3 HEALTHY PEOPLE, HOMES AND DOGS

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1 Domestic and personal hygiene

Today, most Indigenous people live in the one house for a long time. It is important that the house be kept clean so that it is a healthy place. If the house and everything in it are not cleaned often, moisture and dirt gather and it becomes an ideal place for germs, parasites and vectors (disease-carrying animals) to breed and multiply. These germs can cause the people living in the house to get sick.

**Domestic hygiene activities** include all the jobs which are done to keep the house and people’s clothes and bedding clean. These jobs include sweeping and washing floors, cleaning the toilet, washing clothes and bedding, and washing dishes and cooking utensils after meals. There are many more.

As well as making sure that the house is a clean and healthy place, it is important for good health to keep our bodies clean. If our bodies become dirty and sweaty and stay that way for a while, the skin and hair become ideal places for disease-causing germs to grow and multiply. The teeth and gums also need to be kept clean to stop them from becoming diseased.

**Personal hygiene activities** are all the things done to keep the body clean. Some of these activities are showering, washing hair, cleaning teeth and changing into clean clothes when necessary.

*Fig. 3.1: Sweeping the floor.*
2 Poor hygiene and disease

There are many sicknesses which can be caused by inadequate (poor) domestic or personal hygiene.

Signs of poor domestic hygiene include:

- not cleaning the toilet
- not getting rid of rubbish
- not washing clothes and bedding frequently
- not storing food properly.

Signs of poor personal hygiene include:

- not washing hands
- not showering
- not washing hair.
Diseases in Indigenous communities caused by germs and parasites resulting from inadequate domestic and personal hygiene

Bacterial

- food poisoning
- gastroenteritis
- diarrhoea caused by *Campylobacter*
- pneumonia
- trachoma
- skin infections.

Viral

- hepatitis A
- gastroenteritis
- colds and flu.

Parasitic

- giardiasis
- scabies infection
- pediculosis (head lice infection)
- hookworm infection
- threadworm infection
- roundworm infection (strongyloides).

Poor domestic and personal hygiene practices can help the transmission of disease-causing germs:

- **directly** by the faecal-oral route, or by person to person or pet to person contact
- **indirectly** by vectors coming into contact with people or their food, people breathing in airborne droplets of moisture which contain germs or eating contaminated food.
3 House design and health

It is important that houses are pleasant and healthy places in which to live. There are many factors to be considered in a house design to make it a healthy place.

Protection from the weather

A house should keep out the rain and strong winds. It should keep out as much heat as possible in hot weather and keep in the warmth during cold weather. If the house meets all these requirements it lowers the chances of people getting sick from too much heat, cold or dampness.

Size of rooms

Each room in the house should be large enough to allow the people living there to have enough space to live comfortably.

Rooms that are too small can lead to overcrowding and this can make it easier for diseases to be spread from person to person. Overcrowding can make people annoyed and depressed (downhearted). Rooms that are too small can result in the people using them not getting enough air.

Even a large house can become overcrowded if too many people live in it.

Ventilation

All rooms should be well ventilated. This means that air should be able to flow into and out of each of the rooms. This is important so that fresh air can get inside all the rooms and stale air can get out. Ventilation also allows heat, steam and odours (smells) to escape, particularly from the kitchen, bathroom, laundry and toilet. This is important for the good health of the people living there.

Open windows and doors allow the house to be well ventilated. Sometimes air vents are placed in the walls or the corners of the ceiling to provide ventilation when doors and windows are closed.

Toilets usually have a window with one part always fixed open, or have an air vent in the ceiling which opens to the outside air.

Cooking areas also should be well ventilated so that any cooking smells are blown or sucked out of the house.

Sometimes houses do have plenty of windows but the people living in the house rarely or never open them. These people should be encouraged to open their windows, especially on days when a breeze is blowing. Fly screens allow for windows to be open while protecting people inside from flying insects (flies and mosquitoes).
**Lighting**

As well as providing ventilation, windows also let natural light into the house. There should be enough windows to let in plenty of light. It is difficult for germs and insects to live and breed in light, airy rooms. When plenty of light can get into the house, it helps to make the home a cheery place to live in.

When electric power is supplied to the house, each room usually has electric light. Electric light is one kind of artificial light (not supplied naturally by the sun or moon). Gas, kerosene and candle lights are also artificial.

Where possible, electric lights also should be positioned outside to light up areas such as verandahs and outside toilet blocks at night.

**Power**

If it is available in the house, electric power can be used for many purposes. For example, it can be used for lighting, heating water, cooking and for running many appliances such as refrigerators, TV sets, radios, kettles, toasters, and vacuum cleaners.

**Water supply**

Every house should have clean drinking water supplied to it. Plumbing carries the water to taps in different parts of the house.

The kitchen, laundry and bathroom should each have water supplied. Water must also be supplied to the toilet if it has a flushing mechanism. Outside the house, water can be used on gardens and trees. Care should be taken to avoid wasting water.

**Kitchen**

If possible, the kitchen should have:

- a window or vent to let in fresh air and to allow cooking odours to escape. Sometimes a mechanical fan will ventilate the room
- screens covering the windows to stop flies from coming in
- a sink with water supplied to wash food and dishes
- if possible, hot as well as cold water should be available to the sink
- a workbench area which can be used to prepare food
- a ventilated storage cupboard in which to keep dry and canned foods
- storage areas for crockery (cups, saucers, plates, glasses), cutlery (knives and forks), kitchen utensils (saucepans, frying pans, billies) and cleaning equipment
- a stove for cooking
- a refrigerator for keeping foods cold to stop them from going bad too quickly.

![Image of a well designed and equipped kitchen.](image)

**Fig. 3.3: A well designed and equipped kitchen.**

**Bathroom**

Every house should have an area where people can clean their bodies. The bathroom should have a basin and a shower or bath with water supplied directly to each of them. If possible, hot as well as cold water should be available at these places.

Many families have small children or babies who need to be bathed regularly. If there is no bath in the bathroom, the shower recess may be deep enough to plug and use as a bath. If the shower recess is to be used in this way, the water must be drained out immediately after use and the floor of the shower kept very clean.

The bathroom should also have towel rails, hooks to hang clothes on, a mirror and a cabinet for storing toiletry items such as soaps, deodorants, toothpaste, and toothbrushes.
Fig. 3.4: A bathroom with shower, basin, cupboard and towel rail.

Laundry

This is the room or area in which clothes, bedding, towels and other linen are washed.

The laundry should have a deep tub. Cold and hot water should be supplied to it. There may be a washing machine. The tub can be used for soaking and washing clothes and linen when there is no washing machine. A large tub can also be used as a baby bath if there is no proper bath in the house. However, the water must be drained out immediately after use and the tub kept very clean.
Toilet

Every house or other type of dwelling (place in which people live) must have some type of toilet provided or at least there should be one close to the house. Modern houses have toilets under the main roof, while older houses may have them in a small separate building located nearby. In some Indigenous communities, several families share toilets in an toilet block.

The toilet may be a full flush water type, a dry septic tank type or a borehole toilet. The toilet is important as it removes faeces and urine, and their disease-causing germs and parasites, from the environment in which people live.

It is important that water and soap are nearby so that people can wash their hands after going to the toilet. This water may be provided by a tap connected to a house water supply or a sealed container with a tap.

*Fig. 3.6: A flush toilet with ventilation.*
Sewage disposal

There must be a way of removing the sewage produced in a house. The sewage comes from the toilet, bathroom, kitchen and laundry.

There are two main disposal systems. These are:

- on-site septic tanks and leach or French drains
- community effluent or full sewage systems.

![Fig. 3.7: Plan views of sewage disposal systems](image)

(a) Septic tanks
(b) Community effluent system.

Rubbish disposal

Each house should have a way of properly disposing of the solid waste produced by the people living in the house. This solid waste is called rubbish and includes things such as food scraps, tin cans, plastic containers, glass bottles and jars, papers, cardboard and disposable nappies. If this rubbish is not properly disposed of it will quickly attract pests and germs.

Solid waste disposal for a house should include:

- a small bin inside the house for daily use
- a large bin in the yard into which all the household rubbish is placed. This rubbish should be collected and taken away at least once a week by a rubbish truck.
Protection from pests

There are many pests which carry disease-causing germs and parasites and are therefore a danger to health. Such pests include flies, mosquitoes, cockroaches and rodents.

Houses can be made safe from these pests by:

- putting flyscreens on all windows and vents, and fitting doorways with flywire doors or hanging strip barriers
- sealing (closing) all gaps where pipes pass through walls
- sealing all gaps, such as cracks and crevices, around food storage cupboards which allow entry to the cupboard.

Fig. 3.8: Kitchen with a window flyscreen to keep out pests.
4 House hygiene—cleaning

if a house is to be a healthy place it must have all the design features already listed. However, it is also important that everything in the house is kept clean. If the house is not regularly cleaned then rubbish and dirt will build up. Germs and parasites will multiply and grow in the dirt and people living in the house may get sick.

4.1 CLEANING EQUIPMENT AND MATERIALS

Equipment and materials which help to make housecleaning tasks easier and more effective include:

- cleaning products for floors
- cleaning products for wet areas (baths, handbasins, laundry tubs, kitchen sinks)
- cleaning products for food preparation and meal areas (tables and benchtops)
- dish washing detergent for cleaning kitchen utensils (pots, pans, plates and cutlery)
- laundry detergent for washing household linen (towels, sheets, blankets) and clothes
- oven cleaner
- disinfectant (kills germs)
- cleaning cloths and sponges. These should be replaced regularly and there should be different ones for different cleaning areas (for example, never use the same cloth or sponge to clean the bathroom and the kitchen, as this can spread germs from one place to another)
- scrubbing brush
- stainless steel pot scourer
- broom, dust pan and brush
- bucket
- mop or squeegee.

It is important to remember that some household cleaning liquids and powders contain dangerous ingredients and can be poisonous. Always follow the instructions on the label and keep these products out of reach of children.
4.2 HOUSE CLEANING TASKS

Each room in the house has its own particular cleaning requirements, which are outlined below.

The Kitchen

The cleaning tasks (jobs) which should be done in the kitchen include:

- washing the dishes
- cleaning down the kitchen bench and table top
- emptying and washing the kitchen rubbish bin
- sweeping and/or washing (mopping) the floor
- wiping the shelves and cleaning the cupboards, inside and out
- cleaning the stove and oven
- cleaning out the refrigerator
- cleaning the walls, windows and brushing flyscreens
- removing cobwebs.

Fig. 3.9: Cleaning kitchen cupboards and benches gets rid of unwanted germs and parasites.
The Bathroom

The cleaning jobs which should be done in the bathroom include:

- cleaning the hand basin, shower recess and/or bath
- sweeping and washing (mopping) the floor
- cleaning the mirror, cupboards and/or shelves
- changing or washing the towels and the bath mat
- cleaning the walls and windows and brushing flyscreens
- removing cobwebs.

![Image of children cleaning a bathroom](image_url)

*Fig. 3.10: Cleaning the bathroom.*

The Laundry and Toilet

The cleaning jobs which should be done in the laundry and toilet include:

- washing clothes, linen (for example, towels, sheets) and blankets
- sweeping and washing (mopping) the floor
- cleaning the tub and washing machine
- cleaning the cupboards, walls and windows and brushing flyscreens
- cleaning the toilet
- removing cobwebs.
Bedrooms

The cleaning jobs which should be done in bedrooms include:

- sweeping and/or washing the floors
- dusting the shelves and cleaning out cupboards
- cleaning walls and windows and brushing flyscreens
- removing cobwebs
- changing the sheets on the bed and airing (putting in the sun for a few hours) the blankets and mattresses.

Fig. 3.11: Cleaning the laundry and toilet.

Fig. 3.12: Airing bedding in the sun.
Living Rooms and Verandah

The cleaning jobs which should be done in living rooms and verandahs include:

- sweeping and/or washing (mopping) the floors, including the verandah
- dusting the shelves and cleaning out cupboards
- cleaning the walls and windows and brushing flyscreens
- removing cobwebs.

Fig. 3.13: Keeping the bedroom and living room clean.

It is important when washing or mopping floors anywhere in the house to make sure that:

- no water gets into any power outlets or electrical appliance, such as a radio or video recorder
- pools of water are removed immediately.
4.3 HOUSE CLEANING TIMETABLE

How often the various parts of a house need to be cleaned depends upon:

- how many people live in the house
- how many other people use the house
- how tidy people are, such as whether or not people clean up after meals
- how many pets belong to the household
- whether or not there is sickness in the house, such as when someone has scabies or diarrhoea
- whether there has been a plumbing problem, such as water from an overflowing handbasin
- any other environmental factors, such as wind blowing dust into the house or wet soil being walked into the house when it is raining.

Household cleaning tasks are usually done according to the following timetable:

**Several times each day**

- Wipe down kitchen benches after food preparation.
- Wash dishes and cooking utensils after each meal.

**Once each day**

- Sweep the floors.
- Empty the kitchen rubbish bin.

**Once or twice each week**

- Wash the floors.
- Clean the toilet.
- Clean the laundry tubs.
- Clean the shower recess/bath and handbasin.
- Dust surfaces.
- Wash clothes and bed linen.

**Once each month**

- Clean the stove/oven and refrigerator.
- Clean cupboards, windows and walls.
- Brush the flyscreens.
- Get rid of cobwebs.
It is important to remember that it may be necessary to do some cleaning tasks more often than is suggested in the timetable. This is because there are times when parts of the house get much dirtier than usual. For example, the toilet may get very dirty when a lot of children or visitors are using it or when someone in the house has diarrhoea.

Some people may not know about the importance of keeping a house clean or what needs to be done. The EHP can help community members by:

- explaining why it is important to clean the house.
- showing them what needs to be cleaned and what equipment and materials are needed.
- telling them how often the cleaning needs to be done.
- demonstrating the cleaning method.

*Fig. 3.14: EHP demonstrating how to clean a stove.*
5 House cleaning—tidying and maintaining the yard

The outside of the house is also an area where disease-causing germs can grow and multiply or where vectors can live and breed. For example, germs can live in rubbish and faeces, and mosquitoes can breed in water in old washing machines and tyres.

Grass is effective at reducing dust levels in the yard. Long grass is attractive to snakes so, where grass grows, it should be kept short.

5.1 EQUIPMENT

The equipment needed to tidy and maintain the yard includes:

- a rake
- a shovel
- a hose
- an axe.

There are some other items which may be needed to help tidy or maintain the yard and garden. These include wheelbarrows, lawn mowers, pruning saws, or brush cutters. Because these items can be very expensive, it may be a good idea for the Community Council to purchase them for people to borrow. A loan system can be organised.

This could be a job for the EHP who would need to:

- work out the arrangements with the community and the Council
- organise the ordering, storing, and lending of the equipment
- be responsible for ensuring the return of the equipment after use.

The rules of the loan system would make the person who borrows the equipment responsible for paying for any lost or damaged items. However, the equipment will eventually break down or wear out with normal use. The cost of maintaining and repairing worn out equipment will always be the responsibility of the Council.

5.2 YARD TIDYING AND MAINTENANCE TASKS

The jobs which should be done to keep the yard tidy and well maintained include:

- raking up and disposing of rubbish (for example, cans, papers, plastic containers, bottles, broken glass), faeces and leaves
- mowing lawns, trimming edges and removing weeds
• pruning shrubs and trees
• cleaning out gutters if necessary
• removing bulky rubbish (for example, old tyres, refrigerators, car bodies)
• watering lawn, shrubs or trees. This particular job maintains the garden. Lawns and shrubs help keep dust under control. Lawns need only be watered twice a week.

Fig. 3.15: Cleaning the yard.

5.3 YARD TIDYING TIMETABLE

Most yard tidying tasks are usually done once a week or less often. What needs to be done and how often depends upon one or more of the following:

• How many people use the yard and what they do there. For example, one or two people having a barbecue will probably not make as much mess as thirty people.
• The number and kind of pets that use the yard. For example, dogs are dirtier and more destructive than cats.

• Weather factors. For example, rain collecting in containers can allow mosquitoes to breed and very strong winds blow objects, such as pieces of tin, around the community.

• Other environmental factors such as the vegetation in the yard. For example, shrub types may differ as to how often they need to be cut back.

• How tidy people are who used the yard. For example, some people will usually put their rubbish in a bin, while others do not.

6 Communal facilities

In some communities the houses have no bathrooms, toilets or laundries. Instead there are communal toilet blocks for everyone to use. A toilet block usually contains separate toilets and showers for males and females, handbasins, and sometimes a communal laundry facility.

Toilet blocks need to be cleaned regularly just as if they were part of a house. Since they are used by all of the people in the community the toilet blocks should be cleaned daily. If they are allowed to get dirty and surfaces become contaminated with germs, many people in the community could get sick.

Plumbing problems, such as blockages and leaking taps, pipes or cisterns need to be repaired as soon as possible. Regular (daily) cleaning allows for problems to be identified and reported to the community office or organisation responsible for repairs and maintenance.

For communal toilet blocks to be healthy places the cleaner must:

• make sure there is always toilet paper in the toilets
• clean the toilets, showers, basins and tubs once a day, and more often if they get very dirty
• hose or sweep the floors regularly
• report any faults or damage immediately to the community office.

It should be the EHP’s job to check that communal toilet blocks are being properly cleaned and maintained.
7 Personal hygiene

The human body can provide places for disease-causing germs and parasites to grow and multiply. These places include the skin and in and around the openings to the body. It is less likely that germs and parasites will get inside the body if people have good personal hygiene habits.

7.1 GOOD PERSONAL HYGIENE

Good personal hygiene habits include:

- washing the body often. If possible, everybody should have a shower or a bath every day. However, there may be times when this is not possible, for example, when people are out camping or there is a shortage of water. If this happens, a swim or a wash all over the body with a wet sponge or cloth will do.

- cleaning the teeth at least once a day. Brushing the teeth after each meal is the best way of making sure that gum disease and tooth decay are avoided. It is very important to clean teeth after breakfast and immediately before going to bed.

- washing the hair with soap or shampoo at least once a week

- washing hands with soap after going to the toilet

- washing hands with soap before preparing and/or eating food. During normal daily activities, such as working and playing, disease causing germs may get onto the hands and under the nails. If the germs are not washed off before preparing food or eating, they may get onto the food.
• changing into clean clothes. Dirty clothes should be washed with laundry soap before wearing them again

• hanging clothes in the sun to dry. The sun’s rays will kill some disease-causing germs and parasites

• turning away from other people and covering the nose and mouth with a tissue or the hand when coughing or sneezing. If this is not done, droplets of liquid containing germs from the nose and mouth will be spread in the air and other people can breathe them in, or the droplets can get onto food.

Fig. 3.17: Washing the body helps keep it free of disease-causing germs

Fig. 3.18: Cleaning teeth helps keep gums and teeth healthy.
Fig. 3.19: Washing hands after going to the toilet helps stop the spread of germs.

Fig. 3.20: Washing hands before preparing food helps keep germs out of our bodies.
Fig. 3.21: Washing hands before eating food helps stop germs getting into our bodies

Fig. 3.22: Washing clothes helps keep them free of disease-causing germ
Fig. 3.23: Hanging clothes in the sun helps to kill some disease-causing germs and parasites.

Fig. 3.24: Covering the nose and mouth when sneezing helps stop the spread of germs.
7.2 OVERCROWDING

When there are too many people in any house, the likelihood of them getting disease is greater than if the house is not overcrowded. This is because people in an overcrowded house will be much closer to each other and it is therefore easier for any germs to spread from one to another. For example:

• sneezing and coughing in crowded rooms makes it easier to spread cold and flu germs
• sharing towels can spread trachoma germs and other germs which cause eye infections (runny or sore eyes)
• several children sleeping in the same bed makes it easier to spread a scabies infection.

Fig. 3.25: Overcrowding helps spread germs and parasites such as scabies.
Each house is designed to allow a particular number of people to live there comfortably. This number will depend upon the number and size of the rooms, especially bedrooms, and the size of other facilities such as the sewage system and washing and cooking areas.

If the number of people living in the house is greater than the number it was designed for, these facilities will not be able to cope properly. For example, large numbers of people using the toilet may mean that the septic tank will not be big enough to take and treat the additional load of sewage.

For good health and comfort, the number of people who should live in a house depends upon the factors outlined below.

**The number and size of bedrooms**

While most people who live permanently in a house will have a bedroom to themselves or share one with one or two other people, other rooms are often used as bedrooms. The number of people who should sleep in a room will depend upon the amount of air which is available to each person. The law requires that each adult person has at least 13 cubic metres of air and each child has at least 10 cubic metres of air in a sleeping area.

**The type and size of the sewage system**

Usually, a household septic tank system with 2 round tanks caters for a maximum of ten people.

**The size and availability of other facilities**

The facilities within the house may not be able to handle all of the demands placed on them by the occupants. For example, the hot water system may not be able to produce enough hot water, or the amount of food to be chilled is too great for the refrigerator to hold.

In Indigenous communities, overcrowding in houses occurs for a number of reasons, such as:

- there not being enough houses for the number of people who live in the community
- families not being able to afford to pay rent on a house of their own and needing to live with relatives to share the cost
- people visiting relatives and staying for a long time
- visitors coming to stay so that they can attend special events such as funerals.

It is important that EHPs remember that overcrowding is a significant environmental health problem in many communities.
8 Food poisoning and contamination

8.1 FOOD POISONING

Everybody at one time or another has had the experience of eating food and some time later becoming sick. This is called food poisoning. The symptoms may include:

- nausea
- vomiting
- stomach pains
- diarrhoea
- feeling weak
- fever or chills/sweating
- headache.

Fig. 3.26: Food poisoning comes from harmful bacteria on food.
Food poisoning can be caused by eating food contaminated with bacteria, viruses, chemicals or poisonous metals such as lead or cadmium. Most food poisoning, however, is caused by bacteria and because of this, only bacteria will be discussed in this section.

Food which has become contaminated with harmful bacteria does not always taste bad. Most of the time it looks, smells and tastes like it normally does.

Some food poisoning diseases are more common than others. For example, disease caused by Staphylococcus aureus occurs a lot more often than disease caused by Clostridium botulinum.

Some foods cause food poisoning more than others and need to be cooked properly and/or kept in the refrigerator. These include chicken, meat, seafood, eggs, cooked rice, ham, salami, milk and all dairy foods. It is important chicken is cooked properly to the bone and then kept in the fridge for no more than 2 days. If reheating chicken, or left-overs, make sure it is steaming hot and only reheat it once.

**It is important to remember that the same food handling practices are used to prevent all food poisoning diseases.** Washing your hands with soap and drying them on a paper towel or with a clean cloth is the best way to stop the spread of bad bacteria.

The four most common types of food poisoning bacteria are discussed below.

**Staphylococcus**

*These bacteria are found on the skin, in sores, infected eyes and in the nose, throat, saliva and bowel of humans. There may be many of these bacteria in the yellow mucus (slimy substance) which comes from the nose or is coughed up when a person has a cold or a lung infection.*

Staphylococci do not cause illness until they get onto food and grow and multiply. While they are doing this they produce a toxin (poison). It is the toxin which causes the illness. The toxin is not destroyed by cooking the food.

Symptoms of staphylococcus food poisoning usually appear between 1 and 8 hours after eating the infected food.

**Salmonella**

There are hundreds of different types of salmonella bacteria but not all are harmful to humans. They are found mainly in the intestines, bowels and faeces of humans and other animals. It is the salmonella bacteria themselves which can cause salmonella food poisoning.
People can get salmonella food poisoning from:

- poor food handling practices in the home or in food outlets
- seafood caught in polluted water or eggs with dirty shells
- meat or poultry which has been contaminated by poor food handling before it gets to the food outlet, such as at the abattoir.

Salmonella food poisoning takes up to 48 hours to develop after the food is eaten. Symptoms include nausea, stomach cramps, diarrhoea, fever and headache, and may last between 3 and 21 days. It can cause death in very young, weak or very old people. People who have cancer or are taking medication for serious health conditions such as heart, kidney or liver problems need to also be particularly careful that they eat safe food.

**Clostridium**

These bacteria are found in the soil and in the intestines of animals, including cattle, poultry, fish and humans. Food poisoning caused by clostridium bacteria is important to know about because these bacteria are common in the environment.

People can get clostridium food poisoning from poor food handling practices in the home, in the factory or in a food outlet, especially relating to cooking and storage/refrigeration temperatures.

Clostridium food poisoning symptoms occur about 12 hours after eating the contaminated food and are similar but usually less severe than the other types.

Symptoms include stomach pains, diarrhoea and sometimes nausea and vomiting. Symptoms last about 24 hours.
One type of clostridium bacteria produces a very serious food poisoning disease called **botulism**. This disease is caused by eating food which is contaminated with an extremely poisonous toxin produced by the bacteria Clostridium botulinum. Unless properly treated about one-third of people who get this disease die within 3-7 days.

**Campylobacter**

These bacteria are found in many animals including dogs, cats, cattle and poultry. The sources of infection from these bacteria are usually contaminated food and water.

People can get campylobacter from:

- ingestion of contaminated food or water (especially undercooked chicken & creek or river water)
- contact with infected animals (especially puppies or kittens with diarrhoea)
- poor food handling (especially by using the same chopping boards, knives and plates for raw and cooked chicken).

Campylobacter food poisoning symptoms usually last from 2 to 5 days. These include diarrhoea, severe abdominal pain, vomiting and fever. It is a serious disease in Indigenous communities because of the possibility of dehydration from diarrhoea.

**8.2 HOW BACTERIA GROW AND MULTIPLY**

Bacteria reproduce (breed) by splitting in half. When they do this they are said to **multiply**. In the right conditions, bacteria multiply at a very fast rate.

![Fig. 3.28: Bacteria can multiply very quickly.](image-url)
Disease causing bacteria grow best when there is:

- warmth (37°C–38°C) (Note: human body temperature is 37°C)
- moisture
- food supply.

In ideal conditions, bacteria double their numbers every 20 minutes. For example, if a piece of kangaroo meat infected with 100 food poisoning bacteria is left lying on a kitchen bench on a warm day, the bacteria will double their number every 20 minutes, and in 3 hours, the 100 bacteria will multiply to over 50,000 bacteria.

The following table shows how the bacteria will multiply on the meat over 3 hours:

<table>
<thead>
<tr>
<th>Time</th>
<th>Number of bacteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start</td>
<td>100</td>
</tr>
<tr>
<td>20 minutes</td>
<td>200</td>
</tr>
<tr>
<td>40 minutes</td>
<td>400</td>
</tr>
<tr>
<td>1 hour</td>
<td>800</td>
</tr>
<tr>
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It is important to note that once inside a person’s intestine the bacteria can continue to multiply. This means that a person may eat contaminated food having only a few bacteria on it, but eventually suffer from food poisoning.

8.3 WAYS FOOD CAN BECOME CONTAMINATED THROUGH INCORRECT FOOD HANDLING

Food can become contaminated with disease-causing bacteria anywhere the food is handled or stored. These places include:

- in a factory where it is processed ready for sale
- in a truck in which it is taken from the factory to the shop
- in a shop
- in a food outlet such as a school canteen or take-away shop
- between the shop and home
- in a home.
Most food has to be prepared in some way before it is eaten. During this preparation the food is handled by people. There are many ways in which unhygienic practices can cause food poisoning bacteria to be deposited on the food while it is being handled. Some examples are:

Leaving food uncovered. Pets, flies, cockroaches and other insects carry germs, including food poisoning bacteria, which contaminate the food.

Touching parts of the body while handling food. While preparing food a food handler might scratch a pimple, touch a sore, push back hair, scratch an ear or rub or pick the nose. Every one of these activities contaminates the fingers with bacteria. If the person’s hands are not washed before handling food again, these bacteria will be passed to the food.

*Fig. 3.29: Rubbing the nose while preparing food helps spread germs.*
• Sneezing or coughing near food. If a food handler, or anyone else, sneezes or coughs near uncovered food, then the food almost will certainly be sprayed with bacteria laden droplets.

Fig. 3.30: Sneezing over food spreads germs.

• Licking fingers while handling food. Human saliva carries staphylococcus bacteria and licking the fingers could result in these bacteria being passed to the food.

Fig. 3.31: Licking fingers while handling food spreads germs.
- Not washing hands after going to the toilet during food handling. If a person goes to the toilet during food handling activities and does not wash his/her hands afterwards food poisoning bacteria may be passed onto the food.

![Fig. 3.32: Washing hands after going to the toilet helps stop the spread of germs.](image)

- Poor handling of **high risk foods**. High risk foods are those which generally need refrigeration and have a high moisture content. Poor handling of high risk foods is a common cause of food poisoning. High risk foods include:
  > chicken, duck and other poultry
  > fish and shellfish
  > raw meat products
  > dairy products (milk, cheese, cream)
  > unpasteurized cow or goats milk
  > eggs and egg products
  > gravies.

Cross contamination. Certain foods will always contain some bacteria. Poor handling of these foods may result in **cross contamination**. Cross contamination is the passing of bacteria from contaminated food to uncontaminated food. Cross contamination can occur when storing or handling food.
An example of cross contamination during storage is:

A high risk food, such as a raw chicken thawing in a refrigerator, is placed in contact with cooked meat. The bacteria from the raw chicken contaminates the cooked meat. Since the cooked meat is not heated again before eating, the bacteria from the chicken pass to the person who eats the meat.

An example of cross contamination during handling is:

Before cooking a fish which is contaminated with salmonella bacteria, a person uses a knife and cutting board to cut it up. Bacteria from the fish will be left on the knife and cutting board. The person slices cooked ham using the same knife and board without washing them first. The bacteria are transferred to the ham.

9 Protecting food from contamination

Correct food handling practice and food storage helps prevent bacteria from contaminating and multiplying on foods. The following action needs to be taken to prevent bacterial contamination:

- Protect food from contamination—handle food properly
- Prevent bacteria from multiplying
- Destroy germs on/in food

Fig. 3.33: The food contamination chain can be broken in several places.

Food can be protected from contamination by handling it with care. Food handlers should think about:

- where food poisoning bacteria come from. They can come from people’s bodies, sneezes, coughs, high risk foods, insects, rodents, pets, toilets and dust particles in the air
• the different ways bacteria can get on to the food they are handling, for example, from cross contamination and contaminated hands and clothing
• the correct cooking and storage temperatures which prevent bacteria multiplying.

The number of people affected in an outbreak of food poisoning will depend on where the food contamination occurs. For example, contaminated food prepared and eaten in the home is only likely to affect a few people but contaminated food prepared in a fast food outlet or in a factory is likely to affect many people.

9.1 **CORRECT FOOD HANDLING RULES**

Always wash hands with soap and warm water before handling food. Wet the hands before applying the soap. Make sure you rub in between fingers and on the front and backs of hands. Remember to clean under fingernails. Rubbing with soap loosens bacteria. They must be rinsed off with water. (When possible, use hot water for washing the hands.)

*Fig. 3.34: Wash hands before handling food and be sure to clean under the finger nails.*

Always wash hands with soap and warm water after going to the toilet or touching any parts of the body, such as the skin or nose.

*Fig. 3.35: Wash hands after going to the toilet.*
• Do not smoke while preparing food.
• Handle food with tongs, a spoon or some other utensil which is clean.
• When sneezing or coughing always cover the face with a tissue or the hands and turn away from the food. Wash hands immediately after as they may have been contaminated.
• Avoid preparing food for others if you have diarrhoea.

Fig. 3.36: If sneezing, turn away from the food and use a tissue.

• If food does have to be left standing in the open for a few minutes during preparation always cover it with a lid, clean cloth or cling wrap.
• Do not let raw high risk foods touch other foods.
• Always clean and sanitise utensils and benches/work surfaces used to prepare high risk foods immediately after the food has been prepared.
• Work benches and cooking utensils should always be kept clean.
• Make sure insects, rats, mice and other pests cannot get into the food preparation area.
• Pets should also be discouraged from domestic kitchens and must never be allowed into a shop or community kitchen.
Fig. 3.37: Keep all work benches clean.

- Dispose of rubbish regularly and correctly.
- Make sure the floors, walls, window sills and all fixtures in the food preparation area are regularly and properly cleaned.

9.2 CORRECT FOOD STORAGE

Food poisoning bacteria can only multiply in the temperature danger zone of between 5°C and 60°C.

However, food poisoning bacteria do not multiply at the same rate throughout this temperature range. They multiply most quickly between 36°C and 38°C, which is around human body temperature.

Above 60°C nearly all food poisoning germs are killed. Below 5°C the germs stay alive but they do not multiply. Keeping food out of the temperature danger zone helps stop the multiplication and growth of bacteria.
Food should be stored according to its food type. For example:

- high risk foods such as milk and milk products and fish should be stored in a refrigerator or freezer. They should never be left in the food temperature danger zone
- foods such as fresh fruit and vegetables last longer when they are kept cold, and should be stored in a refrigerator
- dry foods such as flour, breakfast cereals and rice are likely to be attacked by pests and need to be stored in sealed containers.

**Storing foods in refrigerators and freezers**

Freezers, including the freezer section in household refrigerators, will keep foods frozen. Frozen foods can last many months depending on the food type. However, some foods are unsuitable for freezing. For example, cheese and processed foods will lose food quality when frozen.
Frozen foods taken from the freezer and allowed to thaw must be cooked or eaten straight away. Thawing means returning the frozen food to its normal soft state by increasing its temperature. It is safest to do this by putting the frozen food into the normal refrigerator compartment, or by defrosting in a microwave oven on the defrost setting.

Once food has been thawed it should never be frozen again. This is because bacteria will grow and multiply in the food during the freezing and defrosting process.

Refrigerators chill foods. Foods which are to be eaten cold should be kept in the refrigerator until they are ready to be served. These foods include milk, cheese, custards, salads and cold meats. Many of these foods will deteriorate (break down) after several days in refrigerator storage and will not be fit to eat.

**Storing foods which do not need to be frozen or chilled**

These foods include cereals, flour, sugar, unopened canned goods, dried products, sauces and spices. They do not support the growth of bacteria like the high risk/high moisture foods. They can lose quality from being kept too long in storage and their major source of contaminants is pests.

Some bacterial contamination can occur when canned high risk/high moisture foods are kept too long in storage or when containers become broken or damaged during production, transport or storage. Other foods may suffer bacterial contamination from exposure to pests, especially insects and rodents.

Care should always be taken when purchasing tinned foods. Do not buy dented or blown cans. A blown can occurs when gas forms from the action of bacteria in the product. It is easy to tell a blown can because the lid and base will pop when pressed.

When dealing with foods that are normally stored at room temperature, remember:

- canned or packaged foods should be used in rotation, with the oldest used first
- cereals, flour, sugar and other dried foods should be stored in sealed containers to stop the access of pests
- when containers with re-sealable lids are opened, such as sauce bottles, pickle and jam jars, the lid should be put back tightly if all of the food is not used. Check the label for storage instructions as some foods must be stored in the fridge after opening
- when cans without re-sealable lids are opened, such as some sauces, gravies, fruit, meat and vegetables, all of the unused contents should be transferred to a clean container with a tight lid. If the contents are high risk/high moisture foods such as fruit, vegetables or meat this container should be kept in the refrigerator.
Clean up any spilled food as soon as possible, for example spills in cupboards, open shelves, the fridge or freezer.

9.3 **CORRECT COOKING TEMPERATURES**

Food poisoning bacteria do not grow at temperatures above 60°C. If the temperature falls into the danger zone between 5°C and 60°C, the bacteria will be able to grow and multiply rapidly.

Before some frozen foods are eaten they will need to be thawed. Foods which are to be eaten hot should be cooked and served immediately while they are still hot. If they are not to be eaten straight away they should be placed in the refrigerator or freezer immediately after cooking.

Cooked foods which have been stored in the refrigerator or freezer must be thawed if necessary and reheated quickly and thoroughly to a temperature of at least 75°C.

No high risk food should be left standing in the danger zone for more than a few minutes.

9.4 **FOOD SHOPS AND STORES**

There are laws which strictly control food handling practices in places where food is prepared ready for sale to the public. This is because there is usually a lot more food involved and more people could be affected by food contamination. Many Indigenous communities now have food outlets that sell ready to eat food or provide meals to schools or elderly people. Therefore, Community Councils must take particular care to follow the correct food handling practices. The requirements are detailed in the Australian Food Standards Code.

Environmental Health Practitioners employed by the Department of Health and local government have responsibility for routinely inspecting shops and making sure that these regulations are followed. These inspections are very specialised, but sometimes the EHP can make occasional visits.

One task that the community can ask the EHP to do is a frequent routine inspection of any food shops and stores in the community. Before doing them alone, it would be necessary for the EHP to learn to do them properly. The best way to do this would be for the EHP to accompany the EHO on a number of shop inspections.

Any EHP wishing to learn how to do shop inspections must contact his/her local EHO.
These inspections will include checking:

- date codes on foods (‘best before’ or ‘use by’ date). Some foods display a date by which they should be used. It is for the information of buyers and is called the date code. When this date has been passed the food is said to be out of code. It is not illegal to sell foods after the ‘best before’ date, but buyers should be careful because such foods could be stale or have lost some of their quality, such as loss of nutrients or taste. It is illegal to sell foods after the ‘use by’ date.

- for food contamination. Signs of food contamination include:
  » broken packets
  » blown cans (the lid or base will ‘pop’ when pressed)
  » weevils in packaged dried goods, such as plastic bags of rice. Weevils are a type of insect, and leave webs which can be seen through clear plastic packaging
  » meat in shrink-sealed plastic bags will develop gas when contaminated with bacteria. The bag will bubble or bulge under the pressure of the gas
  » discolouration and mould on chilled goods

- food storage in freezers, chillers and refrigerators. Raw and cooked foods must be stored separately in freezers, chillers and refrigerators and the cabinets of these storage facilities must be kept very clean. Also, a build-up of frost and ice inside the cabinets probably means that the correct temperature is not being maintained.

- storage of dry foods. It is important that dry foods, such as flour, breakfast cereals and sugar, are stored safely. Storage areas for dry goods, including dry foods, are favourite places for rats and mice and checks should be made for signs of these pests. Dry foods should always be separated from household cleaning and other products which may be poisonous or which could spoil the food in other ways. For example, odours given off from these products may poison or flavour the dry foods.

- that correct cooking temperatures are used. Where food is prepared on the premises, such as in fast food outlets or school canteens, it is important that all food is cooked at 75°C or hotter to kill harmful bacteria. After cooking, high risk foods should be stored above 60°C. This includes hot foods displayed for sale in shops.

- that proper food and personal hygiene practices are followed.
• that proper food handling facilities are provided. It is important that all shops where food is prepared provide food handlers with a hand basin, soap and clean, single-use towels, e.g. paper towels

• for evidence of disease-carrying pests. It is important that all premises where food is sold are free of pests, such as rats, mice, cockroaches and flies. Checks should be made for evidence of these pests, such as rat or mice droppings.

The EHP can also provide advice on cleaning programs and education on correct food handling and storage practices.

10 Dog health

Note: This section provides a brief overview of Dog Health.

A comprehensive manual on “Conducting Dog Health Programs in Remote Indigenous Communities—An Environmental Health Practitioners Guide” has been developed by Dr Sam Phelan of Animal Management in Rural and Remote Indigenous Communities (AMRRIC). Copies of this publication can be sourced through the state or territory environmental health authority or from Animal Management in Rural and Remote Indigenous Communities (AMRRIC).

Domesticated dogs have always been closely associated with humans. For thousands of years they have protected us, worked for us and been our pets.

Dogs are particularly important to Indigenous people. It is common for one person or one family to own several dogs. This means that there are often large numbers of dogs in Indigenous communities. If these dogs are not properly cared for this can cause a lot of sickness both in the dog population and in the broader community. In particular, young children can catch serious diseases from unhealthy dogs.

10.1 RESPONSIBILITIES OF DOG OWNERSHIP

There are a number reasons why people find happiness and satisfaction in owning dogs, for example:

• they are faithful and friendly
• they guard people and their property
• they help find and catch food
• they are useful working animals. For example, they are often used to help herd sheep and cattle and in search and rescue operations.
In return for the benefits of having a dog, dog owners must be prepared to accept certain responsibilities. When people forget these responsibilities dogs can become a serious health problem or a menace to the community.

These responsibilities include:

- feeding their dog/s every day and caring for them properly. Meeting this responsibility takes time and costs money
- controlling their dog/s. Dogs running unchecked around the community can be dangerous, particularly if they annoy or attack people or other animals
- controlling the number of puppies their dog has. Too many dogs can be difficult to care for properly, including providing enough food, and hungry dogs can be dangerous
- registering their dogs.
Local authorities require that dog owners in towns and in cities register their dogs.

In Indigenous communities the most common problems with dogs are:

- dogs being allowed to breed unchecked, so there are too many dogs in the community
- dogs becoming sick or injured because people do not know how to care for them. Because some diseases of dogs can be passed to humans, sick dogs can create a serious health problem in a community
- cheeky or nasty dogs which can be difficult to control and may bite people
- starving dogs. Usually, dogs are not fed because people cannot afford to buy the food needed to feed them. When this happens, the dogs tend to attack rubbish bins and tips in their search for food. Sometimes elderly people will give their food to their dogs and go without themselves. This can result in personal health problems.
10.2 DISEASES OF DOGS

There are many diseases which can make a dog unhealthy. Of those commonly found in Indigenous communities, many are caused by internal and external parasites some of which can also affect people. Some of these are listed below.

**Internal parasites**

These animals live inside the dog’s body and include:

- hookworms
- roundworms
- tapeworms
- heartworm.

**External parasites**

These animals live on the dog’s skin and include:

- fleas
- ticks
- scabies
- mites.

*Fig. 3.41: Dogs will often knock over a rubbish bin looking for food.*
Fungal infection

Fungi live on the skin, the most common being ringworm.

Parasitic diseases of dogs and other animals which can be passed to humans are called **zoonotic diseases**. Diseases of dogs and other animals which cannot be passed on to humans are called non-zoonotic diseases. Examples of common **non-zoonotic dog diseases** are distemper and heartworm.

### 10.3 SOME IMPORTANT ZOONOTIC DISEASES

**Hookworm infection**

There is a special dog and cat hookworm. The life cycle of this hookworm has similar stages to the one which completes its life cycle in humans.

The adult hookworms live and lay their eggs in the intestines of dogs and cats. The eggs are passed out of the body in the faeces. This releases the eggs to the ground. The eggs then hatch in damp soil and develop into larvae.

Larvae in the soil may burrow through people’s skin. For example, they may burrow through the feet of children and adults walking around without shoes. This can cause skin irritations in the skin where the larvae have burrowed. The larvae do not develop into adult worms in human hosts.

Dogs’ and cats’ licking, chewing and grooming habits bring them into direct contact with eggs in the soil, on their coats and in faeces. Without treatment, infected dogs can contaminate the soil for many months.

**Roundworm (Ascariasis) infection**

Roundworms are about 20 cm long, have round bodies and are pointed at both ends. Like hookworms, they live in the dog’s intestine. The eggs from the female worms will be passed out onto the ground in the faeces.

Roundworm eggs can only get into the body through the mouth. This can happen if young children eat dirt contaminated with the eggs.

After the eggs are ingested, the larvae hatch in the intestine and travel in the blood to the lungs where they grow and develop. After about 10 days they travel back to the intestine. They do this by working their way from the lungs, up through the trachea (the tube which carries the air from the mouth into the lungs), into the oesophagus (the tube which carries the food from the mouth and then down into the stomach. Once in the intestine they grow to maturity and lay their eggs.

When roundworms infect humans they can cause wheezing, coughing and lung damage. Heavy infestations of the adult worms can block the intestine and other parts of the digestive system and may even result in death.
**Hydatid tapeworm infection**

Although the worm is a parasite of dogs it can be very dangerous to humans. The life cycle of the hydatid tapeworm is outlined below.

(a) The adult hydatid tapeworm (about 5 mm long) lives and lays eggs in the dog’s intestine. The eggs are passed out onto the ground in faeces.

(b) Sheep (or cattle, pigs, kangaroos, wallabies, goats) take the eggs into their bodies as they graze. These animals are called intermediate hosts in this life cycle.

(c) Inside the intermediate host the eggs hatch and eventually form cysts in various parts of the body. These cysts contain the new hydatid tapeworms.

(d) The life cycle is completed when dogs eat parts of the intermediate host, such as kangaroo or goat meat infected with cysts. When this happens the new hydatid tapeworm is released to grow to an adult.

Humans can also act as intermediate hosts for hydatid tapeworms. The eggs can be picked up easily from an infected dog. They can be breathed in or taken in through the mouth by people, especially children, who get very close to dogs.

Humans who become infected with hydatid tapeworm, especially with the cysts, suffer damage to their internal organs and experience a lot of pain.

**Ringworm infection**

This disease is caused by a fungus which forms on the dog’s skin. There are no worms involved.

Ringworms appear as small circular patches which grow outwards from the centre. The patch usually has a dry, crusty appearance with short, broken shafts of hair in it. Ringworm causes patchy baldness.

*Fig. 3.42: Ringworm infections on a person’s arm.*
If a person pats or touches an infected dog (or cat), he/she can become infected with ringworm. It is also possible for a dog or cat which has ringworm to pass the fungus on to bedding, furniture or anything else which it touches. Humans who then touch these objects can pick up the disease.

Ringworm may be itchy and uncomfortable. Treatment is usually with an antifungal cream but some ringworm can be difficult to treat.

**Mange (dog scabies)**

This is caused by a very small mite which burrows into the skin and results in severe irritation. Dogs with these mites spend a lot of time scratching. This may cause the skin to break and become infected. Dogs with this disease are likely to lose their hair. This causes the mangy or ‘leatherback’ look.

![Fig. 3.43: Skin parasites cause irritation.](image)

As with the other dog diseases, humans pick up mange mites by close contact with infected dogs. In humans the mite also burrows causing itching and irritation of the skin. Although the dog mite cannot breed or survive on people (it dies within a couple of days), continued exposure to untreated dogs can cause continuous irritation of the skin.
Flea infection

These insects cause much the same skin irritations as mange mites except instead of burrowing they bite. When they get onto humans, they also bite. The place on the skin which has been bitten is usually reddish, slightly raised and very itchy. As with dogs, any excessive scratching can break the skin and this may lead to an infection.

Fleas can also transfer various disease-causing parasites, such as flea tapeworm, from one dog to another.

10.4 REDUCING ZOONOTIC DISEASES

People can get zoonotic diseases from infected dogs when they come into contact with:

- eggs of parasitic worms which have come from a dog’s faeces and are in the soil
- eggs or cysts of parasitic worms which are in a dog’s mouth or on its lips
- larvae of parasitic worms which are in water or damp soil
- mites that cause skin diseases which are on the dog’s skin or anything the dog touches, such as beds, chairs, clothing, rugs and floors.

Fig. 3.44: Dogs should be kept off people’s beds.
The precautions listed below should be taken to reduce the chances of getting diseases from dogs or cats.

- Do not cuddle or touch dogs or cats any more than is necessary.
- Do not let a dog or cat lick a person’s face.
- Avoid contact between the ground and bare skin. Always wear shoes, boots, thongs or sandals when outdoors. Do not allow babies to sit on the ground if they are not wearing pants.
- Make sure young children do not eat soil.
- Try to avoid having any permanent moist areas of soil around the yard.
- If a dog or cat shows signs of illness have it treated immediately.
- Treat the dog or cat regularly for internal parasitic worms and for the various skin parasites.
- Wash the dog’s or cat’s bedding regularly.

## 11 Caring for dogs

### 11.1 KEEPING DOGS HEALTHY

For a dog to be healthy it will need:

- a daily feed with enough nutritious food. A dog should eat meat, vegetables and cereals.
- a supply of clean water.
- a clean, dry place to shelter when necessary.
- regular exercise.
- vaccination protection against disease, such as distemper.
- regular checks for signs of external parasites such as fleas, ticks and mange mites.
- regular preventive treatments for internal parasites such as worms, and external parasites such as fleas, ticks and mites.

### 11.2 GETTING RID OF EXTERNAL PARASITES

External dog parasites such as fleas, ticks and mange mites are usually treated by washing the dog with a special shampoo or treating the dog with a special chemical.

You should always follow the instructions on the label of the container of whichever treatment is chosen.
**11.3 PLANNING AND CONDUCTING A COMMUNITY DOG TREATMENT PROGRAM**

Providing regular preventive treatments for internal and external parasites can be difficult for dog owners. For communities, particularly where there are large numbers of dogs, it may be a good idea for these treatments to be done on a regular basis with all the community dogs being treated together. This makes the treatment cheaper and it lessens the chance of a clean dog being reinfected by a disease-carrying dog.

Planning and conducting regular dog treatment programs is one of the roles of the EHP and may involve working with veterinary surgeons (vets).

To conduct a successful community dog treatment program it will be necessary to follow the steps outlined below. The AMRRIC manual is also very helpful.

(a) Plan when the dogs will be treated.

Plan (decide beforehand) when the dog treatments should be done over the year and mark the dates on the calendar/year planner. If a veterinary service is to be used, the EHP will need to organise dates that suit both the community and the vet.

Arrangements will need to be made well before each dog treatment session to make sure that the proper chemicals and equipment are available for each dog treatment. It is also important that the session does not clash with special community events.

(b) Get the community involved.

The success of a dog treatment program in a community will depend upon the cooperation of everyone. This will happen only if people understand why the treatments are necessary and how they will be carried out.

To get this cooperation it is important to educate people about the importance of dog treatment and tell them about the planned program. People need to be told:

» the types of external parasites which can infect a dog’s skin and hair and how its health is affected

» how these parasites can cause disease in humans (zoonosis)

» the type of treatment which will be used and how the dogs should improve after treatment

» that the chemical when used correctly will not harm the dog, humans or the environment

» why it is important that all the dogs should be treated at the same time
» when the community dog treatment is to be done
» that a dog treatment involves everyone in the community.
   It is especially important for all dog owners to be present with their dogs.

The EHP will need to plan how and when he/she will conduct the education activities.

It is a good idea to use education materials such as posters, flipcharts and videos, to help explain why it is important to treat dogs and what will need to be done. Arrangements to get these materials will need to be made. The Environmental Health supervisor and the Environmental Health Program education staff will be able to help.

Dog treatment programs are best done every three months. The EHP should organise education activities about 3 to 5 days before each planned treatment as this is likely to attract more people with their dogs.

(c) Put up reminder notices which tell people:
» that there is going to be a dog treatment day(s)
» when it will be held. Check the date closer to the day to make sure the day and time are still suitable. The plan may have been affected by a special community event which now will take place on the day for which the dog treatment was planned. If this happens the dog treatment may have to be held the next day or put off for a week or so
» that dog owners must be there to help with their dog(s).
About 2 to 3 days before the dog treatment, these notices should be put up around the community so that everyone will see them.

(d) Make sure that all of the materials and equipment are available.
Remind other people who are going to help of the time and date of the dog treatment. This might be the EHP, EHP supervisor, an EHO, or other community members.

(e) Make sure that the dogs are handled properly.
Each owner should be encouraged to bring their dogs to the treatment team. Catching dogs is not the responsibility of the EHP.
» The dogs should be handled gently and without fuss so that they do not become frightened.
11.4 MANAGING THE DOG POPULATION

It is important for the health of the people in a community and for their dogs’ health that the dog population is managed so that:

- there are not too many dogs in the community
- sick and injured dogs are properly cared for

Controlling dog numbers

Dog numbers in a community can be controlled by stopping the dogs from breeding, or by culling dogs (reducing their numbers). These two methods are discussed below.

- Preventing dogs from breeding
  Dog breeding can be effectively controlled by desexing. Desexing means operating on the dogs so that they cannot have puppies. In females this is done by removing the womb (baby bag) and the ovaries (the place where the eggs are produced). In males, the testicles (balls) are removed.
  Desexing is preferable to culling as the animals are not harmed and recover quickly. Desexing may also help to change aggressive behaviour in dogs.
  Dogs can be desexed just after they become sexually mature. Desexing operations should always be done by a veterinarian (animal doctor).
  A dog’s ability to breed can be also stopped for a short time by giving it an injection of a special drug.
  The EHP should discuss breeding control methods with the local EHO, the Environmental Health supervisor and/or the local veterinarian. These methods will need to be discussed with the Community Council and the other people in the community.

- Culling dog populations
  Another way of controlling the number of dogs in a community is by culling them. To do this, certain dogs are put down (killed). However, the community and the dog owners must agree that it can be done and how it will be done.
  If it is decided that some of the dogs are to be put down then this job needs to be organised properly:
  - The owners of the dogs need to be spoken to and they must agree to the dogs being put down
  - The method of putting the dogs down must be agreed to
The date and time of the culling program must be set and the community told.

Where the culling is to occur. Culling is a sensitive issue and should be done away from the community.

If anybody from outside the community needs to be involved, they must be contacted and arrangements made for them to be present at the time the culling is to take place.

After the dogs have been put down, arrangements have to be made for the disposal of their bodies. These should be buried in a deep hole at the rubbish tip or in another appropriate place. It may be wise to organise for the bodies of culled dogs to be disposed away from the community.

AMRRIC’s publication “Conducting Dog Health Programs in Remote Indigenous Communities—An Environmental Health Practitioners Guide” provides a thorough explanation of how to manage dog populations in remote settings and all aspects of dog health. EHPs are strongly encouraged to use this manual when planning any dog health program.

Sick dogs

Sometimes in a community one or more of the dogs may be very sick. This could happen because:

- they have not been fed properly and have become very weak and undernourished
- they are suffering from a serious disease
- they have been badly injured in an accident or a fight with other dogs.

A very sick dog is an unhappy and miserable animal. Every effort should be made to see to it that dogs are cared for properly. If they get sick they should be treated if possible.

It is sometimes kinder to the animal to have it put down than to let it suffer day after day. Even though it is a very hard decision to make, people who own a really sick dog should be willing to consider having the dog put down.

The EHP may need to discuss this action with the owners of any very sick dogs.
Putting dogs down

There are three usual ways of putting dogs down:

- They can be given a lethal injection
- They can be gassed
- They can be shot.

Shooting a dog can be a messy way of ending its life and many Indigenous people would not allow this to happen. Giving a lethal injection to a dog or gassing it may be more acceptable to dog owners but requires more equipment and animal handling and sometimes specially qualified people.

If chemical injections are to be used, only certain people, such as veterinarians or EHPs (only in WA) with permits can administer the chemical.

Some communities will prefer the putting down to be done away from the community. The dogs are taken away in a caged trailer or utility, and put down somewhere else. This way, the people cannot see it happening.

For further information refer to your EHO.