handbook for Plantation Family Welfare Supervisors



Ministry of State Plantations, Srilanka
International Labour Office (ILO)
United Nations Fund for Population Activities (UNFPA)

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A Handbook for Plantation Family Welfare Supervisors

PART I: INTRODUCTION

The plantation industry in Sri Lanka is associated mainly with three major cash crops: tea, rubber and coconut. Together, these three cash crops form a major source of the country's foreign exchange earnings. It is estimated that the plantations (estate) sector has a population of 1.2 million. The improvement of the conditions of work and life of workers employed on the plantations and their families has been an important part of the Government's development programmes. This is because of the realisation by the Government that the productive efficiency of the labour force on the plantations depends to a large extent on the human element – an efficient, healthy and contented labour force.

The Ministry of State Plantations and the Ministry of Janatha Estates Development, which are in charge of the major tea and rubber plantations in the country, are implementing a series of welfare measures, intended to improve the economic, social, cultural and educational standards of the population on the plantations. The support to the family planning programme by the Government in providing funds for sterilisations and the supply of condoms and pills at subsidised rates has helped the family planning programme in the plantations. Television sets are being installed on certain estates for the benefit of labour with a view to providing them with educational and recreational facilities. Through these and several other measures it is sought to improve the living conditions and the quality of life of the plantation workers.

Need for Plantation Family Welfare Supervisors Project

It had however been evident for quite some time that in spite of the best efforts of the Government to improve the living conditions and the quality of life of the plantation workers, the various measures could not have the desired impact unless the workers themselves changed their attitudes and behaviour, and took advantage of the better facilities offered to them. Stemming partly from lack of understanding and know-

ledge of the value of health related measures and, partly from apathy and indifference, plantation labour has shown a lack of appreciation of the benefits of having smaller families, the need for improved personal hygiene and sanitation and greater use of the health facilities offered. Instructions given at polyclinics were seldom followed in the 'line' rooms. Motivation programmes conducted under the Project on Workers Education in Population and Family Planning in the Plantation Sector did not have the expected impact in spite of the efforts of the volunteer worker motivators. A large number of deliveries of infants continued to take place in the 'line' rooms instead of in the estate maternity wards or the nearby hospitals. It was therefore felt that a continuing programme of health and family welfare education is necessary if the deep-rooted attitudes and behaviour patterns of the estate population were to be changed. With equal justification it was felt that the "agents of change" had to come from the estate community itself since they were familiar with and would be in the best position to influence the way of life of the estate population.

It was in this context that the Project on Plantation Family Welfare Supervisors came to be conceived and implemented. The project is being implemented from September 1979 by the Ministry of State Plantations in collaboration with the International Labour Organisation (ILO) and with financial assistance from the United Nations Fund for Population Activities. (UNFPA)

Project Objectives

The long term objectives of the Project are:

- To support the Government's programme of welfare measures aimed at improving the living conditions of plantation workers.
- To improve the living conditions and thereby the quality of life of the plantation workers, by setting up a continuing programme of health and family welfare education, using a group of specially trained persons drawn from amongst the workers themselves or the plantation community.

The immediate objectives of the Project are:

- To train a cadre of 400 Plantation Family Welfare Supervisors for deployment on estates of the Sri Lanka State Plantations Corporation (SLSPC) and Janatha Estates Development Board (JEDB) to carry out family health and family welfare education and promote family planning acceptance amongst plantation workers through group meetings and inter-personal communication with workers and their families in their home environments.
- To secure the cooperation and assistance of the managers and the paramedical staff of the plantations in the implementation of project activities and,
- To coordinate the motivational activities of the volunteer worker motivators trained under Department of Labour/ ILO/UNFPA Project SRL/73/PO2 – Workers Education on Population and Family Planning in the Plantation Sector.

Role and Duties of Family Welfare Supervisors

Trained over a period of three months at the Training Cell of the project in family health and welfare education activities with special emphasis on personal and community hygiene, immunisation, nutrition, maternity and child health work, health education, community organisation and family planning motivation, the Plantation Family Welfare Supervisors (PFWS) are expected to play the role of a guide, leader and friend to the working people and their community on the plantations. Once deployed on the plantations after the training, their principal duties include the following:

- Education of the plantation population in family health and family welfare (including family planning measures, immunisation, health, nutrition, hygiene, sanitation, etc.) by means of classes for groups of workers and visits to families in their homes.
- Inspection of living quarters and adjacent areas, checking on the proper usage of sanitary facilities, ensuring proper refuse disposal and explaining to the workers and their families the value of the practice of the simple basic rules of health and sanitation as well as the advantages of a small family.

- Participation in the motivational activities of volunteer worker motivators trained under Project SRL/73/P02 on a continuing basis and promoting the acceptance of family planning.
- Visiting family planning acceptors and arranging for the regular availability and supply of conventional contraceptives to those who need them.
- Bringing to the notice of the Estate Medical Assistants any cases of communicable and infectious diseases detected on the plantations and giving necessary advice to the affected persons and their families, in particular, with regard to the preventive measures to be adopted.
- Working in close collaboration with the Estate Medical Assistants and midwives, referring cases that need attention to the estate polyclinics and dispensaries and taking suitable follow-up action where necessary.
- Advising and assisting the creche attendants, where necessary, with their milk feeding programme, day time care for the children and improving attendance at the creches.
- Assisting in the implementation of the UNICEF – assisted Government expanded programme of immunisation.
- Encouraging and assisting workers and their families in starting extra income generating activities with a view to supplementing their incomes.
- Identifying and promoting *shramadana* programmes by estate workers, utilising resources available on the plantations.
- Encouraging and assisting workers and their families to start saving as a safeguard against unexpected future contigencies and as a social security measure.
- Conducting a basic survey of the plantation population on the lines indicated during the training period, collecting data and statistics where necessary, maintaining relevant charts and the Family Folders accurately and up-to-date, and submitting monthly and quarterly reports as per specified forms

to the estate manager and through him to the Regional Coordinator. The monthly and quarterly reports are based on the daily diary (log book) which the Supervisors are expected to maintain.

- Generally encouraging and promoting religious, social and recreational activities for the well-being of the workers and their families.

In addition to home visiting and personal contact the Supervisors are also expected to carry out more formal instructions in family welfare and family planning by means of twice weekly classes for groups of twenty five workers. Where time permits, the supervisors are expected to extend their work to the bordering villages.

The above mentioned duties bring out the diverse and varied nature of the work that the Supervisors have been called upon to perform. It is important, therefore, that the Supervisors should keep in mind that the degree of success in their performance depends on the extent to which they can win the confidence of, and work with the management staff, paramedical staff, trade union and other leaders, and the workers and their families on the plantations. The Supervisors should be useful channels for representations to management with regard to improvements in living conditions and welfare facilities as well as family friends who could be trusted upon to give advice and knowledge on family and personal welfare matters.

PART II: HEALTH

General

Basic Concept of Health

The World Health Organisation in 1960 defined health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity". An unhealthy population cannot be efficient or productive. Governments therefore provide various services and facilities to ensure that its population is healthy. It is now accepted that major health problems in countries could be solved by providing clean water, adequate sanitation, good nutrition and health education.

Curative Services

Some of the services and facilities provided by governments are of a 'curative' nature. Responsibility is largely with the Government to provide the services and facilities that help to cure the particular disease or sickness with which a person or persons may be afflicted.

Preventive Services

Some of the services and facilities provided are of a 'preventive' nature. Prevention is better than cure – and a lot cheaper too. People can keep themselves in a fit and healthy state by preventing the conditions that bring about particular diseases or sicknesses. This can be done by observing simple rules of health with regard to:

- food and clothing;
- care of the body;
- protection from germs;
- protection from accidents, and
- recreation and rest.

Food and Clothing

Proper food is important in maintaining health. A balanced or healthy diet consists of essential foods such as:

- Carbohydrates and fats which are needed to generate energy. (energy providing food);
- Proteins, vitamins and mineral salts which are needed to build up the muscles, organs and skeletal tissues in the body (body building and protective food);
- Water, which acts as a general solvent for other food.

It is important that the diet should be made up of not only sufficient quantities of these essential foods, but also of the right proportions to provide all bodily needs. Extreme care must be taken when selecting and preparing food to prevent contamination of food by germs.

It is important that the clothes that are worn are regularly washed and clean. They should also be changed frequently as they soon become sweat soaked and dirty. Dirty clothes can cause infections.

Care of the Body

It is important to keep the whole body clean. The sweat and natural oils that are secreted from the skin form a good culture medium for bacteria, fungus and body parasites.

Teeth must be cleaned before and after meals. Food particles remaining between the teeth can cause dental caries.

Hair should be washed and kept clean to prevent head lice.

The nails should be cut and cleaned to prevent dirt and germs getting into the body and causing disease.

Hands should always be washed with soap and water before preparing or eating food, and after a visit to the lavatory.

Protection from Germs

Many infections, particularly those of the lungs and throat are spread by inhaling their germs when we breathe. Those germs enter the air from the sputum, sneezes or exhaled breath of infected persons. Coughs, colds and tuberculosis can be contacted this way.

Germs in excretory matter can contaminate food and water if proper precautions are not observed.

Unwashed hands, unwashed cooking utensils and bad water supplies can cause the spread of diseases such as dysentery, cholera and typhoid.

Some germs, such as the tetenus bacteria, enter our bodies if we cut ourselves with a dirty knife or garden implement.

Germs are also carried from one person to another by flies, insects and rats. For example, house flies can carry food poisoning, dysentery and other diseases.

Protection from Accidents

Taking precautionary measures for the prevention and avoidance of accidents is as important as taking preventive measures against diseases. Investigations carried out in several work places have clearly established that accidents can be prevented.

Very often accidents at work are caused by:

- negligence,
- not wearing protective clothing,
- non observance of safety rules

A heavy responsibility lies with the individual to ensure that safety rules are observed and all possible precautionary measures taken to prevent accidents.

Recreation and Rest

It is important that a person should have adequate exercise, recreation and rest. The amount of exercise depends on the type of work that a person does. While most plantation workers get sufficient physical exercise, most do not have sufficient recreation. Games can provide both exercise and recreation.

Rest and sleep are important factors in good health. An average adult requires 8 hours sleep per day. Young People require 8-10 hours, children 10-12 hours, and infants 12-16 hours per day.

Exercise, recreation, rest and sleep have a stimulating effect on the vital functions of the human system.

The observance of simple rules with regard to the above matters can go a long way in preventing diseases and accidents. A heavy responsibility lies with the individual to ensure that these rules are observed.

Water

Water is essential to life. Water makes up some 60-70% of the human body and is an essential substance for the efficient functioning of the body. It is an important constituent of food.

Water is necessary for the following purposes:

- To act as a general solvent for food,
- To help move food materials in the body,
- To remove waste products dissolved in the body,
- To act as a means of temperature regulation since the evaporation of sweat secreted by the skin causes cooling of the body,
- To play an important role in blood by keeping the blood fluids and the cells in a moist condition,
- To help prevent constipation.

Water is necessary for drinking and domestic use, for agriculture, irrigation and industry. It is also required for swimming pools, for fire fighting and several other purposes.

Contamination of Water

Contamination of water is common in places where common wells and streams are used.

Poor sanitation causes the spread of disease by contaminating water supplies.

All surface water should be regarded as contaminated. Such water is constantly being contaminated from many sources. Disease causing organisms may survive in it for long periods.

Shallow wells should be well walled and precautions taken to prevent surface water from entering them.

Deep well water is usually safe if care is taken to prevent surface water seeping in.

Drinking polluted or contaminated water that contains disease causing organisms causes the spread of diseases such as dysentery, typhoid fever and cholera.

Purification of Water

One important method of purification of water is boiling. Boiling destroys all forms of disease organisms usually found in water.

Another important method of purification of water is sterilisation by adding chlorine to water. Chlorine may be added to water in the form of bleaching powder, hypochlorite or as chlorine gas.

How to Chlorinate Wells

The amount of water in the well should be calculated. This can be done by using this formula in the case of round shaped wells –

D^2 x W x 5 = gallons of water in the well.

D is the diameter of the well in feet.

W is the depth of water in feet.

In the case of square or rectangular shaped wells –

L x B x W x 6¼ = gallons of water in the well.

L is the length of the well in feet.

B is the breadth of the well in feet.

W is the depth of the water in feet.

Use ½ to 1 ounce of Tropical Chloride of Lime (TCL or Bleaching Powder) for every 1,000 gallons of water.

Mix the TCL in a bucket of water.

Lower the bucket into the well and agitate the water with the bucket.

How to Keep Wells Clean

Wells should be located sufficiently far away from existing or other possible sources of contamination.

Care should be taken about the method of taking water out of the well. Dirty buckets and tins can contaminate the water in the well.

The well should have good drainage around it.

The well should be covered preferably by a concrete slab.

Interior lining of the well to at least three metres from the surface down is necessary to prevent surface water getting in and contaminating the well.

A parapet wall around the well prevents contamination from rain water and waste water.

A surrounding concrete platform prevents contamination by users of the well.

Water-Borne Diseases

Amoebic dysentery, typhoid fever and cholera are spread by contaminated water. These are referred to in detail later on.

Preventive Measures against Water Borne Diseases

- Ensuring a safe water supply so that drinking water does not get contaminated.
- All water must be boiled before drinking.
- Sanitary disposal of faeces away from water supplies and protected from animal vectors, such as flies.
- High standards of personal and public hygiene.

Food and Nutrition

Food is necessary to provide energy and material for growth, to repair and replace tissues in the body and for the production of heat and work.

The different types of food that are necessary for the healthy functioning of the human system are:

- carbohydrates (energy yielding food),
- proteins (body building food),
- fats (energy yielding food),
- vitamins (protective food),
- mineral salts (protective food),
- roughage, and
- water.

Calorie Requirements

The energy value of food that is taken should be sufficient to provide the number of calories that a person requires to lead a healthy life.

There are roughly 113 calories per ounce of protein or carbohydrate and 255 calories per ounce of fat or oil.

Grain foods, flours, grams and dhal have about 100 calories per ounce.

White fish has about 27 calories per ounce. Dried fish has about 70 calories per ounce.

Coconuts have about 130 calories per ounce.

Milk has about 20 calories per ounce.

Energy requirements vary widely from person to person, depending on the type of work, age, sex, weight and other factors.

On the average, an adult male requires about 3,100 calories per day.

A female adult requires about 2,600 calories per day. An expectant mother needs about 2,750 calories a day. During lactation or breast feeding she needs about 3,400 calories a day.

Carbohydrates (energy yielding food)

Rice, wheat, maize and other cereals, bread, potatoes, yams, beans and sugar are the main sources.

Rice provides almost 80% of the energy requirements. When rice is boiled in water and the water strained off the nutritive value of the rice is greatly reduced. If the rice is boiled in a covered pot and the water is absorbed into the rice, the vitamins are retained. Cooking rice for a long period destroys much of the vitamin C in it. Brown rice is more nutritious than polished rice. Par boiled rice is more nutritious than milled rice.

Proteins (body building food)

An adult requires a minimum amount of some 100 grams a day to replace lost tissues.

Infants, growing children, pregnant and lactating women and convalscents require larger quantities of protein. It is therefore important that when serving meals to the members of the family more of the pulses and fish should be given to the mother and children.

Fish, meat, eggs, milk, cheese, dhal, mung, gram, cowpea, soya bean and nuts are good sources of protein.

Fats (energy yielding food)

Fats and oils are more concentrated sources of energy. In tropical countries they provide 10% of the total energy requirements.

Fat of meat, butter, milk, cheese, margarine, coconut oil, gingelly oil, ground nuts are the main sources.

Vitamins (protective food)

Vitamins are substances needed in small quantities to maintain the health of the body. The most important vitamins are:

Vitamin A – protects the skin and eye. Animal foods, dark green leafy vegetables and orange or yellow vegetables and fruits are good sources of vitamin A.

Vitamin B – During pregnancy and lactation the need for this vitamin is high. Milk, yeast, liver, eggs, vegetables and fruits are good sources.

Vitamin C – Citrus fruits such as oranges, limes, lemons, and green vegetables are rich sources of this vitamin.

Vitamin D – The action of sunlight on the human skin causes this vitamin to be formed. Milk, animal fats and fish liver oils are rich sources.

Mineral Salts (protective food)

Minerals such as calcium, potasium, sodium, iron and phosphorus are important protective foods. They are necessary for the teeth and bones, for the composition and functioning of the cells, and the stability of the body. Certain foods are particularly rich in minerals. Cheese for example has a high proportion of calcium compounds, liver has iron compounds and many vegetables are rich in minerals.

Roughage

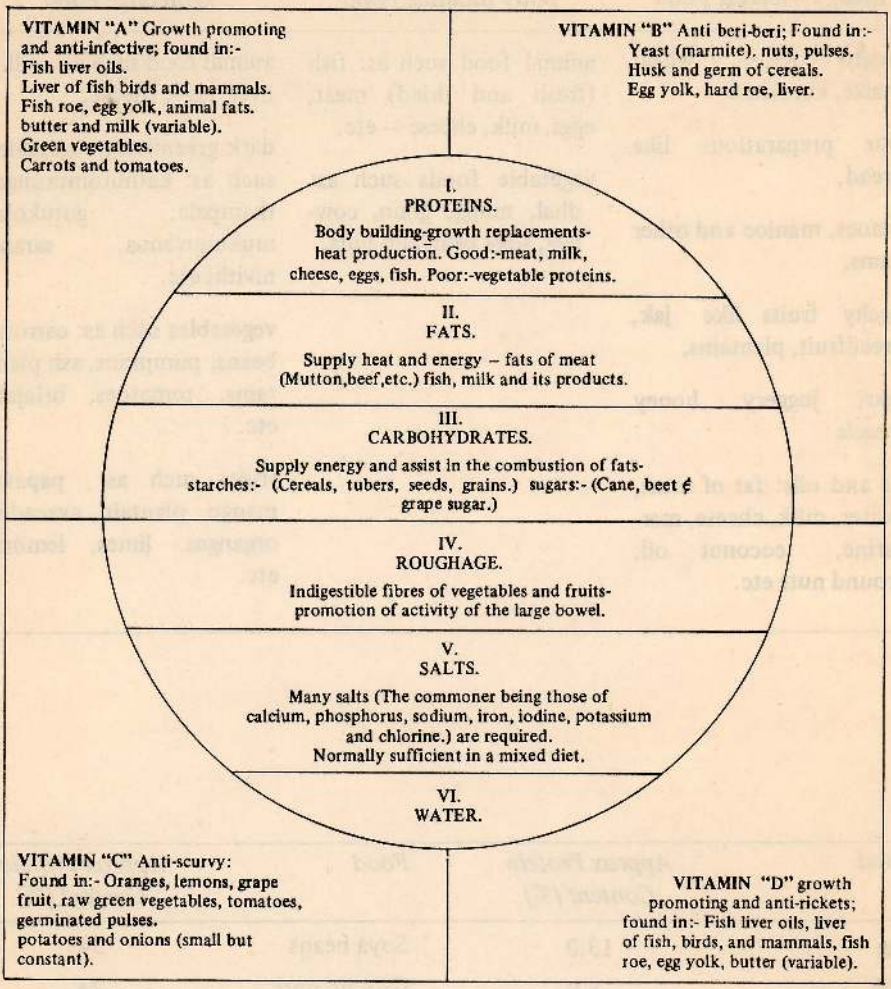
Roughage from vegetables and fruits has an important function in that it helps prevent constipation and to efficiently get rid of unwanted substances from the intestines.

Balanced Diet

The following factors should be taken into account in making up a balanced diet:

- The quantity of food taken must be sufficient to provide the required minimum amount of energy.
- The diet should include about 75% carbohydrates, 10% proteins, 7.5% fat, and the balance, vitamins and mineral salts.
- Roughage from fruits and vegetables must be taken regularly.
- Sufficient quantities of water should also be taken regularly.
- Taking into account the types and varieties of food available in the country, it may be said that a diet consisting of 60% rice or cereals, 20% vegetables, 15% fish, meat or eggs, and 5% fruits would go to make a balanced diet.

ILLUSTRATION 1



A square meal.

Adapted from the diagram of "A Square Meal" from "Food, Health, Vitamins," by R.H.A. and V.G: Plimmer, by permission of the publishers, Messrs. Longmans, Green & Co., Ltd.

Reproduced from Army Manual of Hygiene and Sanitation.

Table of Food Groups:

Energy Yielding Food	*Body Building Food*	*Protective Food*
cereals: Rice, wheat maize, kurakkan	animal food such as: fish (fresh and dried) meat, eggs, milk, cheese – etc.	animal food such as: milk, liver, eggs, cheese.
flour preparations like bread,	vegetable foods such as: dhal, mung, gram, cow-pea, soya bean and nuts.	dark green leafy vegetables such as: kathurumurunga, thampala, gotukola, mukunuvenna, sarana nivithi etc.
potaoes, manioc and other yams,		vegetables such as: carrots, beans, pumpkins, ash plantains, tomatoes, brinjals etc.
starchy fruits like jak, breadfruit, plantains,		fruits such as: papaw, mango, plantain, avacado, organges, limes, lemons etc.
sugar, juggery, honey treacle		
fats and oils: fat of meat, butter, milk, cheese, margarine, coconut oil, ground nuts etc.		

Food	*Approx Protein Content (%)*	*Food*	*Approx Protein Content (%)*
Egg	13.0	Soya beans	34
Milk	5.0	Ground nuts	23
Fish	20.0	Dry Beans	20
Beef	26.0	Dried Fish	63
Mutton	22.0	Dark green leaves	3.7
Liver	26.0	Wheat	8–10
Pork	20.0	Spinach	3.2

Deficiency Diseases

Lack of some essential substances in the body cause what are called deficiency diseases. They can be prevented by balanced diets.

In Sri Lanka there are three major nutritional problems, namely protein calorie malnutrition, nutritional anaemia and vitamin A deficiency.

Protein Calorie Malnutrition

This occurs amongst people living on a diet low in protein. The daily protein requirement is about 100-200 grams of which at least half should be animal protein or good vegetable protein.

Growing children, pregnant or lactating women require greater quantities of protein rich food.

Children may get protein calorie malnutrition because they are not getting enough of the right food, or because they have some infection and so require more food than they are getting.

Kwashiorkor

This is protein starvation. It means that even if a child is getting plenty of other food, it is not getting enough protein.

Children suffering from it become weak, listless and irritable. They lose their appetite and develop swelling. The skin becomes raw. The hair loses its pigment and becomes sparse and straight.

If administered early enough a proper diet containing protein can cure the condition.

Marasmus

This is caused by a severe lack of calories. It is often brought about when an infant is starved in an effort to cure prolonged diarrhoea.

The disease leads to growth retardation, wasting, and children suffering from it become 'all skin and bone'. The severe wasting of children with this disease makes them look like very old people.

Breast milk for infants and a diet consisting of cereals, potatoes, yams, fats and oils for children can prevent the disease.

Nutritional Anaemia

This is very common among young children and pregnant and lactating women. The commonest cause is iron deficiency.

In women, iron deficiency can develop where the increased demands made on the female body during pregnancy, lactation and menstruation are not balanced by a sufficient intake of iron. As iron requirements cannot be met by the diet alone, women have to be given medicinal iron.

Hookworm or malarial infestations also cause prolonged loss of iron from the body.

Anaemia brings about conditions of paleness, general fatigue, breathlessness after exertion, palpitation and loss of appetite.

Iron rich foods are all kinds of meat especially liver, fish, fruits and dark green leaves and vegetables.

Vitamin A Deficiency

The most common deficiency in the country is vitamin A deficiency. This is caused by not taking sufficient vitamin A foods.

Fish liver provides the richest source of this vitamin. It is also contained in animal fats and milk, dark green leaves and orange or yellow vegetables and fruits.

An early symptom is an inability to see in dim light. This is called night-blindness.

In children changes occur in the eyes due to chronic vitamin A deficiency. These changes are in the form of increased pigmentation over the white part of the eyes, and small white foam-like patches may appear over the pigmentation. These are known as Bitot's spots.

Food for the Baby

Breast Milk

A recent UNICEF report has warned that in much of the poor countries bottle-fed babies are three to five times more likely to suffer from malnutrition than breast fed babies. It points out that "breast milk is the best food for a baby in any society." Breast milk contains:

Protein	–	1.5%
Fat	–	3.5%
Carbohydrates	–	7.0%
Minerals	–	0.2%
Water	–	88.0%

The caloric value is 20 per ounce.

Advantages of Breast Feeding

It can provide all that is required by a baby in the first six months of life.

Apart from fat, sugar, protein and other substances that are necessary for the growth of the baby, mother's milk also contains most vitamins and traces of other minerals.

Colostrum, which is the first milk secreted by a mother after she has given birth, has immunological qualities not present in substitutes. Thus breast fed babies acquire natural immunity through mother's milk.

Mother's milk is at the right temperature, cheap and easy to use.

It can be emotionally beneficial to both mother and child.

Breast feeding also releases a hormone called prolactin which acts as a natural contraceptive.

Disadvantages of Bottle Feeding

Most low income mothers cannot read the instructions on a tin of milk food. As a result the milk preparation can be seriously affected.

Most low income mothers cannot afford to buy enough food to

last for an extended period. The result is that a tin of milk meant for three or four days is used over five days or more. The quality of the milk food given to the baby thus suffers.

Most low income mothers are often unable to boil water at the required intervals for preparation of milk food or sterilise the feeding bottles and other equipment adequately. This can cause diarrhoeal problems.

Weaning and Solid Foods

For the healthy growth of an infant, proteins, carbohydrates and fats together with a supply of vitamins, especially vitamins A, C & D, are required. Therefore an infant's feed should be supplemented with these:

When the infant is 2 weeks old	–	Vitamin C can be added to the diet.
Between 2nd – 3rd weeks	–	Vitamins A and D in the form of cod liver oil or halibut liver oil can be added to the diet.
2 – 4 months	–	fruit juice from papaw, orange, lime or tomato (a teaspoonful is enough to start with)
5 – 7 months	–	mashed fruit – banana, papaw, mashed potatoes, ash plantains, rice conjee with dhal and green leaves, half boiled egg.
8 – 12 months	–	mashed rice, boiled fish or minced meat with leafy vegetables, dhal.
after one year	–	A meal given to children should contain *at least one item* from each of the following food groups:

- meat, fish, eggs, sprats, beans, dhal, milk.
- rice, bread, yams, potatoes.
- green leaves, carrots, fresh fruits.

Weight for Age Table

Age in Months	*Normal Weight in Pounds*	*Normal Weight in Kgs.*	*Age in Months*	*Normal Weight in Pounds*	*Normal Weight in Kgs.*
3	13.00	5.89	39	32.50	14.74
6	17.00	7.71	42	33.50	15.19
9	19.50	8.85	45	35.00	15.87
12	21.50	9.75	48	36.00	16.32
15	23.00	10.43	51	37.00	16.78
18	24.50	11.11	54	38.50	17.46
21	25.75	11.67	57	39.00	17.69
24	27.00	12.24	60	40.25	18.25
27	28.00	12.70	63	41.00	18.59
30	29.00	13.14	66	42.75	19.68
33	30.25	13.72	69	44.00	19.95
36	31.25	14.15	72	45.00	20.41

Protection Against Infection

Germs Cause Disease

Disease is a state of departure from normal health. Diseases are caused by the invasion, establishment and growth of other organisms, especially bacteria and viruses, which are commonly referred to as germs. When these germs attack the tissues of the body or produce waste substances called toxins, the body develops definite disorders or diseases.

In the 19th century doctors began to understand the true nature of disease, and in particular, the part played by minute disease causing organisms called microbes (germs), which are not visible to the eye.

Louis Pasteur (1822-1895) did extensive research on bacteria. He showed that bacteria could be killed by heat. The method of heating wines, beers, and milk to a temperature of 140 F to improve their keeping quantities is now called *Pasteurisation.*

Joseph Lister (1827-1912) applied the germ theory to surgical procedures with the use of antiseptics. Antiseptic surgery reduced the number of deaths from septic infections following operations.

How Diseases Spread

Diseases can be spread by various types of microscopic disease causing organisms as well as by certain larger species such as tape worms and round worms, which are visible to the naked eye. The causative agents of disease are:

- viruses
- bacteria
- protozoa
- fungi, and
- worms.

Viruses

Viruses are the smallest infective agents and cannot be seen under the light microscope. All viruses are parasites and they can only live and multiply within living tissues. They are either spherical, rod-shaped or tadpole shaped. Viruses cause diseases such as small pox, measles, poliomyelitis, rabies, and influenza. As viruses are not susceptible to antibiotics, the body must depend on its own resistance to overcome such infections.

Bacteria

Bacteria are much larger organisms and normally consists of a single cell that can be clearly seen under the light microscope. They are found almost everywhere – in the air, water, soil and in or on animals and human beings. Some bacteria, such as those concerned with fermentation process, are useful to man. Some others invade the body and tend to make toxins, and it is usually the poisonous nature of these toxins that cause disease. Bacteria can form spores that can be very resistant and last for long periods of time.

High temperatures kill bacteria and low temperatures make them inactive. Most bacteria are killed by boiling. Sterilisation ensures that all bacteria, including their spores, are killed. Sunlight also kills most bacteria.

Protozoa

They are unicellular animal organisms. They live mainly in water

or damp soil. Some live as parasites in blood and the tissue fluids of animals and plants. Entamoeba Histolytica causes amoebic dysentery. Plasmodium causes malaria.

Fungi

Fungi are usually multicellular. A few are unicellular. Some fungi are parasites of plants and a small number are parasites of animals. Diseases such as ringworm and dhobi itch are caused by fungi that can infect the skin.

Worms

They are parasites and cause disease and discomfort to the body. They enter the human body either by the digestive tract or by skin puncture.

Vectors

Animal vectors or creatures which carry disease from one person to another are an important method of transmission of infectious diseases.

Mechanical vectors carry infected matter on the surface of their bodies. For example, house flies can carry food poisoning, dysentery and other diseases.

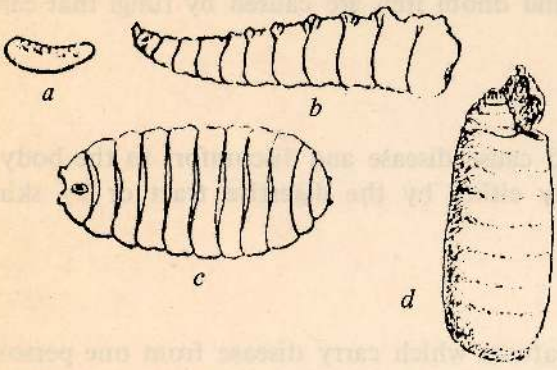
Biologocal vectors are those in which the infectious organism carries out some stage of its development within the body of the vector. For example the various species of mosquitoes carry malaria and yellow fever.

The Housefly

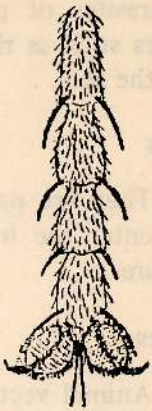
The housefly is one of the most common mechanical vectors. It has the four stage life cycle common to most insects: egg, larva, pupa and adult. The female housefly lays about twenty batches of eggs during its life time, each batch consisting of 150-200 eggs. The housefly lives for one to two weeks.

By its habit of feeding on decaying matter and excreta the housefly

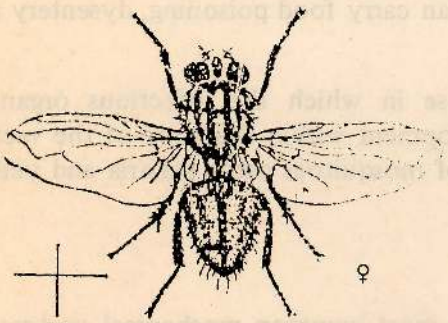
ILLUSTRATION 2



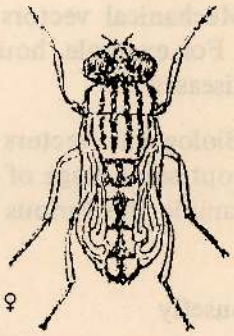
a. Egg. *b.* Larva. *c.* Pupa. *d.* Empty puparium.



Foot, showing hairs on which bacteria, etc., lodge.



The common house-fly (adult).



Just emerged from the pupal case. Note the wings, as yet unexpanded, folded and crumpled on the back of the insect.

The common house-fly *(Musca domestica).*
N.B. + indicates actual size.

is a carrier of diseases such as cholera, dysentery and other diseases. It carries germs on its feet, hair on the legs and its proboscis. It vomits or regurgitates matter it has swallowed as it feeds and thereby contaminates food that is left uncovered. It also contaminates food by defecation. It is active by day and is attracted to uncovered food, all types of waste and dirt, etc.

Fly control measures are the elimination of fly breeding places, destruction of larvae and adults, proper use of insecticides, keeping food covered and inaccessible to flies, keeping refuse in covered and washable containers, cleaning refuse containers regularly, completely burning all refuse and environmental sanitation.

Mosquitoes

The mosquito also has the four stage life cycle of egg, larva, pupa and adult. The Anopheles mosquito spreads malaria. The Culex mosquito spreads filariasis and the Aedes mosquito spreads yellow fever and dengue fever.

Mosquito control measures are the draining of all ditches, drains and places where water collects to eliminate breeding places, rearing of small fresh water fish which eat larvae, the spraying of oil like diesel or waste motor oil which kill mosquito larvae by choking them and spraying of insecticides which kill larvae and adult mosquitoes.

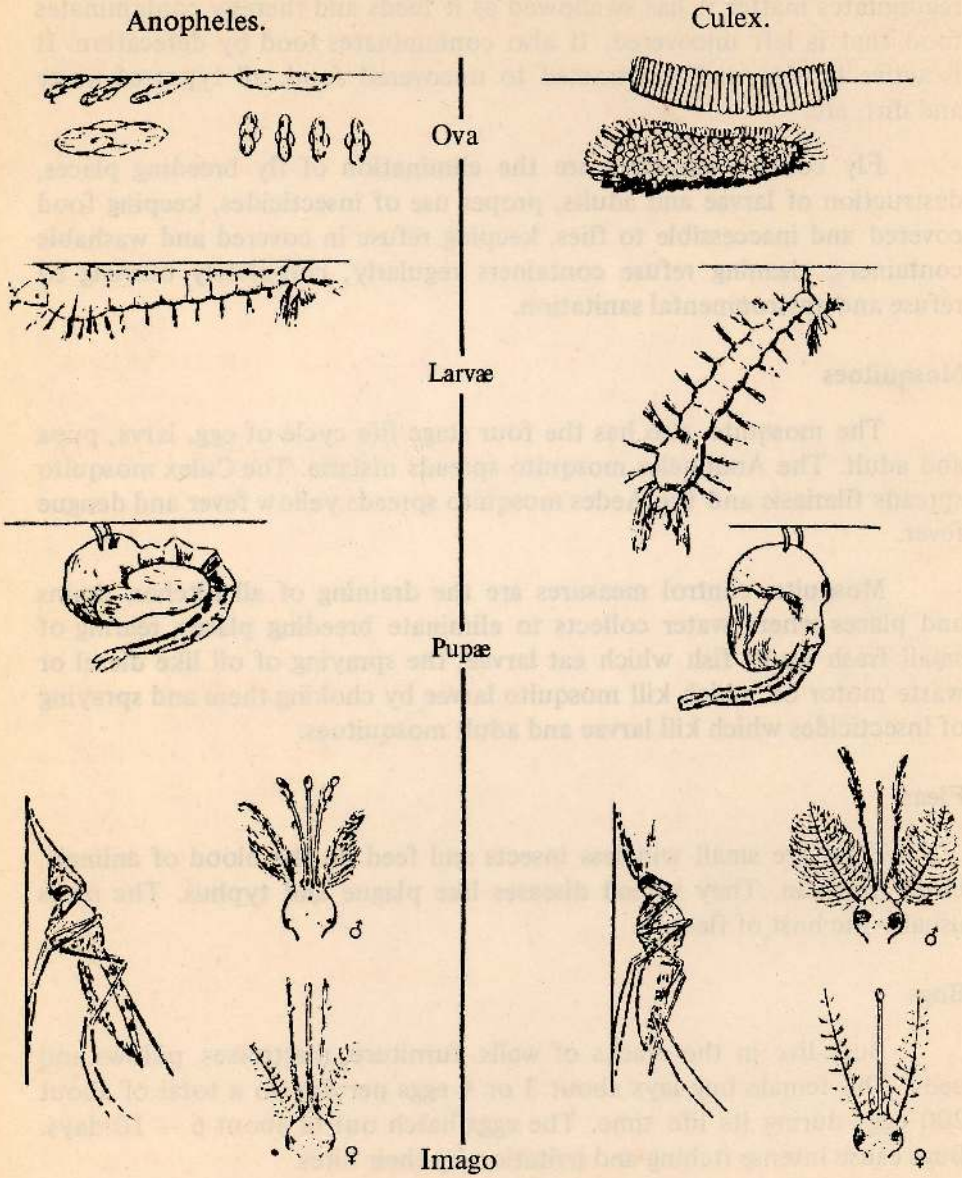
Fleas

Fleas are small wingless insects and feed on the blood of animals, birds and man. They spread diseases like plague and typhus. The rat is usually the host of fleas.

Bugs

Bugs live in the cracks of walls, furniture, mattresses, pillows and beds. The female bug lays about 3 or 4 eggs per day to a total of about 200 eggs during its life time. The eggs hatch out in about 6 – 10 days. Bugs cause intense itching and irritation by their bites.

ILLUSTRATION 3



Life Cycle of Mosquitoes; Anopheline and Culicine.

Lice

Lice are parasites that depend on human beings and other mammals for their blood food. They cause sleeplessness and irritation and keep the general health of the infected person low. They also act as vectors of certain types of fevers.

Rats

Rats live and breed in and around houses, feeding on food in the house. They are damaging pests. They spread plague and typhus by harbouring rat fleas. They also cause food poisoning and other serious complications. Rats contaminate food by nibbling the food or infecting it by excreta or urine. They reproduce at two month intervals, the female having litters of 6 – 12 at a time.

It is very important therefore to eliminate and prevent the breeding of these vectors.

Milk

Milk is almost a perfect food. It is made of proteins, carbohydrates and fats and contains vitamins and minerals. It is an ideal substance for the growth of many micro-organisms. Some of these may be harmless or indeed beneficial to man and enable products like cheese and curd to be made. Some micro-organisms cause souring of milk or can be disease causing. Tuberculosis, enteritis, dysentery and diphtheria, etc., may all be spread by milk. The germs may come from the cow, the handler or contaminated vessels. Heating of milk to 63°C for 20 minutes destroys nearly all disease causing germs.

How Germs Enter Our Body

Droplet Infection

Germs present in the mouth, nose and the respiratory tract are sprayed into the atmosphere by infected persons during coughing, sneezing or even talking. Droplet infection is spread by inhaling these germs with the air we breathe in. Food and water may get contaminated by infected droplets. Some germs survive in dust. Others resist drying by

forming spores. Tuberculosis germs have a strong resistance to drying. The bacilli of whooping cough and diphtheria are transmitted by droplet infection. Most viral infections such as pneumonia, influenza, common colds and mumps are transmitted by droplets.

Water Contamination

Diseases spread by contaminated water result from drinking water that contain disease causing organisms. Water contamination is common where wells or streams are used and where the sanitation is poor. Amoebic dysentery, typhoid fever and cholera are spread by contaminated water.

Food Contamination

Food can be contaminated in a number of ways – by infected fingers, by droplets, by water supply contaminated by faeces, by human carriers or unhygienic food handlers. Flies, rats and insects can also contaminate food. Diseases such as food poisoning, typhoid, cholera and some worm infestations are spread this way.

Contact

Diseases spread this way are called contagious diseases. The germs can be spread from one person to another by touching or coming into contact with the infected person. This manner of spread is often referred to as personal contact. Diseases such as small pox, measles and tuberculosis are spread by contact with infected persons. Such diseases can also be transmitted by indirect contact.

The contact may be indirect when articles like handkerchiefs, clothes and other articles are contaminated with germs. When a person comes into contact with such contaminated articles, he himself can get infected. Scabies and some fungal infections can be spread this way.

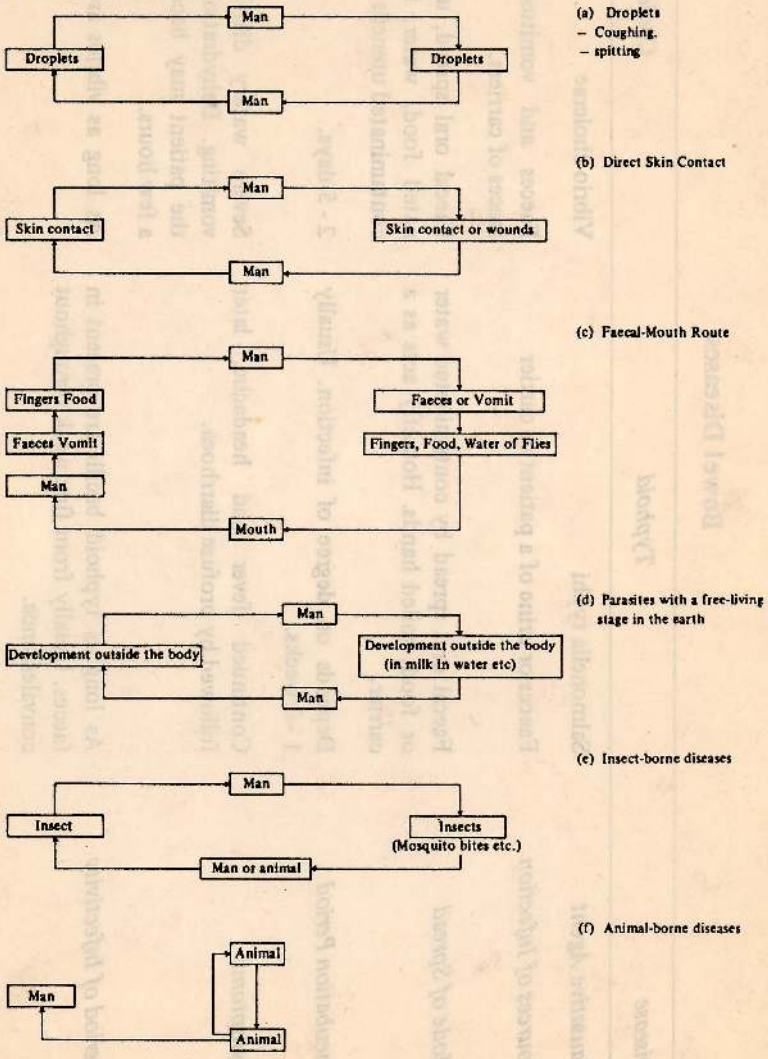
Insects

Insect borne diseases are transmitted by vectors such as mosquitoes, houseflies, fleas and lice. Diseases such as malaria, filariasis, typhoid fever, cholera, plague and typhus are examples of insect borne diseases.

Worms

Worms cause diseased conditions of the body and discomfort to the body as they are parasites. The common worm infestations are Hook-worm, Round-worm, Thread-worm and Whip-worm.

Paths of Infection



Reproduced from "Family Health", A manual for Health Workers in Sri Lanka.

Bowel Diseases

Disease	*Typhoid*	*Cholera*
Causative Agent	Salmonella typhi	Vibrio cholerae
Sources of Infection	Faeces or urine of a patient or carrier	Faeces and vomitus of patients and faeces of carriers.
Mode of Spread	Faecal oral spread by contaminated water or food, soiled hands. Housefly acts as a carrier.	Faecal oral spread, usually by contaminated food, water, flies, soiled hands, contaminated utencils.
Incubation Period	Depends on degree of infection. Usually 1 - 3 weeks.	2 - 5 days.
Symptoms	Continued fever and headache, later followed by profuse diarrhoea.	Severe watery diarrhoea followed by vomiting. Dehydration may set in and the patient may become seriously ill in a few hours.
Period of Infectivity	As long as typhoid bacilli are present in faeces. Usually from first week throughout convalescence.	As long as vibrios are present in stools.

Disease	*Typhoid*	*Cholera*
Preventive Measures	Protection, purification and chlorination of water supplies. Boil water before drinking. Sanitary disposal of faeces. Use of toilets. Destruction of house flies and their breeding places. Personal hygiene – washing hands before taking meals and after a visit to lavatory. Hygienic preparation of food. Keeping food covered. Immunisation with typhoid vaccine – immunity last for a year or more.	Isolate contacts at home for 5 days. Immediately notify all suspect cases. Disinfect stools, vomitus and clothes. Protection, purification and chlorination of water supplies. Boil water before drinking. Sanitary disposal of faeces and waste water. Use of toilets. Destruction of house flies and their breeding places. Personal hygiene – Washing hands before taking meals and after a visit to lavatory. Hygienic food preparation. Keeping food covered. Prompt fluid therapy to correct dehydration. Cholera vaccine provides immunity for 6 months.

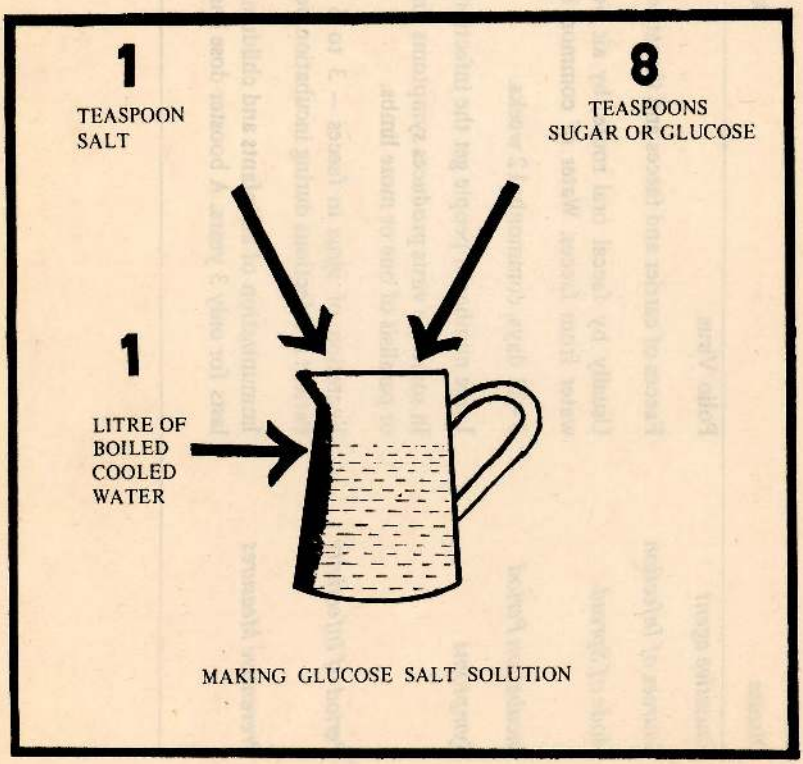
Disease	*Dysentery*	*Infective Hepatitis*
Causative Agent	Shigella bacillus	Virus
Sources of Infection	Faeces or urine of a patient or carrier.	Faeces, urine or blood of a patient or carrier.
Mode of Spread	Faecal oral spread, direct or indirect from a patient or carrier. Contaminated food, hands, water, milk. Flies act as carriers.	Faecal oral spread- -person to person contact. Contamination of food and water and unclean hands.
Incubation Period	1 - 7 days	10 - 60 days
Symptoms	Diarrhoea accompanied by fever and often vomiting. In severe cases stools contain blood and mucus.	Loss of appetite, fever, nausea and vomiting, abdominal discomfort followed by jaundice.
Period of Infectivity	As long as the bacilli are present in the faeces.	Latter half of incubation period to two weeks after onset of jaundice.
Preventive Measures	Disinfect stools. Protection, purification and chlorination of water supplies. Boil water before drinking. Sanitary disposal of faeces.	Sanitary disposal of faeces and urine. Environmental sanitation. Personal hygiene. Handwashing after defecation and before eating.
	Destruction of house flies, and their breeding places.	Hygienic food preparation.
	Personal hygiene – washing hands before taking meals and after a visit to the lavatory.	Boil water before drinking.
	Hygienic food preparation. Oral rehydration in early phase of disease.	

Disease	*Poliomyelitis*
Causative agent	Polio Virus
Sources of Infection	Faeces of carrier and faeces and throat secretions of patients.
Mode of Spread	Usually by faecal oral route, by air borne droplets or by contamination of food or water from faeces. Water of common bathing or swimming pools is a common source.
Incubation Period	5 - 21 days, commonly 12 weeks.
Symptoms	Large number of people get the infection without showing symptoms. In some the virus produces symptoms similar to influenza and fever followed by weakness or paralisis of one or more limbs.
Period of Infectivity	Excretion of virus in faeces – 3 to 6 weeks. Excretion of virus in throat – 1 week. Patient is infectious during incubation period.
Preventive Measures	Immunization of all infants and children. Polio vaccine commonly given orally. Immunity lasts for only 3 years. A booster dose has to be given to children when they are older.

Rehydration Fluid (O.R.T.)

Diarrhoeal illnesses and vomiting lead to rapid loss of fluid from the tissues and blood of such patients. This is called dehydration. Unless prompt attention is given dehydration can be fatal. Children are particularly susceptible to diarrhoeal infection which is by far the biggest single cause of death among children in many countries. It is therefore important that as soon as people get diarrhoea they should be given drinks frequently. The best drink is glucose salt solution because the sugar gives energy, and because salt is being lost in the watery stools. King coconut or kurumba or at least plain water should be given to drink. Glucose Salt Solution can be prepared by mixing eight tea spoonfuls of sugar or glucose and one teaspoonful of salt with one litre of boiled, cooled water.

ILLUSTRATION 4



MAKING GLUCOSE SALT SOLUTION

Worm Diseases

Disease	*Hookworm*	*Round worm*
Causative Agent	Hookworm	Round worms that grow to a length of 6-8 inches and live in the small intestines.
Sources of Infection	Infected persons pass the worm eggs in the faeces.	Usually children who harbour the worms.
Mode of Spread	Eggs deposited in the soil undergo development and infective larva emerge. The larva enters the human body by puncturing the skin of the foot, ankles, hands or arms.	Worm eggs are passed in faeces and development occurs in the soil. After about 10 days eggs are infective. Eggs enter the human body when contaminated water is drunk, contaminated food is taken or when meals are taken without properly washing hands.
Incubation Period	Weeks to months depending on intensity of infection. The eggs usually appear in the faeces about six weeks after infection.	Several weeks or months depending on extent of infection.
Symptoms	No symptoms if infection is mild. When worms develop, there is anaemis, breathlessness, loss of appetite, swelling of body.	With mild infections symptoms are vague. In heavy infection, digestive disturbances, abdominal pain, diarrhoea, vomiting and general discomfort.
Period of Infectivity	Infected persons can spread the disease for many years if not treated.	As long as there are worms. The worm lives 6 months to one year.
Preventive Measures	Environmental sanitation. Sanitary disposal of faeces, use of sanitary latrines. Wearing of shoes. Preventing children playing about in infected areas. High standards of personal hygiene.	Environmental sanitation. Provision of latrines to prevent soil contamination. Sanitary disposal of faeces. Personal hygiene. Washing hands before taking meals and after a visit to the lavatory. Hygienic food preparation. Boiling water before drinking.

Disease	*Thread-Worm (Pin Worm)*	*Whipworm*
Causative Agent	An intestinal round-worm	Whipworms which live in the large intestines.
Sources of Infection	Children and adults who harbour the worms.	Children and adults who harbour the worms.
Mode of Spread	Female worm lives in the intestines and lays eggs around the anus. Direct transfer of infective eggs from anus to mouth after scratching. Indirectly through clothing, bedding, food or other articles contaminated with eggs.	The worm is commonly found in soil contaminated with human feaces. They gain entry into the body by soiled hands and contaminated food.
Incubation period	The life cycle requires 3-6 weeks. The infection may not be recognised for months.	Indefinite.
Symptoms	Itching of the anal area, with disturbed sleep, irritability and local irrigation due to scratching.	Heavy infections result in abdominal pain, bloody stools, diarrhoea, loss of weight and anaemia.
Period of Infectivity	As long as worms live in the intestines.	As long as worms live in the intestines.
Preventive Measures	Personal hygiene – Washing of hands before taking meals and after a visit to the lavatory. Disinfection of clothes, bedding and contaminated articles. Hygienic food preparation. Sanitary disposal of faeces.	Personal hygiene – Washing hands before taking meals and after a visit to the lavatory. Sanitary disposal of faeces. Hygienic food preparation.

Other Common Diseases

Disease	*Diphtheria*	*Whooping Cough*
Causative Agent	Diphtheria bacillus	Bacillus Pertussis
Source of Infection	Discharge from mouth and nose of patients and carriers.	Children suffering from whooping cough.
Mode of Spread	Spread by contact with a patient or carrier. Droplet spray or articles soiled with discharges.	Nasal and throat secretions of infected persons and articles soiled by discharges.
Incubation Period	2 - 5 days	7 - 21 days
Symptoms	Sore throat and fever. Tonsils, nose and throat are most often affected. Heart and nerves may also be involved and lead to heart failure, paralysis and even death.	Starts as a common cold. Cough progressively becomes severe and vomiting follows the bout of coughing. Serious complications include pneumonia, suffocation and occasionally convulsions.
Period of Infectivity	Until organisms have disappeared from discharges. Carriers may shed organisms for 6 months or more.	From beginning of illness upto 1 month.
Preventive Measures	Isolate patient in hospital. Disinfection of articles. The only effective control is by active immunisation with diphtheria toxoid.	Seperate from susceptible children. Immunise all infants and pre-school children with DPT.

Disease	*Tetanus*	*Measles*
Causative Agent	Toxin of the Tetanus bacillus.	Measles virus.
Source of Infection	Organisms found in soil, dust or animal faeces.	Nasal and throat secretions of patients.
Mode of Spread	Contamination of any wound or burn by contact with soil, dust or animal faeces which harbour bacteria.	By droplet spread or indirect contact with a patient or his secretions. Malnutrition and Vitamin A deficiency increases the severity of the disease.
Incubation Period	Few days to 3 weeks.	10 - 14 days
Symptoms	Difficulty in opening the mouth and stiffness of the neck. Later other parts of the body become stiff progressing to fits and convulsions.	Fever and symptoms are similar to those of a common cold. On the 3rd to 7th day a rash appears.
Period of Infectivity	Patient is not infectious to others.	From onset of fever to about 5 days after rash.
Preventive Measures	Prompt cleaning of all wounds soon after infliction. Immunisation with tetanus toxoid is most important.	Isolate patient at home for 10 days. Desinfect articles soiled by patient.

Disease	*Mumps*	*Chicken Pox*
Causative Agent	Virus of Mumps	Chickenpox virus
Source of Infection	Nasal and throat secretions of patients.	Respiratory discharges from patient and skin lesions.
Mode of Spread	By droplet spread. Direct and indirect contact with secretions from patient or contaminated articles.	Droplet spray and discharges from skin lesions.
Incubation Period	Usually about 18 days but may vary.	11 - 17 days.
Symptoms	Fever and pain and swelling of salivary glands. Swelling in front of and below ears is characteristic.	Mild fever and rash appearing on 1st day. Rash very superficial appearing more on the trunk and central parts of the body. Lesions commonly occur in successive crops.
Period of Infectivity	6 days before swelling to 9 days thereafter.	A day before and 1 week after rash.
Preventive Measures	Isolate patient for 9 days after swelling. Disinfect contaminated articles of the patient general cleanliness is important.	It is preferable for small children to develop the disease as complications are more severe in adults. Disinfect articles soiled by discharges from the nose and throat and from lesions.

Disease	*Influenza*	*Pneumonia*
Causative Agent	Virus of influenza.	Virus of pneumonia.
Source of Infection	Throat and nasal discharge of a patient.	Nasal, throat and mouth discharge of a patient.
Mode of Spread	Droplet infection and articles soiled by nose and throat secretions.	Droplet infection. General poor health or old age makes people susceptible to disease.
Incubation Period	1 - 3 days.	1 - 21 days depending on the type of pneumonia.
Symptoms	Fever, chills, headache, sore throat, cough, running nose, pain, in the muscles and joints.	Sudden onset of chill, fever, cough and headache. There is usually an increase in nasal discharge and sometimes blood with the sputum in later stages.
Period of Infectivity	About 3 days from day of onset.	Not known. The microbes that cause pneumonia are always present in the mouth and throat region. They do not harm unless the body resistance is severely lowered.
Preventive Measures	Maintenance of a good general state of health gives resistance to influenza. Patients should stay indoors to prevent exposure and spread.	Best preventive measure is to keep oneself in good general health with plenty of rest and nourishing meals. Avoid crowded areas with poor ventilation. Maintenance of proper ventilation. The disinfection of discharges or contaminated articles from the pneumonic patient checks the spread of infection.

Disease	*Scabies*
Causative Agent	Caused by a mite.
Source of Infection	People who are infected.
Mode of Spread	By direct contact or by contaminated articles such as cloths or mats.
Incubation Period	Several days or even weeks before itching is noticed.
Symptoms	The mite borrows into the superficial layers of the skin to lay eggs. This causes severe itching especially at night. Infection commonly seen in finger webs, wrists, elbows, but whole body may be affected.
Period of Infectivity	As long as there are mites.
Preventive Measures	Cleanliness of persons, garments and bedclothes. Exclude infected children from school. All infected in the household should be treated at the same time.

Diseases with Special Health Department Programmes

Disease	*Tuberculosis*	*Rabies*
Causative Agent	Tubercle bacillus also called Koch's bacillus.	Virus of Rabies.
Source of Infection	Sputum of patient with lung T.B. and milk of infected cattle.	Usually dogs who have developed the infection.
Mode of Spread	Droplet infection. Also by contact through contaminated articles. Dustborne spread. Contaminated milk.	Bite of rabid dog or other animal, due to contamination of wound with infective saliva.
Incubation Period	Variable and depends on the general standard of health of the individual.	3 - 6 weeks. Sometimes even 1 year.
Symptoms	Wasting loss of appetite and evening fever. Sweating, cough and spitting of blood and chest pains as the disease develops.	Headache, fever and feelings of apprehension. Followed by fear of water, delirium, convulsions and death.
Period of Infectivity	As long as organisms are present in the sputum.	Virus present in secretions till death, but no known cases of contracting infection from a human being.
Preventive Measures	Particular care should be taken to cover the mouth and nose whenever coughing or sneezing. Education of people on the spread of disease by spitting. Measures to prevent the inhalation of polluted air or dust. Proper vetilation, prevention of overcrowding and cleanliness. B.C.G. vaccination of new borns, preschool children and school children. Early detection by sputum examination.	Immediate and thorough cleaning of the wound with soap and water or detergent and water. Do not suture or close the wound unless unavoidable. If dog is suspected, keep under observation. If dead or killed, send brain for examination. Administer anti-rabies serum and vaccine as soon as possible to the person who has been bitten.

Disease	*Malaria*	*Filariasis*
Causative Agent	Plasmodium	Filarial worms
Source of Infection	Patients suffering from malaria or people with infective parasites in the blood.	Persons with circulating microfilaria in blood.
Mode of Spread	Female Anopheles mosquitoes with parasites. About 10 days after sucking blood from a patient, the mosquito injects the infective stage of the parasite when it has the next blood meal.	Aedes and Culex mosquitoes spread the disease. They get infected by microfilarae when sucking blood from a carrier. The mosquito is infective after 2 weeks.
Incubation Period	12 days to 2 months depending on the type of malaria.	Usually between 6-9 months. Repeated bites from infected mosquito necessary to develop disease.
Symptoms	Fever with chills. Headache and nausea are common symptoms. Sweating and intermittent fever.	Mild fever with later swelling of the lymph glands. Prolonged infection leads to swelling of the legs.
Period of Infectivity	As long as infective parasites are present in the blood.	All those with micro-filarae in blood are infective till treated.
Preventive Measures	Full course of treatment for patients to make them non-infective. Prevent breeding of mosquitoes – insectiside sprays like D.D.T., gammaxane or malathion. Cleanliness and ventilation in homes. Clean surroundings and environment.	Filaria patient must sleep under a mosquito net so that mosquitoes do not feed on him and transmit the worms to others. Regular blood examination of people and treating them. Prevent breeding of mosquitoes.

Disease	*Gonorrhoea*	*Syphillis*
Causative Agent	A kidney shaped bacteria.	A spiral bacteria.
Source of Infection	Infected persons	Infected persons.
Mode of Spread	Sexual contact with infected persons. Also conveyed by contaminated articles, but this is rare.	Sexual contact with infected persons. In very rare cases contaiminated articles such as towels can spread the disease.
Incubation Period	3 - 4 days.	Usually about 3 weeks, but can vary from 10 days to 10 weeks.
Symptoms	Inflammation of the genito-urinary passage, pain on passing urine and discharge of pus.	Ulcer develops on the genital organs. It is full of bacteria which spread to the lymph glands and blood stream. Later bacteria attack the blood vessels and nervous system. About 3 months after the infection there is fever, glandular swelling and skin rash.
Period of Infectivity	May extend for months or years if untreated.	During all stages, until adequately treated with penicilin.
Preventive Measures	Treat with antibiotics. High moral standards. Education of the people on the danger the disease can have on family members and new born infants.	Treat with antibiotics. High moral standards. Education of the people on the danger of the disease.

Immunisation

Immunity is the state of relative resistance to an infection. Resistance to disease depends on factors such as heredity. Other factors such as an inadequate diet, anaemia or the presence of worms or other parasites reduce the body's ability to defend itself against infection.

The human body has a system of producing protective substances in the blood to combat foreign matter such as bacteria. These protective substances remain in the blood for varying lengths of time. They provide immunity against that particular disease and prevent a further attack. An attack of small pox causes the production of certain protective substances in the blood and if the infected person survives, the protective substances produced give life long immunity. This type of immunity is known as naturally acquired immunity.

This system of producing protective substances in the blood to combat foreign matter is made use of to provide immunity by vaccination or inoculation. Vaccinations provide active immunity. Active immunity is produced by vaccinating an individual with dead or attennuated pathogenic organisms which cause the production of the required protective substances in the blood. Active immunity has a longer duration and is given for small pox, whooping cough, poliomyelitis, tuberculosis etc.

Passive immunity is provided by inoculation of serum which contain the protective substances to combat a particular disease. Sera are prepared from animals which have been infected by the disease and have subsequently produced the necessary protective substances in their blood. In passive immunity therefore the protective substances are not made by the individual. They are injected into the individual to provide the immunity. Passive immunisation is given to infected persons, those suffering from the disease, or those liable to get the infection. It is available for diphtheria, tetanus, measles and rabies.

Schedule of Immunisations

Age	*Vaccine*		*Interval*
0 – 4 Weeks	* B.C.G. (1st vaccination)		
3 Months	* Tetanus Toxoid * Polio	1st dose	
5 Months	* Triple vaccine * Polio	2nd dose	Between 6-8 weeks after 1st dose.
7 Months	* Triple vaccine * Polio	3rd dose	Between 6-8 weeks after 2nd dose.
6 – 9 Months	* Small Pox (Primary)		
18 Months (2nd Year)	* Triple vaccine * Polio	4th dose	
School Entry – 5 years	* Double vaccine * B.C.G. (for those not vaccinated earlier) Typhoid vaccine (1st dose) Typhoid vaccine (2nd dose)		4 weeks after 1st dose
School 10 – 14 years	* B.C.G. (2nd vaccination) Typhoid vaccine (Booster) Triple vaccine		
Pregnant Women	* Tetanus Toxiod (1st dose) * Tetanus Toxoid (2nd dose)		6 weeks after 1st dose.

* *These immunisations are included in the Expanded Programme of Immunisations.*

Important: The greatest danger from Whooping Cough is in the first year of life.

The greatest incidence of Diphtheria and Polio is in the second year of life.

Immunisation with Triple and Polio vaccines should be completed before the end of the first year.

B.C.G. Immunisation

- Against Tuberculosis
- 80% protection for 10 years
- 70% protection for 15 years

Triple Vaccine (D.P.T.)

- Against Diphtheria, Whooping Cough and Tetanus.
- 80% protection for about 5 years.
- Important to complete the immunisation course before the infant reaches two years, commencing at 3 months of age.

Double Vaccine (D.T.)

- Against Diphtheria and Tetanus.
- 2 doses. 2nd dose 6 weeks after the 1st dose.
- at school entry, 1 dose (booster) if the child has been given 2 or 3 doses of Triple Vaccine earlier. 2 doses to others.

Oral Polio Vaccine

- Against Poliomyelitis.
- Immunisation vaccine should be given at the same time as the Triple Vaccine
- Additional booster doses can be given.
- Oral Polio vaccine provides a high level of immunity.

Smallpox Vaccination

- Effective vaccination, before exposure, prevents the disease.
- Vaccination is compulsory
- Immunity lasts for 3 years at least.

Typhoid Vaccine (T.A.B.)

- Given in a primary series of 2 injections, the 2nd injection, 4 weeks after the 1st.
- Given after 1½ years of age.
- Protection for 3 years.

Tetanus Toixod

- Especially important for workers in contact with soil or domestic animals.
- Tetanus Toixod may be given at any age.
- For pregnant women, to protect the new born.
- 1 dose if the woman has even had Triple Vaccine, Double Vaccine or Tetanus Toxoid before.

  Otherwise 2 doses – one on first contact,
  – second at least 6 weeks later.

How to Prevent the Spread of Communicable Diseases

Isolation and Treatment	–	Isolate the patient and treat him quickly. This prevents the patient from coming into contact with others and spreading the disease.
Surveillance	–	Supervise the patient's contacts to prevent the disease spreading. This helps to identify the infected persons.
Immunisation	–	Effective immunisation can block the pathway of infection.

Disinfection	–	Apply disinfective measures as soon as possible after the discharge of infectious material from the body of an infected person, or after the soiling of articles with such infectious discharges.
Environmental Sanitation	–	Supervision of water supplies, decontamination of infected or suspected water, sanitary disposal of faeces, use of laterines, cleaning the house and surroundings etc.
Personal Hygiene	–	Those protective measures, primarily within the responsibility of the individual, which promote health and limit the spread of infectious diseases. Keeping the body clean by sufficiently frequent soap and water baths, washing hands with soap and water immediately after a visit to the lavatory and always before handling food and eating, avoiding exposure of other persons to spray from the nose and mouth as in coughing and sneezing etc.
Control of Vectors and Parasites	–	Killing the vectors (for example mosquitoes) and parasites (for example worms) blocks the path of infection and prevents the spread of the disease.
Control of food	–	Make sure that food is not contaminated and exposed to flies and other insects. Hygienic preparation of food is important. Infected people should not be allowed to prepare or handle food.

Schedule of Diseases

Disease	*Causative Agent*	*Mode of Transmission*
A. *Bacterial Diseases*		
Cholera	Bacillus (vibriocholerae)	Food or water contamination
Diphtheria	Bacillus	Droplet infection
Gonorrhoea	Kidney Shaped bacteria	Contact with infected person
Syphillis	Spiral bacteria	Contact with infected person
Tetanus	Bacillus	Puncture of skin
Tuberculosis	Tubercle bacillus	Droplet infection
Typhoid	Bacillus (Salmonella typhi)	Water or food contamination or flies
Whooping Cough	Bacillus pertussis	Droplet infection
Dysentery	Shigella bacillus	Person to person contact Contaminated food and water
B. *Viral Diseases*		
Measles	Virus of Measles	Droplet infection
Poliomyelitis	Virus of Polio	Droplet infection and water
Rabies	Virus of Rabies	Bite of dogs (Saliva of rabid dogs contains this virus)
Infective hepatitis	Virus of hepatitis	Contact with infected person, water or food contamination.
Mumps	Virus of mumps	Droplet infection
Chickenpox	Virus of chickenpox	Droplet infection
Influenza	Virus of influenza	Droplet infection
Pneumonia	Virus of pneumonia	Droplet infection

Disease	*Causative Agent*	*Mode of Transmission*
C. *Protozoal Diseases*		
Malaria	Plasmodium	Female anopheles mosquito
D. *Worm Diseases*		
Filariasis	Filarial worms	Aedes and Culex mosquitoes
Hookworm	Hookworms	Puncture of skin
Round worm	Round worm	Contaminated water or food
Thread worm	An intestinal roundworm	Direct transfer and from contaminated articles.
Whip worm	Whip worms	Soiled hands and contaminated food

Environment and Cleanliness

Cleanliness of House and Surroundings

The point has been repeatedly emphasised that prevention is better than cure. The observation of simple health rules will help prevent the occurance and spread of many diseases. The prevention of disease depends to a large extent on the individual and the environment of the community of which he is a part.

The destruction of mosquitoes and other vectors and their breeding places controls the spread of diseases like malaria and other insect borne diseases.

Keeping the living quarters as clean as possible reduces the occurance of some diseases. The interior of the house should be regularly swept, dusted and cleaned.

Personal hygiene, clean environment, safe water supply and improved sanitation are some of the factors that can reduce the entry of infectious agents into the human body.

Cleanliness is of vital importance in the prevention and control of diseases. Cleanliness is achieved only by repeated active effort. Cleanliness of the body, the living quarters, the environment and surroundings, the articles inside the home, all help prevent disease causing agents gaining entry into the body.

Disposal of Refuse

The proper disposal of refuse is most important. Refuse consists of waste material of animal and vegetable origin, empty tins, cans, broken dishes, household dust composed of earth, hair soot, etc. Many pathogenic organisms, bacterial spores and insect carriers of germs thrive and readily multiply in refuse and therefore all refuse must be quickly and efficiently disposed of. Moist refuse is particularly likely to harbour bacteria and should be disposed of as soon as possible. It is safer to burn refuse in a pit whenever possible. Refuse that cannot be burnt should be buried as far

away from the living quarters as possible. Burning is the best method as there is less risk of bacteria breeding.

It is important to keep the drains round living quarters as clean as possible. Liquid wastes poured down drains may attract flies and other insects and when drains get blocked they may cause pollution of surface water nearby or become breeding places for mosquitoes, and other carriers of disease.

Because many disease producing microbes are found in human wastes it is particularly important that these should be disposed of in such a way as to prevent the spread of germs causing such diseases as dysentery, cholera and typhoid. In some areas faeces is disposed of on open land, in drains, behind bushes or in gardens. This practice must be discouraged for health reasons. Unsatisfactory disposal of faeces causes the spread of infection by flies, contamination of surface and subsoil water.

Siting of a Latrine

Pit latrines should be constructed on elevated land away from sources of water supply.

It should be at least 30–40 feet away from the well or water supply, provided there is no weak fissure in the soil.

It should be as close as possible to the house since it has to be used even in the night.

If the soil is sandy, the latrine should be sited far away from the well.

On gradient, sloping land, the latrine should be sited on the lower side of the well.

Basic Requirements of a Pit Latrine

Size of the pit – 2 ft. 9" x 3 ft. at the ground level and 2 ft. x 2 ft. at the bottom.

Depth can vary depending on the sub-soil and water level.

The bottom should preferably be about 1 ft. above water level.

Squatting Plate	–	3 ft. 6" x 3 ft. 3". Thickness 3" at the periphery and sloping towards the aperture.
Aperture	–	14" and foot rest on either side.
Foot Rest	–	Inside length 10½" outside 9½ – 4" at the toe end, 3" at the heel end.
Cross Section	–	1¼" at the heel and ¼" at the toe. 1" – 1½" dishing is necessary.

Squatting plate should be raised about 1 ft. above ground level.

The superstructure may be constructed with permanent or semi permanent material, locally available.

Internal dimensions of superstructure – 4 ft. 6" x 4 ft. 3".

The door should open out.

The walls of the pit should not be lined or cemented so that the liquid content of the faeces can drain away into the porous soil.

Advantages

Satisfactory method of disposal of faeces.

Suitable for areas where water is scarce.

Disadvantages

Potential source of fly and mosquito breeding.

Bad odour.

Once the pit is full, the latrine has to be abandoned and the superstructure cannot be used.

This type of latrine cannot be constructed, attached to the house.

How to Keep a Pit Latrine Clean

It is important that the surface of the pit latrines are regularly washed and cleaned.

A regular spray of carbolic acid or jeyes fluid will help to keep the latrine disinfected.

Freshly burnt lime is a cheap and powerful disinfectant. Most bacteria are killed within a few hours by a 1% solution of lime. If a 20% solution of lime is added to faeces in the pit it will kill most disease causing organisms.

Basic Requirements of a Water Seal Latrine

Size of the Pit	–	2 ft. 6" x 2 ft. 6" at ground level. 1 ft. 9" x 1 ft. 9" at the bottom. Depth can vary depending on the soil. In sandy soil, the pit has to be built up and should be raised at least 6" above ground level and closed with a concrete slab.
Water Seal Trap	–	(Squatting Pan) acts in place of the aperture. The distance between the back of the aperture and the back wall is 12".
Foot Rest	–	Same manner as in the pit latrine.
Internal dimensions	–	4 ft. x 3 ft. Floor should have a dishing of 1" and the waste water should not escape through the door.
Superstructure	–	Front wall 6 ft. 9" and the Back wall 6 ft. 6". Height of the door 5 ft. 6". Door should open out. Sufficient ventilation holes on either side. Permanent roof.

Advantages

- Can be constructed attached to the house or attached to the bed room.
- Does not give out any offensive odour.
- No mosquito breeding.

- Could be used conveniently by children and patients.
- Can be constructed in congested areas.
- Pit can be built away from the superstructure to avoid possible contamination.
- When one pit gets filled, another could be provided close to the filled up pit and so prolong the period of use.
- Cleanliness could be maintained easily.

Disadvantages

- Not advisable to construct when there is inadequate water.

How to Keep a Water-Seal Latrine Clean

It should be flushed after use and regularly washed and cleaned.

A regular spray of carbolic acid or jeyes fluid should be used as a disinfectant.

Washing Hands after a Visit to the Latrine

Hands should be washed with soap and water after a visit to the latrine. Soap which contains carbolic acid is a cheap and efficient disinfectant. If used with hot water it is very effective in killing bacteria such as typhoid bacilli. Many worm infestations are transmitted by dirty hands, particularly after a visit to the latrine. When washing hands, the space between the nails and the skin, the palms and the space between the fingers must be washed carefully.

PART III: FAMILY WELFARE AND FAMILY PLANNING

Family Needs

Every family has certain needs which have to be satisfied in respect of every family member. These needs vary from family to family. However there are certain basic needs which are indispensable for decent human living. Firstly, adequate nutritious food is a very important basic need. Clothing is another. Housing is a third basic need, and so on. It is also important that basic needs include services such as education, health, medical care and gainful employment. The extent to which these needs are met, both in terms of quantity and quality, determines the standard of living of a family.

Family Resources

The family resources of most workers' families are derived from the sale of one's labour or the sale of one's produce. Therefore the most important basic factor which affects family resources is whether or not a worker has a job which enables him to earn wages or an income. Incomes of workers depend on the level of pay. Workers' pay is not determined by their needs but by the prevailing wage rates in the employment market. Likewise the incomes of peasant farmers are determined by fluctuations in the prices of the commodities they produce. In either case, family resources available to workers are often inadequate, compared to their needs.

Family Expenditure

One major factor that determines patterns of family expenditure is the levels of income or the size of family resources available. At very low income levels families spend almost the whole of their incomes on basic needs like food, clothing and housing. With an increase of their incomes, they still continue to spend on these items and probably on larger quantities and of better quality.

The other major factor that determines the patterns of family expenditure is the family size. With an increase in the family size, often

workers families are compelled to adjust basic needs. With larger families, certain basic needs such as education for the children and health and medical care for family members get neglected. Even the quantity and quality of basic needs like food, clothing and housing get seriously affected.

Family Budgeting

It is therefore necessary that workers and their families should carefully balance their needs and their resources. That is family budgeting. They should carefully plan and decide what needs can be met from available resources and how best available resources could be utilised to obtain the maximum benefits. It should be a joint exercise involving the earners as well as those responsible for making the expenditures.

Extra Income Generation

Extra income generating activities like home gardening, poultry and cattle breeding have continued to be undertaken by plantation workers, particularly in the up country regions. This programme received a fillip about three years ago with the setting up of the Income Generating Women's Programme started by the Women's Bureau of Sri Lanka under the supervision of the Ministry of Plan Implementation. Under this programme over 2000 women have started income generating activities like dairy keeping, bee keeping, poultry breeding, mushroom culture and flower growing.

Pond fish culture and fresh water fish culture are being promoted by the Inland Fisheries Division of the Ministry of Fisheries. Pitipana and Pambala experimental stations under specially trained aqua culturists are now supplying fingerlings to private individuals embarking on pond culture. They channel the subsidy that the Ministry of Fisheries gives for the construction of ponds. The loan varies from Rs.2000/- to Rs. 10,000/-. The fingerlings and technical advice are given free.

Some of the above extra income generating activities are to be encouraged and promoted on the plantations because in addition to being useful sources of supplementing family incomes they could provide a useful diversion from the routine of work to plantation labour.

Savings

Savings should find an important place in the life of people in any community. There are so many unforeseen contingencies and unexpected problems that crop up in the lives of people. These situations such as family sicknesses, marriage of children, particularly daughters, expenses in connection with pilgrimages, etc. can drive people to ruthless money lenders and indebtedness. Therefore putting aside something for a rainy day can be a source of strength to any individual or family.

Savings Schemes

The National Savings Bank, the Peoples Bank and the Bank of Ceylon have various savings schemes to promote savings among the people. Most of their savings schemes can be operated through the local branches of the banks concerned or through the local post offices. Outlined below are some of the savings schemes of the National Savings Bank.

Ordinary Savings Accounts (Pass Books)

Any person can open a savings account by depositing a minimum of one rupee. These accounts earn an annual interest. A person can operate any number of these accounts. Two or more persons over the age of 16 years can operate a joint account. Parents or guardians of persons under seven years of age can maintain these accounts on behalf of minors.

Fixed Deposit Accounts

Any person over 16 years of age or guardians of persons under 16 years of age can open these accounts. The minimum deposit required is Rs.500/-. These accounts earn annual interests. Small depositors can obtain fixed deposit certificates of Rs.500/- from post offices and the Head Office of the National Savings Bank.

Save as You Earn Scheme

Plantation employees and all wage earners can operate these accounts. All they have to do is to authorise their employers to deduct a fixed amount regularly from their wages or salaries. Employers will take

action to deposit these amounts in the names of the contributors in the nearest branch of the National Savings Bank.

Premium Savings Bonds

These are not only an important means of savings but also a lottery system. The value of a Premium Bond is Rs. 10. These are registered in the name of the purchaser and entitles him to win certain consolation prizes in monthly lotteries that are drawn. A purchaser is entitled to withdraw the value of the bond on completion of one year from the date of purchase of the bond.

Gift Tokens

These can be obtained in denominations of Rs.5/-, Rs.10/- and Rs.25/-. These can be utilised to be given as presents to friends or relations on suitable occasions.

These savings schemes have the additional advantage in that depositors are entitled to an income tax relief of 1/3 or Rs.2000/-, which ever is higher, of the annual income derived from such deposits.

The Peoples Bank and the Bank of Ceylon have similar savings schemes. Detailed information could be had from the local branch offices of these banks.

The Needs of a Child

Bringing a child into the world means taking complete responsibility for the physical and emotional welfare of a new and helpless human being for 15-20 years.

Children have basic needs. These include:

Nutrition and Adequate Food: A well balanced diet is necessary for a child to develop a healthy body and to fight diseases and illnesses. Stunted growth and mental development due to malnutrition is higher among large families than in small families. A small family can afford better nutritious food than a large one.

Healthy Living Conditions: A child can grow up healthily

if it can have rest and sleep, fresh air and a clean and healthy environment. Unhealthy living conditions and surroundings increase the danger of children getting diseases.

Clothing: Clothing helps to protect the child's body from hot or cold temperatures. Growing up children need appropriate clothing for play, study, sleep and special occasions.

Education: It is necessary to provide a good education to children to enable them to develop their potential and prepare them for life as useful members of society.

Health Care: Children should be protected from infectious diseases through such measures as vaccinations, supplemental feeding and proper personal hygiene.

Love and Attention: Children need to feel that they are loved and wanted. The emotional stability of a child stems from the feeling of security provided in the home.

With fewer children in the family it will be possible for the parents to provide these basic needs than if they had many children. With fewer children parents will also have more time for each child.

Dangers to the Mother

The health of the mother is an important consideration in planning the family.

A woman needs at least 2 to 3 years to fully recover from one pregnancy and prepare for another. If a woman gets pregnant too soon it will lead to premature ageing and possible death. After delivery a women's body needs to replenish its nutrients. The more poorly nourished a woman is, the longer a period of time a woman should wait before having another baby.

Complications of pregnancy and childbirth most often occur with women who have had more than four children. The danger increases with each pregnancy.

A woman who gets pregnant when she is 35 years or older is more likely to develop complications during pregnancy than a woman 20-30

years old. Women who give birth after the age of 35 are more likely to die during childbirth or as a result from childbirth. They are also more likely to develop complications of pregnancy.

Dangers to Infants and Children

Infant deaths are commonest where the mother is very young or has many children.

Children that are born close to one another, less than one year apart, tend to be more sickly on the average than children born 2 to 4 years apart.

Infectious illnesses are more common in large, overcrowded families.

Children in large families get less attention from their parents than children in smaller families.

The Birth of a Child

Pregnancy begins when one of the sperms from the male meets an egg in the upper portion of the fallopian tube of the female and fertilises it. The fertilised egg then travels down to the uterus and implants itself on its wall. This takes between 8 to 10 days from the time the egg is fertilised. Once implanted it undergoes several divisions to form the various parts of the body.

The embryo at first receives its nourishment from the wall of the uterus. Later, with the formation of the placenta, the embryo receives its food from the bloodstream of the mother. It also eliminates its waste materials through the placenta. The umbilical cord connects the foetus and the placenta.

The foetus starts to look like a human being after the first two months. It is about an inch long by the end of two months and its head, hand and feet begin to develop.

By the third month the foetus measures about three inches long and weighs about half an ounce. The external sex organs are formed by this time.

Around the fourth or fifth month the foetus makes its first movements inside the mother's body. At this time the foetus is about 6¼ inches long and weighs about 3½ ounces.

By the time the foetus is six months, it has nails and hair and its eyes can open.

In the last three months the foetus grows longer and heavier. By the end of nine months the foetus has developed into a fully grown infant waiting to be born.

Birth usually occurs 280 days after the last menstrual period. Rythmic contractions of the uterine muscles cause pain to the mother and bring about the birth process. This pain is known as labour pain. A few minutes after the baby is born, the placenta is expelled. The umbilical cord near the baby's body will be tied and cut. To make sure that the baby has begun to breathe with its own lungs, usually the new born baby is given a pat on the buttocks. The baby's first cry indicates that it is able to take in the oxygen it needs and the infant begins a new phase of its life.

Family Planning

Thanks to modern science, couples may now determine how many children they will have and when. Each child becomes a wanted child. Parenthood is by choice and not by chance.

There are a number of safe, legal and acceptable methods available to a couple who wish to limit the size of their family. In selecting a method a couple may consider the following factors:

- The method should be safe and free from harmful side effects, both for the person using it and for the partner.
- It must be effective in preventing an unwanted pregnancy.
- It must be an easy and simple method.
- It must not only be cheap but readily available.

Some of these temporary and permanent methods are referred to below.

Family Planning Methods

Temporary Methods

Method	*The Pill*	*Condom*
What it is	A combination of synthetic hormones. They normally come in packs of 21 or 28	A very smooth, thin, soft rubber sheath which is used by the male. It is worn over the male sexual organ during sexual intercourse.
How it works	The pill prevents the ovary from releasing egg cells. With no egg cells present, a woman cannot get pregnant.	It prevents the sperm from entering the vagina so that fertilisation cannot take place.
Reliability	If taken exactly as prescribed, the pill is almost 100% effective.	If the husband uses it correctly and consistently, it offers good protection. Failures are primarily due to irregular use, tearing of the condom or to its slipping off during the sex act.
How to use	Doctor's or clinic instructions to be carefully followed.	The husband puts it on over his sexual organ during sexual intercourse.

Method	*The Pill*	*Condom*
Side effects	The majority of women experience few, if any, side effects. Some experience nausea, vomiting, headaches or dizziness during the first one or two months, but these soon disappear. Some experience weight gain or loss. Beneficial side effects are relief of pre-menstrual tension and more regular periods.	No physical side effects.
Who should not use it	Women with varicose veins, high blood pressure, liver complaints, diabetes or T.B. should not take it.	–
Advantages	It is comparatively cheap. It is an effective and convenient method. Easy to obtain.	Readily available. Relatively cheap. Easy to use.
Disadvantages	If the pill is not taken regularly, effectiveness is lost.	The act of putting it on can be distracting, leading to irregular use.

Method	*Loops (I.U.D. or I.U.C.D.)*	*Injections*
What it is	A small object made of plastic or stainless steel.	They contain hormones of the same type as those used in the pill.
How it works	Exactly how it works to prevent pregnancy is not completely known.	They work in the same way as the pill.
Reliability	95% to 97% effective	Almost 100% effective.
How to use	It is inserted into the cavity of the uterus by a doctor. The whole procedure does not take more than 7 minutes.	They have to be administered by a doctor. They are given at intervals varying from one to six months.
Side effects	Many women have no problems. Some have cramps and bleeding between menstrual periods.	Side effects are much the same as for the pill.
Who should not use it	Ordinarily not recommended for women who have not had children.	Women with varicose veins, high blood pressure, liver complaints, diabetes or T.B. should not take the injections.
Advantages	It is a convenient method. Easily and quickly inserted with no pain to the woman. Motivation on the part of the user is only required at the time of its insertion. It can be left in place as long as the woman wishes to avoid pregnancy. It can be removed just as easily.	Easy and convenient method.
Disadvantages	It must be checked frequently, by feeling, as it may be expelled unknowingly.	

Permanent Methods

Method	*Vasectomy*	*Tubectomy*
What it is	A simple operation done on the male in 15-20 minutes by cutting and tying the tubes which carry the sperms from the testicles to the penis.	A minor operation done on the female resulting in tying or cutting the fallopian tubes.
How it works	Once the tubes are tied the sperms cannot reach the semen, so that when discharged the semen cannot cause pregnancy.	Tying or cutting the fallopian tubes which carry the eggs from the ovaries to the womb prevents the eggs from meeting the sperms. Therefore pregnancy cannot occur.
Reliability	100% effective. Complete sterility however does not occur until about 3 months after the operation. During this period the couple must use some alternative method of contraception.	100% effective.

Method	*Vasectomy*	*Tubectomy*
Side effects	Usually none	As with all operations, complications such as infection, haemorrhage and post operative discomfort can occur. Therefore these cases should be followed up post-operatively.
Advantages	It is a permanent method. It is a simple operation. No hospitalisation is necessary and the man can return home almost immediately. Unless involved in heavy manual work, the man is free to return to work in two days.	It is a permanent method. It can be done in hospital, in a clinic or health centre. The patient has to stay in hospital only for a short period. Patient can return to work in a few days. It can be done immediately after delivery of a child, immediately after an abortion or on non pregnant women.

Family Planning Services Available

In the plantation sector, family health sevices are provided through established poly clinics conducted by Medical Officers of Family Health (Estates) with the assistance of public health field staff and the estate para-medical personnel. However most estate poly-clinics are not equipped to provide a full range of family planning services.

Poly Clinics

The poly clinics, where a number of services are provided are the real outlets for family health services. About 200 poly clinics function on the plantations, but many of them are not fully equipped to provide family planning services. The services provided at the poly clinics are ante-natal care, post-natal care, immunisation of children and other aspects of child care, health education, education on nutrition, family planning advice and services. The following clinics are conducted in a poly clinic:

- Ante-natal clinics
- Post-natal clinics
- Family Planning clinics
- Infant clinics and
- Pre-school clinics.

Ante-Natal Clinics

The aims of ante-natal care are:

- To look after the physical and mental health of the mother,
- To prepare and educate the mother for normal labour,
- To detect early and to treat any illness that the mother may have,
- To detect early and to treat any complications of pregnancy,
- To motivate for family planning.

Activities conducted in an ante-natal clinic include:

- A series of examinations and tests to check the physical condition of the mother, and
- The position and growth of the baby,
- Urine tests for sugar, albumin,
- Blood tests for anaemia, V.D.,
- Blood pressure test,
- Treatment for any illness or complication,
- Giving advice on and providing supplementary food (Thriposha etc.),
- Giving Tetanus Toxoid injections,
- Education and advice on child care, etc. and
- Preparation for breast feeding.

Post-Natal Clinics

The aims of post-natal care are:

- To maintain the physical and emotional well being of the mother and the new born child,
- To promote breast feeding,
- To prevent complications by observation and treatment,
- Family Planning advice.

Activities conducted in a post-natal clinic include:

- Examination of mothers and the provision of necessary treatment and guidance,
- Provision of family planning information and services,
- Giving advice on supplementary food and provides it.

Family Planning Clinics

The aims of family planning are:

- To provide the necessary advice and guidance to delay pregnancies and to space pregnancies,

- To help couples who have had enough children, to limit their families,
- To provide the necessary family planning services to those who need them, and
- To help childless couples to have children of their own.

Infant and Pre-School Clinics

Because children grow and develop so quickly during the first 3 or 4 years, they need careful nutritional care. They are also very susceptible to infections. These clinics are conducted with the aim of providing the necessary guidance and attention for the healthy growth of children.

Activities conducted in these clinics include:

- Examination of children to find out any early symptoms of disease or abnormalities,
- Regular weighing of babies to check their growth and health,
- Immunisation of infants and children against T.B., polio, tetanus, diphtheria, whooping cough and small pox.
- Issue of free milk (anchor milk) and
- Provision of necessary advice and guidance on the food and nutritional requirements.

PART IV: LEADERSHIP AND EDUCATION

Leadership

In the discussion on the Role and Duties of Family Welfare Supervisors (P.4), it was pointed out that education and motivation form the basis of the work of the Supervisors. Apart from administrative work, they have to act as leaders, educators, health workers, social workers and evaluators. It has to be emphasised that their work calls for a lot of tact, understanding, ingenuity and dedication and that the degree of their success depends on the extent to which they can win the confidence of, and work with the management staff, para medical staff, trade union and other leaders and the workers and their families on the plantations.

Different situations will require different behaviour patterns from the Supervisors and these behaviour patterns will depend on their own personality and mental make up and the environment within which they have to work. However it is important that they recognise and understand that individuals have certain physiological, psychological and social needs and that people are different. It is therefore necessary that they are able to understand and work with the people whose behaviour patterns they are expected to influence. It is equally important that they should realise their position in the hierarchical structure of their organisations and that without cooperative attitudes they will not be able to get the assistance of the managerial, medical and para medical staff of the plantations.

Education

Education of the workers is central of the work of the Family Welfare Supervisors. It is important to bear in mind that the majority of plantation workers would not have had a formal school education. But that does not mean that they cannot understand or learn. All people at all ages can learn and education is a life long process. Education and training programmes for workers cover such areas as adult education, literacy training, vocational training, trade union education, social educa-

tion and so on. All these programmes involve informing, educating, training and preparing workers or groups of workers with a view to motivating them to act in a rational and constructive manner in their own interests.

Communication

Good communication is fundamental to successful motivation. Communication is a two way sharing process and includes not only oral and written interchange of ideas but also many non-verbal methods of expression such as pictorial, bodily movements, etc. All means which are employed in communication should therefore be clear and simple enough to motivate and stimulate action.

Education Methods

Face-to-Face Communication

The educational methods and techniques that are available to motivate workers are many and varied. It is important that factors such as the place, time, facilities available, costs involved are taken into account before selecting an appropriate method.

Individual (face-to-face) communication is a very effective method in that it enables a two-way flow of ideas between the communicator and the person with whom he is communicating. The communicator should ensure that the person with whom he is communicating feels relaxed. The communicator should try to win the confidence and trust of the person with whom he is communicating and find out his way of thinking before trying to convey his message. If such an attitude of trust is built up between the two, communication can take place very effectively. However by its very nature, individual (face-to-face) communication is time consuming.

Talks and Discussions

Talks and discussions for small groups of workers are an important communication method aimed at involving all the participants. Such meetings provide an opportunity for workers to ask questions and engage in discussion. To be effective, talks to small groups of workers should be

short and to the point and be limited to three or four essential points. Time for questions and discussions should be allowed. The use of visual aids will increase the effect of the talk.

Working With People

Working with and sharing the experiences of the people to whom the message is intended will enable the communicator to gain the confidence of the people and convey his message at the appropriate time. In the plantation areas, organising self-help (Shramadana) programmes to meet the needs of plantation workers will provide opportunities to the Family Welfare Supervisors to discuss the needs and problems of workers and through these discussions to educate and motivate workers on family welfare and family health aspects.

The above mentioned methods are examples of interpersonal methods of communication that can be adopted to educate and motivate workers.

Mass Communication

Mass media methods include drama, films, posters, handouts, etc. These allow only a one-way flow of information. The receiver of the information is not able to reply to or ask questions from the source. But they have the advantage in that they can reach workers at times and in places where other communication methods cannot and they enable workers to be exposed to information and to increase their knowledge. Playlets (drama) can be a useful method of conveying family health and family welfare messages because of their entertainment value and appeal to plantation workers.

Teaching Aids

Educational and motivational programmes for workers which are conducted only in the forms of talks and discussions are likely to become dull and unappealing. Talks and discussions can be made more interesting by the use of appropriate teaching aids.

Need for Teaching Aids

They help the teacher or educator to make the message clear and easily understood by the learner.

They increase the effectiveness of the teacher or educator.

They create interest in the learner, thus providing a good basis for discussion.

They help the learner to remember the message for a longer time.

They increase the efficiency of the learning process.

Flannel Graphs (Flannel Board)

The flannel board as its name indicates is a board covered with flannel cloth or felt. Even some towelling material or blanket cloth could be used. It works on the principle that materials with rough surfaces will cling together when pressed one against the other.

Basic Materials Needed

- dark or light background cloth – flannel, felt, towelling or blanket cloth. Size 30" x 40" or more.
- hard, flat surface such as plywood board or some other board of light wood – size 30" x 40" or more.
- hard, flat surface such as plywood board or some other board of light wood – size 30" x 40" or more.
- stick-on symbols, figures, letters, photographs, pictures etc. cut out from newspapers, magazines etc.

How to Make

The flannel or blanket cloth could either be pinned on the board or pasted permanently on the board.

The symbols, figures, pictures, etc. should be backed by strips of sandpaper so that they can be stuck on the flannel board.

Advantages

Symbols, figures, letters, etc. can be removed, replaced, displayed in part or completely, re-positioned or reintroduced at any desired time.

They allow for a step by step presentation or discussion of a topic as desired by the educator.

Hints on Using the Flannel Board

The board on which the symbols, etc. are to be stuck should tilt slightly backwards. This will help the symbols, etc. to stick to the surface of the flannel or blanket.

A breeze or a sudden draft can blow the symbols off the board. This can be embarassing and distracting. Therefore ensure that the symbols, etc. which are displayed do not get blown off.

The symbols, pictures, etc. should contrast in colour as much as possible.

Having the symbols numbered in advance will help the educator to present them in the desired sequence.

The symbols should be displayed at the correct time and removed as soon as they are no longer necessary.

Charts and Flip Charts

A chart is a graphic presentation of several ideas or several aspects of a specific topic, arranged in some sequence or order. The frames or lines or arrows in the chart help one to follow the order in which the topic is being presented or discussed. A simple title and a list of subtitles written under it in some order, with or without simple illustrations, could also form a chart. A series of illustrations or pictures relating to a specific topic, with simple captions, can make up a pictorial chart.

A series of charts or pictures, sometimes also with large wording, on different aspects of a specific topic, fixed together by some suitable device and arranged in a certain order, form a flip chart. The chart or pictures are 'flipped' over, one by one, as the presentation progresses.

Presentation of an effective chart or flip chart requires a good deal of knowledge of the topic and a fair amount of preparatory work.

Appropriate Uses

Charts and flip charts are a useful device for:

- step-by-step learning. e.g. the different aspects of the country's problems such as health, education, employment, etc.
- to build up an argument or explanation in stages.
- to illustrate different topics or aspects of a topic.
- as a good source of reference for the educator who does not require to keep on referring to additional notes.

Flash Cards

Flash cards are pictures or illustrations, with or without words, prepared on cards of the same size, which are 'flashed' or shown to an audiance – a card at a time – to introduce or illustrate various points or aspects of a topic that is being presented or discussed.

Flash cards are cheap and easy to prepare. They help a step by step presentation or discussion of a topic.

Hints on Preparing and Using Flash Cards

The cards should be sufficiently thick so that they will remain firm when held up to the audience or propped against some support.

The cards should be of white or light colour to contrast distinctly with the pictures or contents drawn or printed on the cards.

For an audiance of 20-40 participants the cards should be at least of the size 12" x 9".

The illustrations should be simple and drawn with a heavy outline to help easy viewing.

Only a few words must be used and they should be in large and bold letters.

The number of cards must be limited to emphasise or illustrate the main points.

The appropriate card must be displayed at the relevent time and withdrawn before proceeding to discuss the next point.

Numbering the cards at the back will help the educator to display them in the proper order.

Having a brief text at the back of each card will help the educator as he can refresh his memory by referring to the text as he holds it up to the audience.

Posters

The aim of a poster is to convey a simple message or idea at one glance. The poster is also used to announce or remind the viewers of a forthcoming event or activity. Posters make people think, make people aware or remind them of facts they have momentarily forgotten.

Appropriate Uses

- To arouse interest – e.g. through a question, suggestion or statement.
- To announce a coming event e.g. a meeting on family health matters, opening of a new clinic, etc.
- To serve as a reminder e.g. medical check up, clinic visits, etc.
- To provide simple information e.g. where family planning advice and/or services are available.

Basic Materials Needed

- Pencil and paper, for trial designs.
- Large sheet of paper to draw the posters.
- Drawing and colouring material – ink, paint, etc.
- Adhesive material like gum or glue for putting up the poster.

Hints on Preparing and Using Posters

A poster should contain only one idea or one message.

A poster should preferably contain only one picture.

If words are used, the message should be limited to a few appropriate words – 4 to 8 words.

The letters should be of large size, bold and clear.

The poster should be large enough so that it can be read from a distance.

Bright or contrasting colours will make the poster attract the attention of people.

It should be displayed at a carefully selected place where the right people will see it.

Have a poster up only as long as necessary. They quickly lose their effect.

If a poster is to serve as an ongoing reminder it must be moved around periodically.

Teaching Aids Available

Examples of materials used in family planning, population and family health information, education and communication activities are given below.

- *Family Planning Association of Sri Lanka*
  Address: 37/27 Bullers lane, Colombo 7.

Several leaflets and posters on family planning and population related questions have been produced for general information and for I.E.C. activities.

Flash cards on contraception have been developed for training of health personnel.

Filmlets on (a) Population and Development (b) Husband and Wife Communication and (c) 2-Child Norm have been produced in addition to films.

A quarterly newsletter in all three languages, 'Yahapath Paula' contains useful information for family planning and family health workers.

- *Communication Strategy Project*
  Address: Government Film Unit, Polhengoda Road, Colombo 5.

Leaflets such as "5 Questions", "Attention Please", contraceptive booklets, kit for newly weds etc. are both informative and useful for I.E.C. activities. In addition several posters and bus panels have been produced.

Flashcards on conception and contraception produced by the Project can be very useful for educators and health personnel when these subjects have to be explained to target audiences.

The Project has also produced filmlets and films on population related themes.

The quarterly newsletter 'Sandesaya' contains useful information.

- *Workers Education Division*
  Address: Department of Labour, Labour Secretariat, Colombo 5.

Productions include leaflets, silkscreen posters, cut out sets on family welfare and papers on population used by the Labour Officers in their educational and motivational activities.

- *Health Education Bureau of the Ministry of Health*
  Address: Health Education Bureau, 2, Kynsey Road, Colombo 8.

Productions include posters on general health as well as family health and health education publications – In particular the leaflets on bowel diseases, communicable diseases, Tuberculosis, Cholera etc. have been written in simple language and can be very useful for conducting educational activities for workers. The quarterly publication 'Sepatha' contains useful information and articles on health matters and diseases.

- *Population Information Centre* of the Ministry of Plan Implementation.
  Address: 231 De Saram Place, Colombo 10.

The recently updated publication titled 'Population Statistics of Sri Lanka' contain all relevant demographic data.

- *Food and Nutrition Division of the ministry of Plan Implementation.*
  Address: 2nd Floor, Ceylinco Building, Colombo 1.

The quarterly publication 'Poshana Puwath' contains useful information and articles on food and nutrition.

- *ILO Labour and Population Team for Asia and the Pacific (LAPTAP)*

  Address: ILO Regional Office, UN Building, P.O. Box 1759
  Bangkok, Thailand

In response to felt needs the ILO Labour and Population Team for Asia and the Pacific has brought out a series of publications to serve as reference guides for those interested in formulation and implementation of family welfare programmes in the industrial, plantations and agricultural sectors. These publications are available from the ILO country offices, the ILO Regional Office for Asia and the Pacific and its Headquarters in Geneva. They include:

"Family Planning in Industry in the Asian Region"

Part I "The Manual" (1974; Revised 1977) which contains a synthesis of the collective wisdom of a series of tripartite fora (Governments, employers and workers) held in the Asian and Pacific region, relating to the scope and content of family planning programmes for the organized sector and the respective roles in such programmes of labour administrations, employers, trade unions and other relevant national agencies both governmental and non-governmental.

Part II "Some Action Studies" (1974)

Part III "Field Experiences" (1979)

These two parts contain accounts of programmes actually implemented in the organized sector written by persons connected with those programmes. The object of the publication is to give

readers an appreciation of the practical application of the guidelines for action contained in Part I.

"In-Plant Population Education: An Asian Handbook" (1977)

This book is intended to provide employers and others with practical guidance and assistance in regard to the details of setting up and running in-plant population and family welfare education programmes.

"Population and Family Welfare Education for Workers: A Resource Book for Trainers" (1980)

This book, as the name implies, is intended to assist trainers in in-plant programmes to devise suitable curricula for their training programmes.

"The Industrial Manager's Compendium on In-plant Family Welfare" (1983)

This book sets out step by step what a manager needs to do to set up and run in-plant family welfare activities.

The Team has also distributed other teaching materials and teaching aids which have been devised either in Bangkok by the Team or by the Population and Labour Policies Branch in Geneva, which is the Headquarters Unit of the ILO's Labour and Population Programme. Additionally, the Bangkok Team issues a quarterly Newsletter which is devoted to the exchange of programme experience principally in the Asian and Pacific region.

PART V: SOCIAL DEVELOPMENT

Promotion of Sports, Religious and Cultural Activities

The Plantation Family Welfare Supervisors (P.F.W.S.) are expected to play the role of a guide, leader and friend to the working people and their community on the plantations. It is therefore desirable that the Supervisors should try to identify the social, religious and cultural needs of the workers and their community. Organisation of games, sports meets, pilgrimages, New Year celebrations, etc. will enable the Supervisors to win the confidence of the workers and their community and also to identify and appreciate their needs and problems. Such activities will also promote harmonious relations and friendly attitudes amongst all sections of workers and the plantation community.

Assist in Developing the Creche

The Family Welfare Supervisors can be of much assistance in developing the creches on the plantations.

Apart from assisting the creche attendants in their work, the Supervisors should encourage mothers to bring their children to the creches.

Organising creche committees under the leadership of the estate Superintendant's wife and involving other estate staff, with the Supervisors functioning as secretaries of the creche committees, has proved to be very useful on several plantations.

The Supervisors should closely associate themselves with the creche feeding programmes. In particular they should ensure that Triposha should be prepared and given at the creche itself and that assistance given by various donor agencies in the form of food items such as butter, green peas, etc. is channelled through the creches.

Coordination with Other Programmes

In Parts III and IV of the Guide-Book, reference has been made to

several programmes and organisations which are concerned with family welfare and family planning activities. In order to obtain the maximum benefit from these programmes and organisations for the plantation communities, it is important that the Plantation Family Welfare Supervisors keep in close touch with those programmes and organisations, particularly their field workers.

Record Keeping

The Plantation Family Welfare Supervisors should collect data and statistics relating to the workers and their families as per instructions given and maintain relevant charts and the Family Folders accurately and upto date. They should submit monthly and quarterly reports on their work, as per specified forms, to the estate manager and through him to the Regional Coordinator. The Daily Diary (log book) should be maintained accurately and up to date.

First Aid

First aid is the immediate and temporary assistance given to a sick or an injured person (casualty) before the services of a doctor can be secured. In some instances this immediate assistance may save a life. It should always be kept in mind that first aid is only first aid, and in all but slight injuries or minor illnesses, the casualty should be seen by a doctor at the earliest possible moment.

First aid is given to a casualty:

To sustain life	–	Emergency resuscitation,
	–	Control bleeding and shock.
To prevent the condition from becoming worse	–	Cover wounds,
	–	Immobilise fractured and injured parts,
	–	Place the casualty in a correct and comfortable position.
To promote recovery	–	Reassure,
	–	Relieve pain,
	–	Move as little as possible,
	–	Handle gently and carefully at all times.

Responsibilities of a First Aider

– Be calm and take charge of the situation,

– Make a correct assessment of each casualty,

– Give prompt and adequate care depending on the condition of each casualty,

– Arrange for quick disposal of each casualty in a desired manner after first aid is given.

Initial Action

– Check safety of casualties and self,

– If the cause of the situation is still active, take action to remove it,

– Check breathing, bleeding and whether the casualty is conscious,

– Give confidence to the conscious casualty, reassure,

– Get others to help,

– Find out from casualty, if conscious, what happened,

– Observe signs of variations from normal face, lips, innerside of eyelids, nailbeds, fingers and toes,

– Find out symptoms of pain, cold or numbness,

– Check the level of consciousness, drowsiness, stuporcoma.

Action at an Emergency

Asphyxia, bleeding and severe wounds must be dealt with first before anything else.

Breathing

Check that the airway is clear and that the casualty is breathing. If not commence artificial respiration. Asphyxia is one of the most common conditions which develop due to interruption of breathing.

Causes
– Spasm,
– Suffocation,
– Obstruction,

- Compression of the chest,
- Compression of the neck,
- Conditions preventing use of oxygen by the body.

Treatment

- Mouth to mouth artificial respiration,
- Silvester method,
- Hodger Neilson method,
- Scheffer method.

The most effective is mouth to mouth artificial respiration. This method can be used by all age groups except when there is severe injury to the face and mouth.

Method

- Ensure that the casualty has a clear air way.
- Support the back of the neck and press top of the head so that it is tilted backwards.
- Push the chin upwards.
- Open the mouth wide and take a deep breath.
- Press the casualty's nostrills together with your fingers.
- Seal your lips around his mouth.
- Blow into his lungs until the chest rises.
- Then remove your mouth and watch the chest fall.
- Repeat and continue inflation until natural breathing is restored.

Beating of the Heart

The normal adult pulse rate is 60-80 per minute, the average being 72.

It is essential for the brain to be continuously supplied with oxygenated blood.

If totally deprived of oxygen for more than 5 minutes, the brain is likely to be permanently damaged.

If the Heart is not beating –

The casualty's colour may become blue;
The pupils of the eyes are widely dilated;
The carotid pulse cannot be felt.

Treatment
- Put the casualty on his back on a firm surface – the floor.
- Strike his chest smartly to the left of the lower part of the breastbone with the edge of the hand. This may restart heart beating.
- If no response, start external heart compression.

Method
- Place yourself at the side of the casualty.
- Feel the lower part of the breast bone.
- Place the heel of your hand on the lower part of the breastbone, keeping the palm and fingers off the chest.
- Cover this hand with the heel of the other hand.
- With arms straight, neck forward, press down on the lower half of the breastbone.

If both breathing and beating of the heart have stopped, artificial respiration and heart compression could be done simultaneously.

Bleeding

Bleeding may occur externally or internally and may vary from trivial to severe or fatal.

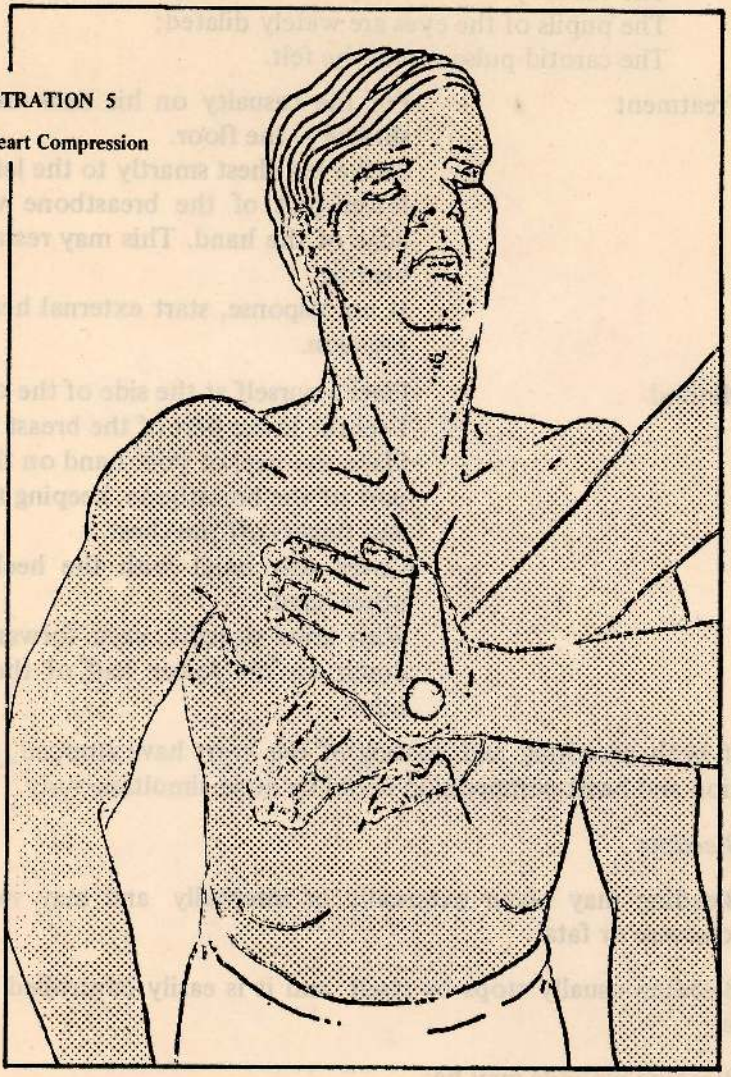
Bleeding usually stops by itself and it is easily controlled by local pressure.

Bleeding wounds may be:

- Incised or clean cut by sharp instruments,
- Lacerated or torn, caused by machine claws, animals,

ILLUSTRATION 5

External Heart Compression



Reproduced from the Authorised Manual of St. John Ambulance Association & Brigade.

- Contused or bruised, caused by a blow from a blunt instrument,
- Puncture or stab, caused by pointed instruments such as knives, daggers,
- Gunshot wounds associated with extensive internal injuries.

Blood loss indications – as a result of severe blood loss – following may occur:

- Face and lips become pale;
- Skin becomes cold;
- Feel faintish and dizzy;
- Rapid pulse rate;
- Thirsty;
- Feeling sick;
- Shallow breathing.

What to do in case of bleeding:

a. Wounds with slight bleeding – blood may ooze from all parts of the wound and may appear alarming but bleeding may stop by itself. It is easily controlled by local pressure.

- Reassure casualty.
- Place him at rest.
- Apply dressing with a pad if necessary and bandage firmly. An adhesive bandage may suffice.
- If the wound is dirty, wash in running water or clean with a sterile swab and dry with a clean swab.

b. Wounds with severe bleeding:

- Apply direct pressure with fingers to bleeding points.
- If the wound is large, press the sides of the wound together and firmly.
- Lay the casualty in a comfortable position and lower the head.

- Carefully remove any foreign bodies and wipe off with a sterile swab.
- Apply dressing directly over the wound and press firmly down.
- Cover it with a pad of cotton.
- Retain the dressing and pad firmly with a bandage.
- If bleeding cannot be controlled by the application of direct pressure, the appropriate pressure points can be pressed.

c. Special Bleeding Areas:

Bleeding from ear

- This can indicate a fracture of the bone of the skull.
- Apply a dressing or pad over the ear and secure tightly in position.
- Remove to hospital immediately.

Bleeding from nose

- May be due to a blow, or in elderly people it can be a sign of high blood pressure.
- Keep casualty in sitting position, head slightly forward.
- Get him to breathe through the mouth.
- Press the nostrills.
- Loosen clothes around neck and chest.
- Ask him not to blow the nose.
- Do not interfere with the clot.

Shock

Shock is a condition resulting from a lessening of the activities of the vital functions of the body due to lack of blood supply. It may be due to injuries, severe pain or sudden illness.

Symptoms are:

- Skin cold;
- Profuse sweating;
- Faintish feeling;

- Blurring vision;
- Feel sick and vomit;
- Complain of thirst;
- Anxious;
- Consciousness may be clouded.

Treatment:

- Deal with the cause of shock.
- Waste no time, get the casualty to hospital as blood transfusion is necessary.
- Keep the head low and turn to a side.
- If unconscious, place him in recovery position.
- If thirsty, moist lips with water.
- Cover with a blanket or sheet.
- Keep pulse record.

Dont's:

- Do not give him anything to drink.
- Do not make him too warm.

Unconsciousness

Unconsciousness is due to interruption of the normal activity of the brain, brought about by some interference with the function of the nervous system and circulation.

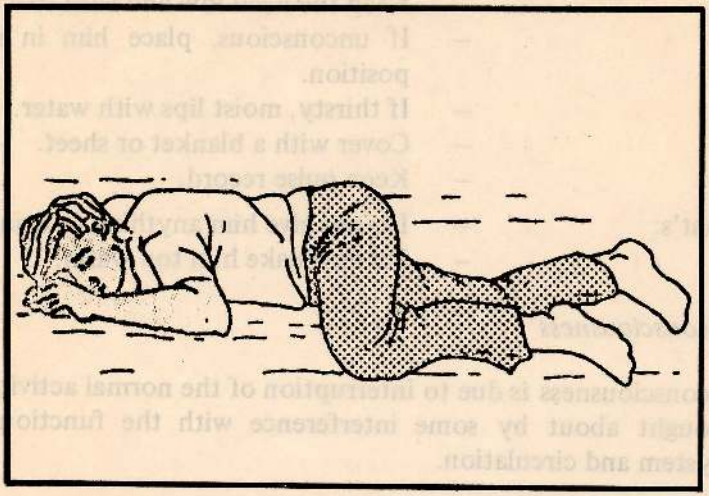
Common causes are:

- Asphyxia;
- Head injuries with damage to brain;
- Shock;
- Fainting;
- Poisoning;
- Heart attack;
- Epilepsy;
- Infantile convulsions;
- Diabetic emergency.

Recovery Position:

- If casualty is unconscious it is necessary to keep him in the recovery position to protect him from obstructive breathing and suffocation.

ILLUSTRATION 6 – Recovery Position



Reproduced from the Authorised Manual of St. John Ambulance Association & Brigade.

Treatment: – Recovery position, but
– Make sure that the air passage is not obstructed.
– Ensure there is plenty of fresh air to breathe.

Remember: – Do not give anyting to drink to an unconscious casualty.
– Do not leave him unattended.

Fractures

A fracture is a broken or cracked bone. In young children, the break may be incomplete and is referred to as a greenstick fracture.

Closed fracture – Where the skin surface is not broken.
Open fracture – Where the fractured end protrudes through the skin.

Signs and symptoms: – Pain – at or near the site of fracture.
– Tenderness – on gentle pressure of the affected part.
– Swelling – may prevent the recognition of fracture. When in doubt treat as a fracture.
– Loss of control – Unable to move the injured part.
– Deformity – irregularity of the bone
– shortening of the limb
– rotation of a limb
– depression of a flat bone
– Unnatural movement
– Crepitus – may be felt or heard – broken bones rubbing against each other.

Treatment: – Support the injured part at once to prevent further damage.
– Immobilise – Body bandage, using the casualty's body as a means of support.

– Splint and bandages – The support of splint may be required when there is a possibility of a long or rough journey before medical aid is available.
– Treat the fracture on the site of the incident.
– Asphyxia, bleeding and severe wounds must be dealt with before dealing with any fracture.

Disposal:
– All casualties who have fractures or suspect fractures must be sent to hospital for further attention.
– Transport of the casualty should be as gentle as possible.

Miscellaneous Conditions

Burns

Burns are caused by:

Dry heat	–	Fire, flame, contact with hot object.
Electricity	–	Electrical current and lightening.
Friction	–	Contact with revolving wheel. Brush, rope or wire.
Corrosive chemical	–	Acids.
Moist heat	–	Boiling water, steam, hot oil or tar.
Treatment	–	Placing the burnt part gently under slowly running water or by immersing the part in cool water, keeping it there for at least 10 minutes or until the pain ceases.
	–	Reassuring the casualty.
Remember	–	Do not apply any lotion, ointment or oil, etc.
	–	Do not prick the blisters.

Electrical Shock – May cause stoppage of breathing and heart beat.

– Muscle spasm may throw the casualty away and cause injuries.

Treatment – Ensure no further danger to casualty or self by stopping the cause.

– If necessary give artificial respiration.

– Depending on the state of the casualty take suitable action.

Poisoning – A poison is any substance, solid, liquid or gas which when taken into body in sufficient quantity may damage health or even life.

Through the lungs – Breathing poisonous gas or fumes.

By the mouth – Swallowing

By injection – Under the skin.

By absorption – Through the skin

Remember – Apart from the possibility of death, life may be endangered by:

Asphyxia;
Convulsion;
Coma.

Treatment – If the casualty is conscious, ask him quickly what happened.

– If the lips and mouth show signs of burns, give quantities of water, milk – to dilute the poison.

– Remove the casualty to hospital quickly.

– Send any particulars of the suspected cause, if remaining poison or box, carton, bottle or other container which may help to identify.

Foreign Body in the Eye – Prevent the casualty from rubbing the eye.

– Do not attempt to remove the foreign body if it is on the pupil.
– If the foreign body is seen outside the pupil remove with the corner of a clean handkerchief.

Foreign Body in the Ear

Insect
– Flood the ear with water or olive oil, then the insect will come out.

Foreign bodies
– Do not attempt to remove these objects.
– Seek medical aid.

Foreign Body in the Nose
– Instruct the casualty to breathe through his mouth.
– Do not attempt to remove.
– Seek medical aid.

Dog Bite
– Flush the wound with soapy water thoroughly.
– Seek medical aid.

Snake Bite
– Calm and reassure the casualty and lay him down.
– Do not allow the casualty to walk about.
– Support and immobilise the limb.
– Flush the wound with soapy water and wash away all venom that may be around the wound.
– Obtain medical aid as soon as possible.