CHAPTER 7

Treating Some Common Problems

You must make a good diagnosis to treat a problem so it goes away and does not return. Why treat a sore on the face by cleaning it when the sore is from pus draining from a tooth with an abscess? You need to know the cause of the sore to give the best kind of treatment.

After you make the diagnosis, you must decide whether you or a more experienced dental worker should provide the treatment.

Know your limits. Do only what you know how to do.

In the following pages, we describe the kinds of problems you as a health worker may see, and we also give the treatment for each problem.

Before you touch the inside of anyone's mouth, learn how to keep clean. The next 6 pages explain how you can prevent infections by washing your hands, wearing gloves, and cleaning and ***sterilizing*** your instruments.

Germs in the Mouth

The mouth is a natural home for germs. They usually do not cause problems because the body is used to them. In fact, many germs are helpful. For example, when we eat, some germs break down chewed food into parts small enough for the body to use.

There are problems when the number of these ordinary germs increases greatly, or when strange, harmful germs come into a healthy body from outside. Fever and swelling follow. It is an infection.

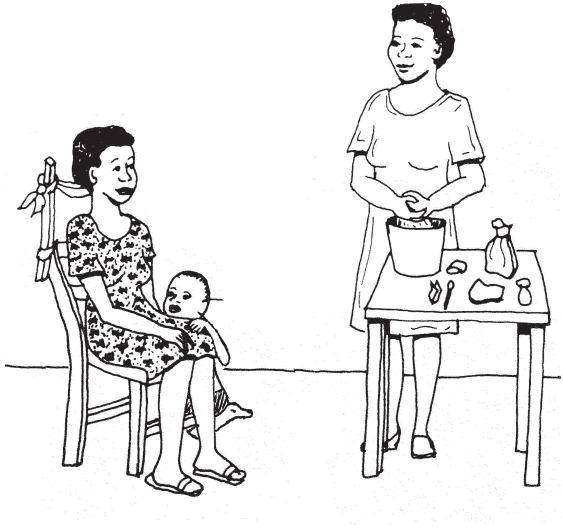
When we regularly clean the mouth, the number of germs stays normal. You can teach others to clean teeth and gums, but cleaning is each person's responsibility.

However, dental workers have one serious responsibility. **You must not spread germs from a sick person to a healthy person.** You must do everything you can to make sure your instruments are clean. An instrument with blood on it can spread hepatitis (a serious liver disease) or HIV, which without treatment can cause AIDS.

THE FIRST RULE FOR TREATMENT: STAY CLEAN!

No matter what problem you are treating, be sure that your workplace, your instruments, and you are always clean. For example, **prevent infection by always washing your hands** before you examine or treat someone.

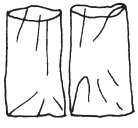
Wash your hands with soap and water in front of the person, in the same room. You will show that you are a careful and caring health worker. Also, you will demonstrate just how important cleanliness really is.



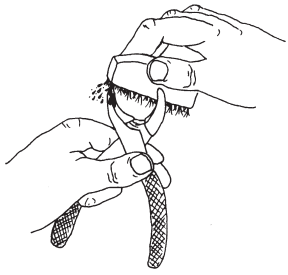
Wear Gloves

Latex or plastic gloves protect the people you touch from germs that may be stuck under your fingernails or on your skin, even after you wash your hands. They also protect you from getting infections. Wear clean gloves whenever you touch someone's mouth or any blood.

If you are filling or removing a tooth, or if you are touching any instruments that have been sterilized, you must wear sterile gloves.



If you do not have gloves, use plastic bags that have been washed in disinfectant soap instead. Bags are harder to use than gloves, but they are better than nothing.

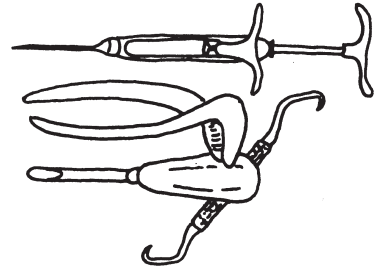


A tool that looks clean can still have harmful germs on it that are too small to see. Germs hide inside bits of old food, cement, or blood on parts of your tools. This is why you must thoroughly clean and disinfect or sterilize your tools after each use.

Sterilizing means killing germs that could cause hepatitis, tetanus, and various mouth infections. Unless you sterilize, an instrument may still have germs and cause infection in the next person it touches.

Clean and sterilize any instrument that has touched blood or cut into the body.

That means cleaning and sterilizing all syringes and needles, and any instruments you use when scaling teeth (Chapter 8) or when taking out a tooth (Chapter 11).



Be safe: When in doubt, sterilize.

To clean and sterilize tools:

1. **Take apart your tools**, if they come apart, so that all surfaces can be cleaned and then sterilized.
2. **Clean your tools** with clean water, soap or detergent, and a brush to remove any blood, mucus, food, cement, or dirt. Remove rust and get rid of tools that are dull or damaged. Wear gloves to protect your hands from cuts and from detergent.
3. **Sterilize your tools** to kill germs.
   - **Sterilize by baking**

     Baking can be used to sterilize metal and glass tools. Do not bake tools made of rubber or plastic—they will melt!

     Take your tools apart and clean them (see steps 1 and 2, above). Then wrap them in 4 layers of clean cloth or heavy paper and tie the packet shut. Put the packet into a container or on a pan.

Bake at 170°C (340°F) for 1 hour or 150°C (305°F) for 2 ½ hours. Then let the packet cool and store it in a clean, dry place. Do not open the packet until you are ready to use the tools, and then touch them only when wearing sterile gloves. Once a tool is exposed to the air or touches anything (like a table or your skin), it is no longer sterile and the germs on it can cause an infection when it is used.

- **Sterilize by pressure steaming**

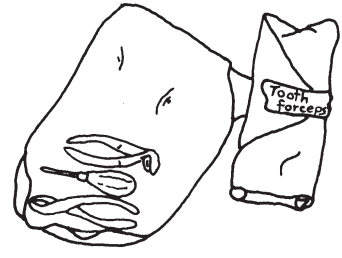
Pressure steaming can be used to sterilize metal or rubber tools and some plastic equipment. Some clinics have a machine called an autoclave for sterilizing by pressure steaming. A pressure-cooking pot can sterilize tools in the same way an autoclave does.

Take your tools apart and clean them (see steps 1 and 2 on page 87). Then wrap them in 2 layers of non-woven paper or crepe paper and close with autoclave tape (see page 222). If you do not have paper and tape, place your tools in a heat-safe container with a lid. Put a steamer basket and water in the pressure-cooking pot. Put your packets or container into the steamer basket, making sure they are above the water surface. Close the pot lid so the gasket seals and put the pot on to boil.

After it comes to a boil, cook at 15 to 20 pounds of pressure at 121°C for 20 minutes.

Then let packets cool and dry. Store in a clean, dry place. Do not remove tools from the packet or container until you are ready to use them, and then touch them only when wearing sterile gloves. If you sterilized tools in a heat-safe container, seal the lid with tape and do not open the container until you are ready to use the tools. Once a tool is exposed to the air or touches anything (like a table or your skin), it is no longer sterile and the germs on it can cause an infection when it is used.

Keep your sterile instruments together in a clean place.



Mark the tape with the names of the instruments inside.

Instruments that do not touch blood or cut into the body do not need to be sterilized. After you examine a person's mouth or place a temporary filling, you can clean these instruments and then disinfect them.

To clean and disinfect tools:

- **Disinfect by boiling**

  You can use boiling to disinfect metal tools, rubber or plastic equipment, and cloth.

  Take your tools apart and clean them (see steps 1 and 2 on page 87). Then place in a pot, cover with water, and boil for 20 minutes.

  Start counting the 20 minutes when the water starts to boil. After 20 minutes, pour the water from the pot and let the tools cool and dry. Then use disinfected tongs, chopsticks, or spoons to remove the tools from the pot. Move them directly to a disinfected container with a lid. Remember, anything you touch with your hands is no longer disinfected. And do not put tools away wet.

- **Disinfect with chemicals**

  Some people use chemicals to disinfect metal, rubber, or plastic tools and equipment. When possible, we recommend disinfecting using other methods because most chemicals used to disinfect are poisonous. They are poisonous to the people who work in factories making them and they are poisonous to the people who use them to clean tools. But chemicals may be the only way you have to disinfect your tools, and some tools can only be disinfected with chemicals.

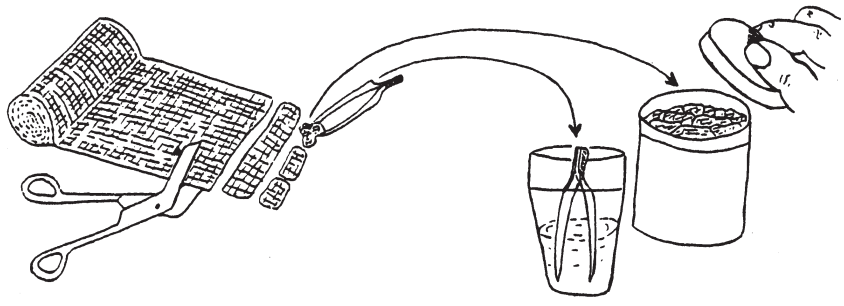
  If you do need to use chemicals, take your tools apart and clean them (see steps 1 and 2 on page 87). Then disinfect them by:

  ◊ soaking in 0.1% bleach solution for 20 minutes OR
  ◊ soaking in 6% hydrogen peroxide for 30 minutes OR
  ◊ soaking in 70% ethanol or isopropyl alcohol for a whole day

  After soaking, pour the chemicals off and let the tools dry. Do not put tools away wet. When dry, use disinfected tongs to move the tools directly into a disinfected container with a lid. Remember, anything you touch with your hands is no longer disinfected.

Germs living in dirty cotton can easily get inside a tooth socket and start an infection. So it is important to keep the cut pieces in a disinfected container with a cover. Use disinfected tweezers to remove the cotton gauze from the container when you need some.



Keep your room and work area clean. Sweep or mop the floor one or two times a day, and wipe down the chair and tables after every patient.

Staying clean is a part of staying healthy.

NEEDLES

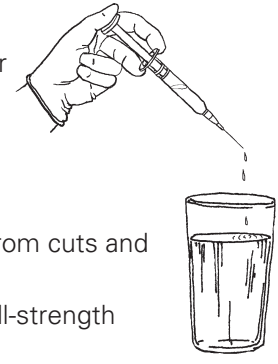
Syringes and needles that have not been sterilized can spread infections such as hepatitis or HIV.

Reusable syringes and disposable syringes

Reusable syringes can be used again and again because they can be taken apart for cleaning and are strong enough to be sterilized. Reusable syringes make less waste and can save money, but they must be cleaned and sterilized after every use (see pages 87 to 88).

Disposable syringes are made to be thrown out after one use (in a box like the one on pages 205 to 206). They cannot be sterilized again. Disposable syringes can be disinfected and reused, but we do not recommend doing this because a syringe that has only been disinfected can still spread infections, including hepatitis and HIV. Reusing one should only be done when someone's life is in danger.

HOW TO WASH AND DISINFECT A DISPOSABLE SYRINGE AND NEEDLE

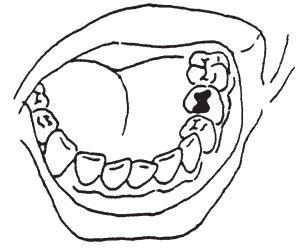


To most safely reuse a disposable syringe, wash and disinfect it right after using it and again right before you reuse it. **This makes it less likely to spread infection, but does not prevent it completely.**

1. Wear gloves to protect your hands from cuts and germs.
2. Pour clean water into 2 cups, and full-strength bleach into a third cup.
3. Draw clean water from one cup through the needle into the syringe. Shake or tap the syringe for at least 30 seconds to loosen anything stuck inside (take care not to stick yourself with the needle). Squirt the water into a sink or bowl, not back into the water cup.
4. Repeat step 3 until water in the syringe is clear (no blood).
5. Draw full-strength bleach from its cup through the needle into the syringe. Shake or tap the syringe for at least 30 seconds to loosen anything stuck inside. Squirt out the bleach into a bowl or sink
6. Repeat step 3, but with water from the second clean water cup.

PART 1
PROBLEMS YOU WILL SEE MOST OFTEN

CAVITIES



A cavity can occur in any tooth. A cavity can also start around an old filling, especially if it is dirty.

Small, less severe cavities do not cause pain and may go unnoticed for months or years if not found during a dental check-up. The deeper a cavity gets inside the tooth (where the nerve lives), the more the tooth hurts.

SIGNS (for more severe cavities):

- Pain when drinking water or eating something sweet.
- A hole (or gray or black spot) on the tooth, or between two teeth.
- Pain if food gets caught inside the hole.
- No pain when you tap the tooth.

TREATMENT:

Treatment depends on how severe the cavity is, where it is on a tooth, and whether it is on a permanent tooth or a baby tooth. See Chapter 10 for more information.

LOST OR BROKEN FILLINGS

For a temporary filling:

1. Fill the hole with cement. If you have no cement, put some cotton into the hole to keep food out.
2. Look for cavities or broken fillings in the other teeth. Fill each one with cement before it gets worse and starts to hurt.
3. Arrange for someone to replace the temporary filling with a permanent one.

For a permanent filling:

You will need a person who has experience doing Atraumatic Restorative Treatment (see page 152) or using a dental drill (see pages 156 to 157).

A groove on the neck of a tooth is a more difficult cavity to fill. For the temporary cement to hold properly, you need to shape the groove with a drill. To help temporarily, you can put a little fluoride toothpaste on the groove (page 211). Do this once each week until the inside part of the groove is stronger and the tooth hurts less. Or, you can paint the inside of the groove with oil of cloves (eugenol) to reduce the pain.

To avoid making the problem worse, **(1)** do not use a hard toothbrush, **(2)** do not brush back and forth along the gums, and **(3)** do not chew tobacco or betel nut or hold them against the teeth.

TOOTH ABSCESS

A cavity that is not treated grows bigger and deeper until it touches a nearby nerve. Germs travel inside the tooth's root and start an infection called an abscess. Pus forms at the end of the root, inside the bone. As the pus increases, it causes great pressure. This is why an abscess causes severe pain.

SIGNS:

- Pain all the time, even when trying to sleep.
- Tooth often feels longer, and even a bit loose.
- Tooth hurts when it is tapped.
- A sore on the gums near where the root ends *(gum bubble).*
- Swelling of the gums around the tooth, or swelling of the face on the same side as the bad tooth.

TREATMENT:

If possible, first drain the abscess. To do this, open the abscess with a sharp sterile knife to release the pus. Or you can remove the pus with a sterile syringe and needle. Then cover the wound with a sterile dressing to keep it clean.

If you are not able to drain the abscess, reduce the swelling with heat and show the person how to continue doing this at home. Until the swelling goes away, they should regularly (many times a day):

- soak a cloth in warm water and hold it against their face.
- hold warm water inside their mouth near the swelling. It is not necessary to use salt water.

After draining the abscess or reducing the swelling, treat with antibiotics. For the correct doses, see the next page.

THE BEST CHOICE	SECOND CHOICE (for those allergic to penicillin)
Amoxicillin **Give enough medicine for 5 days**	Erythromycin **Give enough medicine for 7 to 10 days**
Take this dose for 5 days	**Take this dose for 7 to 10 days**
Adults and children 8 years or older: 1 g (1000 mg), 2 times a day	Adults and children 13 years or older: 500 mg, 4 times a day
Children 2 to 8 years: 500 mg, 2 times a day	Children 11 to 13 years: 500 mg, 3 times a day
Children 3 months to 2 years: 250 mg, 2 times a day	Children 8 to 11 years: 500 mg, 2 times a day
	Children 3 to 8 years: 250 mg, 3 times a day
	Children 1 to 3 years: 250 mg, 2 times a day
	Children 2 to 12 months: 125 mg, 2 times a day
IMPORTANT: if amoxicillin upsets your stomach, take it **with** meals.	**IMPORTANT:** to avoid upset stomach, take erythromycin **with** meals.

Note: If you do not have amoxicillin, you may be able to use ampicillin. To use ampicillin, see *Where There Is No Doctor*. People allergic to penicillin will also be allergic to amoxicillin and ampicillin.

Make sure the person knows they must take all of the antibiotic as directed, even if the abscess is drained, the tooth is removed, or their signs improve. If they do not take the full dose, the infection may come back stronger than before.

Also give the person medicine for pain. A 2-day supply should be enough because draining the abscess or removing the tooth and giving antibiotics should reduce the pressure and that will reduce the pain. The best medicines for pain are **aspirin**, which usually comes in 300 mg tablets, **paracetamol** (acetaminophen), which usually comes in 500 mg tablets, and **ibuprofen**, which usually comes in 200 mg tablets. Aspirin is usually cheapest, but paracetamol (acetaminophen) does not cause stomach pain and is safer than aspirin for children. (To avoid stomach pain, take aspirin with food, milk, or water.) See doses at the top of the next page.

EVERY 6 HOURS (4 times a day):

	aspirin	*or* **paracetamol** (acetominophen)	*or* **ibuprofen**
adults	600 mg	500 to 1000 mg	200 to 400 mg
children			
8 to 12 years	do not use	375 mg (¾ of 500 mg tablet)	250 mg (one 200 mg tablet + ¼ of 200 mg tablet)
3 to 7 years	do not use	250 mg (½ of 500 mg tablet)	150 mg (¾ of 200 mg tablet)
1 to 2 years	do not use	125 mg (¼ of 500 mg tablet)	75 mg (¼ of 200 mg tablet + ⅛ of 200 mg tablet)

INFECTED SINUS

A sinus is a hollow place inside a bone. There is a sinus under the eyes, on each side of the nose. Because the sinus is very close to the roots of the top teeth, these teeth may hurt if the sinus becomes infected.

SIGNS:

- Toothache in several top teeth. The teeth look healthy, but hurt when you tap them.
- A head cold, and plugged nose. A person can only breathe through the mouth.
- Hurts when you press against the bone under the eyes.
- Tooth feels different when patient bends over forward.

TREATMENT:

Do not take out any teeth. They will feel better after you treat the sinus infection.

1. Give amoxicillin by mouth for 7 to 10 days:

Adults and children 8 years or older	1 g (1000 mg), 3 times a day
Children 2 to 8 years	500 mg, 3 times a day
Children 3 months to 2 years	250 mg, 3 times a day
Children younger than 3 months	125 mg, 3 times a day

2. Explain to the person that they should:

- drink lots of water.
- breathe steam from boiling water to clear their nose.
- hold a warm wet cloth against their face as often as possible.
- not try to blow their nose, it will hurt their ears. Wiping the nose is better.

3. See the person again after 3 days and examine their teeth closely, tapping them to be sure they are strong and healthy. If problems continue, get help from a more experienced health worker.

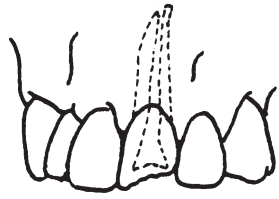
TOOTH INJURIES

1. Broken tooth

It is possible to save a broken tooth. It depends on where the tooth is broken and whether its nerve is still covered.

SIGNS:

- Pain when breathing air or drinking water.
- Blood from the gums around the tooth.
- Tooth moves when you touch it.



TREATMENT:

Take out the broken tooth if:

- its nerve is not covered. If no one can give special root canal treatment, the tooth must come out. Germs from the saliva have already gone inside the tooth and started a small infection.
- its root is broken. To see if it is broken, push gently against the tooth as you feel the bone around its roots. **The tooth's root probably is broken** if the tooth moves but the bone does not. **The root probably is not broken** if both the tooth and bone move. However, the bone around the roots may be broken (page 109).

You can save a broken tooth if the nerve is still covered and the root is not broken. To do this, use a file on the sharp edges around the break. This makes them smooth so they do not cut the tongue. Later, an experienced dental worker who has the equipment can cover the broken part with a cap or a filling. Until this is possible, tell the person how to protect the tooth:

- Give the tooth a rest. Use other teeth to eat.
- Do not drink things that are very hot or cold, and do not eat spicy food.
- Watch the tooth. See if it changes color (gets darker). Also watch the gums near the root. See if a sore (gum bubble) develops.

A dark tooth and gum bubble are signs that the tooth is dying. Take it out, unless you can give special nerve treatment.

2. Tooth knocked out

When a tooth is knocked out of the mouth, you should ask two questions:

(1) Was it a baby tooth? **(2)** How long ago did it happen?

Baby tooth. There is no reason to try to put a baby tooth back into the socket. Tell the child to bite on some cotton to stop the bleeding. Then wait for the permanent tooth to replace it. **Warn the mother that the permanent tooth may take more time than usual to grow into the mouth.**

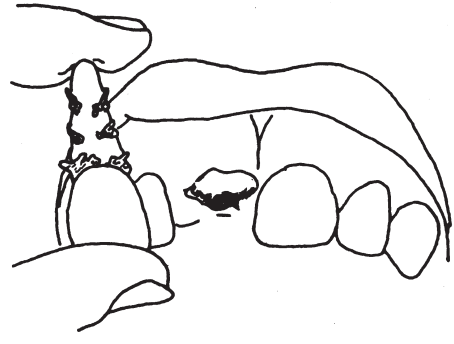
Similarly, there is no need for treatment if the baby tooth is pushed up under the gum.

The tooth may grow back into the right place later, or it may turn dark and die. If you see a darkened tooth or a gum bubble (page 74), take out the baby tooth before it hurts the permanent tooth that is growing under it.

Permanent tooth. A permanent tooth is worth saving. How long ago was it knocked out? If it was less than 12 hours ago, you can put a permanent tooth back into the socket. The sooner you do this the better, so do not wait. **If you replace the tooth in the first hour, it has a much better chance of joining with the gum and bone.** In order to heal and to join the bone, the tooth must be held firmly.

a) Wash the tooth gently with saline, milk, or clean water. There should not be any bits of dirt on the root of the tooth.

Keep the tooth damp with wet cotton gauze.



Do not scrape away any skin from the root or from the inside of the socket.

b) If you cannot use anesthetic, tell the patient that it will hurt somewhat. Gently push the tooth up into the socket. As you push it up, use a slight turning movement back and forth.

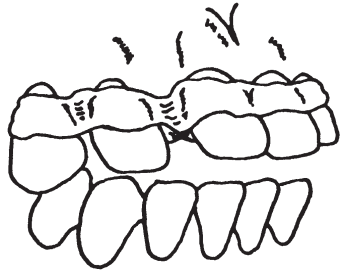
The biting edge of the loose tooth should be at the same level as the teeth beside it.

Hold it in place with your fingers for about 5 minutes.

c) Soften some beeswax and form it into 2 thin rolls. Place 1 roll near the gums on the front side of 5 teeth: the loose tooth and the 2 teeth on each side of it. Press the wax firmly, but carefully, against these teeth.

Do the same with the second roll of wax on the back side of the same teeth, again near the gums.

It is good if the wax on the back side is touching the wax on the front side. This helps the wax hold the teeth more firmly. To do this, you can push the wax between the teeth with the end of your cotton tweezers.



Keep the wax in its position for at least 3 weeks.

Tell the person with the injured tooth to return to see you several times. The tooth may die several months or even several years later (see page 47). If that happens, you must take out the tooth, unless you can do root canal treatment.

If it is possible, take an X-ray of the tooth 6 months later and then again each year. Look at the X-ray picture of the root to be sure an infection is not eating it away. To do this, compare the root with the roots of the teeth beside it.

LOOSE TOOTH

A tooth may be loose for one of several reasons. Decide the reason before giving the treatment.

IF THE TOOTH IS LOOSE BECAUSE	THE BEST TREATMENT
a new permanent tooth is growing under it.	1. Tell the mother and child what is happening. 2. Pull out the loose baby tooth, if it is hurting the child.
gum disease or an old abscess has eaten the bone around its roots.	1. Take out the tooth, especially if it also hurts. 2. Explain to the person what to do to prevent this problem in other teeth. (See Chapter 5.)
its root has been broken.	Take out both parts of the tooth. If you have trouble taking out the broken root, leave it and try again a week later.
the bone around its root is cracked. (The bone moves when you push against the tooth.)	**Do not take out the tooth.** If you do, the bone will come out with it. Instead, hold the tooth with wires (page 110).

A tooth may also be loose because another tooth is biting too hard against it.

SIGNS:

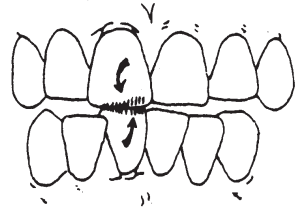
- You can feel the tooth move when the upper and lower teeth meet.
- That tooth hurts.

TREATMENT:

You need to remove a bit of each of the teeth that are biting too hard. Use either a dental worker's drill, a small file, or a hard stone.

1. Smooth the **inside** edge of the **upper** tooth.

2. Smooth the **outside** edge of the **lower** tooth.

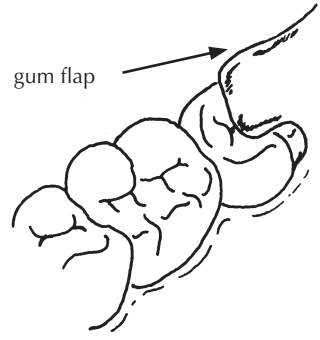


THIRD MOLARS ("WISDOM TEETH") GROWING IN

When the 4 "wisdom teeth" grow in, this adds a third molar on each side of the mouth, top and bottom. These teeth usually grow in between the ages of 16 and 22 years old. These teeth cut through the gums, sometimes painfully, as they grow into the mouth. Germs can easily go under the gums in those places and cause an infection. When the opposite tooth bites against a sore, infected gum it can make an infection worse.

SIGNS:

- Toothache at the back of the jaw.
- Mouth cannot open properly.
- A bad taste coming from the back of the mouth.
- Sore throat.
- The gum over the new tooth is sore and hurts when you touch it.
- Person is the right age for third molars to be coming in (page 66).



Infection in the gums and pressure from the new tooth are painful. Notice the gum flap over the new tooth.

TREATMENT:

Do not take out a third molar while there is still infection and pain. Wait for the infection to finish. Then decide if there is room for the tooth to grow in. A dental X-ray can help you make that decision. New molar teeth are often difficult to take out. Ask an experienced dental worker to take out the tooth, if it must be done.

What you can do

First, treat the infection (see below). Then wait for the new tooth to grow more into the mouth. Tell the person what is happening and how to keep the gums healthy while the tooth grows in:

- Rinse the area with warm salt water (page 7). Make 4 cups each day until the mouth opens comfortably again. Then make 1 cup each day to prevent the problem from returning. Keep rinsing this way until the tooth grows all the way in.
- Hold a warm wet cloth against the jaw as often as possible each day.
- Take aspirin, paracetamol (acetaminophen), or ibuprofen for pain (pages 94 to 95).

Give amoxicillin (500 mg by mouth, 3 times a day for 5 days) or erythromycin (500 mg by mouth, 4 times a day for 5 days) if there is fever, a swelling, or if the person can only open their mouth a little.

TEETHING

When babies and small children first get their teeth, it is called **teething.** This can make the child unhappy, because his gums are sore.

Teething does not cause fever, head colds, or cough.

But a child can have any of these problems at the same time as he gets a new tooth.

TREATMENT:

If the child has another sickness, do not blame it on teething. Look for another cause and treat it separately. Also, **do not cut the gum** over the new tooth. Let the tooth grow through the gum by itself.

1. Give acetaminophen for pain and fever (page 94).

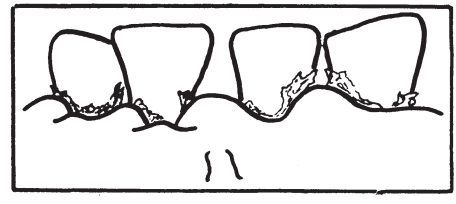
2. Give the child something hard to bite against. This will help the tooth to grow through the gums faster. For example, let him chew on a dry hard biscuit.

GUM DISEASE STARTING

Infection can start in the gums whenever the teeth near them are not clean. For example, there may be swelling between only 2 teeth or between many teeth. In addition, gums that are weak from poor nutrition are not able to resist the infection. This is why pregnant people and people living with HIV must take special care to eat well and clean their teeth carefully. When a person has HIV, his body cannot fight infections well, so a gum infection can quickly get worse (page 189).

SIGNS:

- Gums are red instead of pink.
- Gums are loose instead of tight against the tooth.
- Between the teeth, gums are round instead of pointed.
- Gums bleed when the person brushes or flosses.
- Gums bleed when you press against them, or when you scrape away food from under them.
- The person has bad breath and a bad taste inside the mouth.



Feel for tartar under the gum—or even a piece of fishbone.

TREATMENT:

Explain to the person the cause of her gum problem and what she can do to help herself. The only way to stop gum disease is to remove plaque and tartar from the teeth and then to keep them clean.

1. Show her how to clean her teeth better near the gums (page 69).

2. Tell her to rinse her mouth with warm salt water (page 7). Make 4 cups each day until the bleeding stops. Then make 1 cup each day to keep the gums strong and tough.

3. Tell her to eat fresh fruits and vegetables. Guavas, oranges, pineapples, papayas, tomatoes, peas, and green leaves give strength to gums.

4. Gently reach under the gums and remove tartar (or loose piece of fishbone) that is caught there (see Chapter 8).

Sometimes the gums become swollen during pregnancy, and the swelling does not go down even after cleaning with a soft brush and rinsing with salt water. These swellings must be cut away. But wait to do this small operation until after the baby is born.

MORE SERIOUS GUM DISEASE

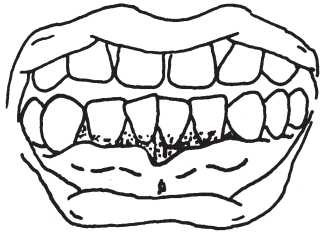
Vincent's infection of the gums, also called *trench mouth,* affects both adults and children. When not treated, it can spread and damange the jaw and cheek, especially in people who are sick and malnourished (see page 121).

A person with Vincent's infection may not want to eat because their teeth hurt when they chew food. This can make malnutrition worse, especially in children.

To prevent this problem from starting, especially in children who are already sick, teach parents to clean their children's teeth and to get their children to rinse their mouths with warm salt water.

SIGNS:

- Gums are red and puffy and bleed often.
- Severe pain in the gums begins suddenly.
- Gums between and around the teeth are dying and have sores.



A person with Vincent's infection may also have a fever and very little appetite, and their mouth may smell very bad.

TREATMENT:

1. If the person has a fever or other illnesses in addition to Vincent's infection, treat with antibiotics (see page 190). Treat for HIV if necessary.

2. Clean away any blood, old food, and big pieces of tartar. Then:

- Have the person rinse their mouth with warm water.
- Wipe the person's gums with cotton soaked in disinfectant mouthwash, povidone iodine, warm salt water, or a solution of hydrogen peroxide (see page 8). Then have them rinse with warm water. For a child, use a weaker solution, such as 1 part hydrogen peroxide mixed with 5 parts water.
- Scrape away the bigger pieces of tartar (see "Scaling Teeth" on pages 127 to 133). Do not try to remove all of it. Put topical anesthetic on the gums if you have some (first dry the area with cotton so the topical anesthetic will stay longer). Rinse away any loose bits of tartar with warm water.

3. Teach the person how to care for their gums and teeth at home:

- Show them how to rinse with a weak solution of hydrogen peroxide (see page 8), povidone iodine (do not use if pregnant or breastfeeding), disinfectant mouthwash, or warm salt water. Try to hold the solution in the mouth for several minutes. The longer the solution touches the gums, the better it will work. Rinse 4 times each day. After 3 days, change to salt water 4 times each day.
- Teach them to clean their teeth with a **soft** brush. Parents can clean children's teeth (page 18). Ask them to do it even if the gums bleed.

For a young child who is not able to rinse, an older family member can wipe his gums with the weak solution 4 times a day.

Show parents how to do this. Give them some cotton gauze and hydrogen peroxide, povidone iodine, or disinfectant mouthwash to take home.

4. Encourage them to cook food that is soft (like pounded yam) and not spicy (no pepper) and eat fresh fruits and vegetables that give strength to the gums (page 102). If they cannot eat well because of pain, they can take a multi-vitamin, or at least vitamin C and zinc. Talk to them about not smoking or chewing betel nut.

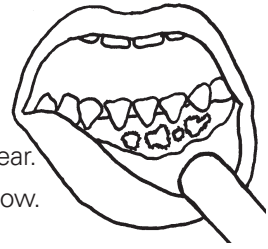
5. One week later, scrape away the rest of the tartar from the teeth. Then have the person use their own brush to show you how they're cleaning their teeth, and give any reminders they may need to be successful.

FEVER BLISTERS

Herpes virus is a kind of germ that causes fever blisters. Fever blisters are sores that can form inside the mouth on the gums or outside on the lips. Blisters on the inside cheeks only are not from herpes (see canker sores, page 106).

Sores **inside the mouth** are a serious problem that usually affect children between 1 and 5 years old. A child with fever blisters in his mouth can become very sick. He will not be able to eat properly. If he does not drink enough fluids, he can become dehydrated (lose his body water). This is dangerous! Fever blisters are also a problem for people living with HIV. See pages 192 to 193.

SIGNS:



Inside the mouth

- Sore throat.
- Fever.
- Crying, stops sucking 2 to 3 days before sores appear.
- Spit spills from the mouth because it hurts to swallow.
- Painful swelling under the jaw.
- Bright red blisters on the gums, **but not between the teeth.** Blisters also may be on the roof of the mouth.

TREATMENT:

Medicine cannot kill the herpes virus. The sores will go away by themselves in about 10 days. The treatment is to help the person feel more comfortable and to be sure he gets enough to eat and drink.

1. Give aspirin, paracetamol (acetaminophen), or ibuprofen for fever (pages 94 to 95).

2. Wipe milk or yogurt over the sores to protect them before eating. **Wash your hands before touching the inside of someone's mouth!** (See page 86.) Then give food that is soft and not spicy. If the person cannot eat, prepare a special milk-oil drink, as on page 111.

3. Give lots of fluids to drink.

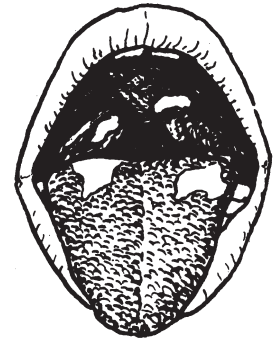
On the lips

Sores **on the lips** usually occur after the age of 5. They often appear when the person is weak and sick (for example, with diarrhea or pneumonia). Usually there is no fever. The blisters soon break open and release water. When they dry, a crust forms. The blisters often return. When sores leak water they can pass infection. If you or anyone else touches them, wash your hands immediately.

To prevent the blisters from becoming infected, put an antibacterial cream or petroleum jelly *(Vaseline)* on them. If you hold ice against the sores for several minutes each day, it may help them heal faster. See page 193 for more options.

THRUSH

Thrush is an infection caused by a yeast fungus called Candida. It often appears when a person is weak and poorly nourished, or sick and taking medicine like tetracycline or ampicillin. In a baby, thrush usually appears on the tongue or top of the mouth. It can stop the baby from sucking. In an adult, thrush often occurs under a denture. Thrush is a very common problem for people living with HIV (see pages 186 to 187).



SIGNS:

- White patches on the tongue, cheek, or top of the mouth. Wipe the white area: If there is **no** bleeding it is **old milk.** If there **is** bleeding, it is **thrush.**
- The child may not want to suck or eat.

TREATMENT:

There is usually another problem which is helping thrush to grow. Try to find what it is and deal with it. For example, treat the malnutrition, diabetes, or anemia, change or stop the antibiotic medicine, or clean the denture and leave it out of the mouth for a while. Then:

1. Cover the white patches with nystatin drops. Use 2 full droppers of nystatin 4 times a day. Continue giving this medicine for 2 days after the patches are gone, or they may come back. If you do not have nystatin, see page 185 for other treatments that may help.

If the baby's mother has sore, painful nipples, she may also have thrush in her breasts. She should treat her nipples the same way she treats the baby's mouth.

Do not use penicillin or any other antibiotic unless you need to treat something different. Thrush can get worse when a person uses an antibiotic for a long time.

2. For children, continue breastfeeding. For older persons, make their food soft and easy to chew.

IMPORTANT: Sometimes white lines appear on the inside of an adult's cheek or on the roof of the mouth. If these lines become sore and do not get better with treatment, they can change into a cancer (page 125). To prevent this cancer, ask the person to **stop smoking** (especially pipes), **stop chewing betel nut, and get dentures adjusted if they do not fit properly.**

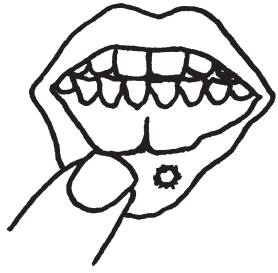
CANKER SORES

The exact cause of canker sores is not known. Canker sores affect both adults and children, and are very common among youth.

One or more sores can appear at any time. These sores hurt, especially when pieces of food touch them.

SIGNS:

- A sore can appear inside the mouth on the cheeks, inside the lips, on the tongue, or below the gums on the smooth skin.
- The sore is white or yellow with the skin around it bright red.
- The person may have had a similar kind of sore before. It tends to come back.



Note: **a sharp edge of a denture rubbing against the gums can make a similar kind of sore.**

TREATMENT:

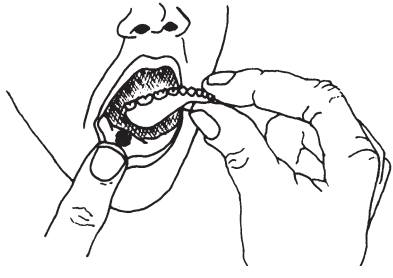
A canker sore should go away by itself after about 3 weeks. Medicine will not make this happen faster. However, if the sore is caused by something like a broken tooth or the sharp edge of a denture, smoothing the tooth or denture will help. To feel more comfortable while the sore heals, a person can:

- Eat foods that are soft and not likely to hurt the sore.
- Do not eat spicy food.
- Drink lots of water.
- Chew food on the other side of the mouth, away from the sore.

A denture which does not fit should be remade.

In the meantime, leave the denture out of the mouth for 2 or 3 days.

Ask the person to rinse with warm salt water, 4 cups each day until the sore is better.



If the sore continues for longer than 3 weeks, it may be a different or more serious medical condition. See a doctor as soon as possible.

SORES AT THE CORNERS OF THE MOUTH

Teeth support the lips. When they come together for chewing, the teeth stop the person's chin from moving any closer to the nose.

A person without many teeth looks old. A person with a poor fitting denture also looks old.

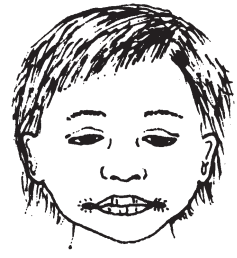
The distance from his chin to his nose is shorter than normal.

He must close his jaw further to eat. That causes lines to form at the corners of his mouth.

Poor health can make lines at the corners of the mouth crack and become sore. These cracks are often infected with thrush and can be treated with nystatin (see page 105). If sores are not at the corners but around the mouth, they could be due to a bacterial infection (see page 94).

A person with missing teeth needs dentures. Dentures will help him chew more food and make him look younger. They support his lips and open his mouth more. (See page 170).

A child who has had a fever or measles often has dry lips. The corners of her mouth can crack and become sore.



Cracks and sores appearing at the corners of a child's mouth are signs of dehydration and malnutrition.

The child needs to eat the kind of foods that give strength, energy, and protection. Feed her beans, milk, eggs, fish, oils, fruits, and green leafy vegetables (see pages 67 to 68).

TREATMENT (when sores occur):

1. Wash the sores with soap and hot water.

2. Mix 1 part sulfur with 10 parts of petroleum jelly ***(Vaseline).***

3. Smear some on the sores 3 to 4 times a day.

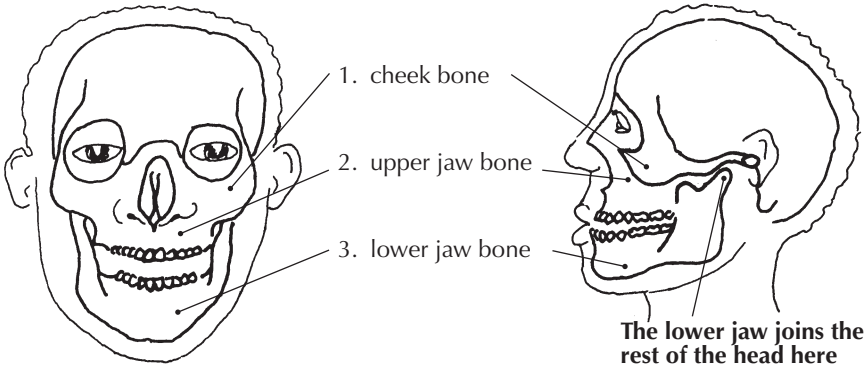
PART 2
SOME SPECIAL PROBLEMS

Some problems will be too serious for you to treat. If you can, send the sick person to a more experienced dental worker as soon as possible.

Early treatment can prevent some problems from becoming more serious. So sometimes you must give care yourself before taking a person for help. And if you know what to do when someone returns from the hospital, you can help them get well faster. Sometimes you will not be able to get help. So we discuss each of these serious problems in detail so you can give as much care as necessary.

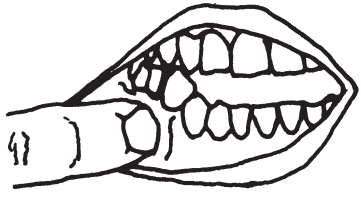
BROKEN BONE

Three main bones form the face and lower jaw.



When one of these bones is broken, teeth are usually pushed out of position. Look for this as a sign of a broken bone.

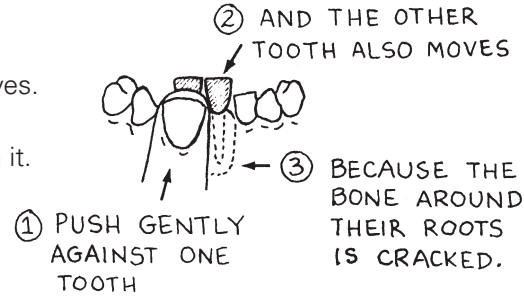
SIGNS of a broken bone:



- The person has had an injury.
- When teeth are closed, some upper teeth do not meet lower teeth.
- The person cannot open or close the mouth properly.
- There is bleeding from between 2 teeth.
- There is swelling or a bruise on the face or jaw.
- There is bleeding into the eye.

SIGNS of a cracked bone around the tooth's roots:

- When you move one tooth, the tooth beside it also moves.
- When you move the loose tooth, the bone moves with it.
- Blood is coming from under the gums.



TREATMENT:

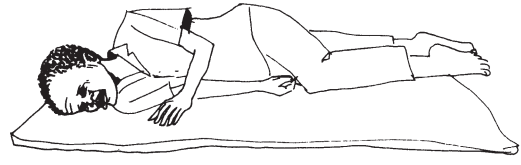
The parts of a broken or cracked bone must be held together so they can rejoin. An experienced dental worker will put wires around the teeth to do this. You can provide emergency care before taking the person to the hospital, and show the person how to eat and keep his mouth clean after.

Emergency care (pages 109 to 110):

1. Be sure the person can breathe.
2. Stop any bleeding.
3. Put a bandage on the person's head.
4. Give medicine for pain (pages 94 to 95).

1. Be sure the person can breathe.

Lay him on his side so that his tongue and jaw fall forward.



Later, carry him to the hospital in that position. If he goes in a car, be sure he sits with his head forward. His jaw and tongue will be forward and he will breathe more easily.

Look inside the mouth to see if any tooth is broken and very loose. A broken piece of tooth can fall out and block the person's airway, so **take out the broken part now.** You can leave in the root, but if you do, tell the dental workers at the hospital (page 219). They will remove the root when they put on the final wires.

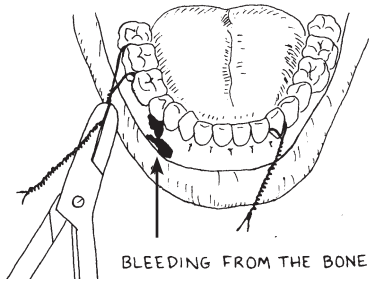
2. Stop any bleeding.

Wipe away any dried blood from his face and from inside his mouth. Look for the place that is bleeding. Sew any deep cuts on his face (see *Where There Is No Doctor,* page 86). If you gently press cotton gauze against bleeding gums, it will usually control the bleeding.

Bleeding inside the mouth, from between the broken parts of the bone, is more difficult to stop. You must pull the two sides together and hold them in that position. To do this, you need wire that is thin, strong, and bends easily. Ligature wire (0.20 gauge) is best.

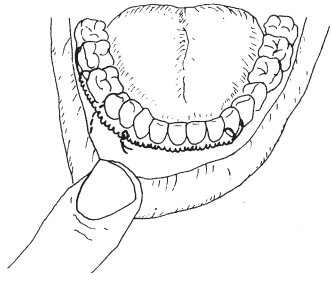
Place a piece of wire around 2 teeth, one on each side of the break. Choose the strongest tooth on each side—the ones with the longest or the most roots.

Tighten the wire around the 2 strong teeth with pliers or a hemostat.



Ask the person to close his teeth. Lift up the broken part of the jaw and hold it so the lower teeth meet the upper teeth properly. This is the normal way the jawbone holds the teeth.

Now join the wires. Twist and tighten them together. This may be painful. You can inject local anesthetic—see Chapter 9. You must twist the wire tight enough to hold the broken parts together.



Bend the end of the twisted wire toward the teeth. Now it cannot poke the person's lips or cheek.

3. Put on a head bandage.

Gently close the person's jaw so that his teeth come together. Support it in this position with a head-and-chin bandage.

Tie the bandage to support the jaw, not to pull it. Do not make it too tight. It is all right if his mouth stays partly open with the teeth slightly apart.

Be sure not to let the bandage choke the person.

4. Give medicine for pain.

Aspirin, paracetamol (acetaminophen), or ibuprofen (pages 94 to 95) may be enough. If not, give codeine. The dose for an adult is 30 mg, 4 to 6 times a day as needed.

Give amoxicillin (500 mg, 3 times a day for an adult) to prevent infection if part of the broken bone is sticking out through the person's skin, if the person has a very dirty wound, or if a bone has broken close to the sinuses (see picture on page 95). Take the person to the hospital as soon as possible. He must have wires placed on his teeth within a week of the accident. These wires must remain for 4 to 6 weeks. Every week, the person must return to the hospital to have the wires tightened. During this time he cannot open his mouth to chew food or brush his teeth.

CARING FOR A PERSON WHO CANNOT EAT PROPERLY

1. Give liquid foods for strength and energy.

To build strength: Milk-oil drink

Mix for him each day at your clinic:

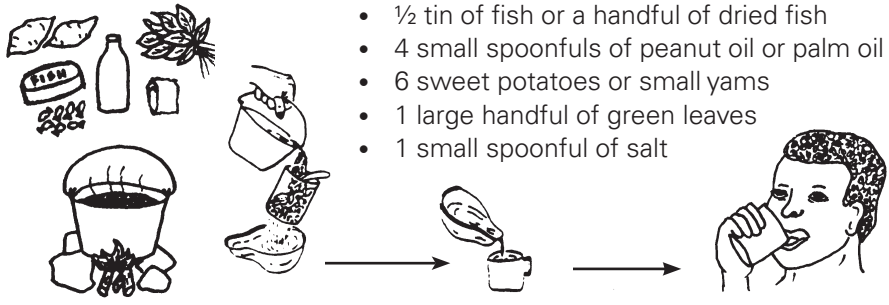
- 9 cups of water
- 3 cups of milk powder
- 150 ml of peanut oil or coconut milk
- ½ cup of honey or 1 cup of sugar

Leave some near his bed, and keep the rest in a cool place.

To keep strength and give energy: Special vegetable soup

Cut into small pieces and cook together in a pot of water:

- ½ tin of fish or a handful of dried fish
- 4 small spoonfuls of peanut oil or palm oil
- 6 sweet potatoes or small yams
- 1 large handful of green leaves
- 1 small spoonful of salt



Make holes in the bottom of an empty tin and sit it on a cup. Pour soup into the tin and use the back of a spoon to press the cooked food through the holes. The person can suck the soup between his teeth and then swallow it. Clean the tin and set it in boiling water so you can use it again the next day.

2. Keep the teeth clean and the gums tough.

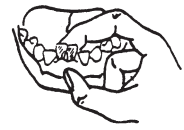
The person must learn to clean teeth and gums or the gums can quickly become infected and the mouth will feel sore. So:

- Scrub both the wires and the teeth with a soft brush after drinking soup.
- Rinse with warm salt water (page 7), 2 cups every day.

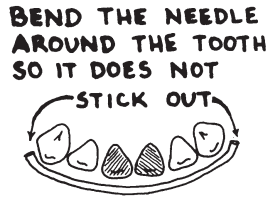
LOOSE TEETH

If the bone around the roots of the teeth is cracked, those teeth will be loose. **Do not take the teeth out until the bone is healed.** Otherwise, bone will come out with the teeth and there will be a big hole in the jaw. Instead, support the teeth, in order to hold both sides of the bone steady.

1. With your thumb and finger, gently move the loose teeth and bone back into normal position.



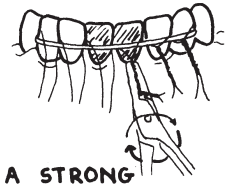
2. Cut a hypodermic needle and use it as a splint. Make it long enough to fit around two strong teeth on each side of the loose teeth. Curve the needle so it fits the curve of the teeth. To make the sharp ends smooth, use a file or rub the ends against a stone.



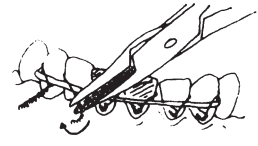
3. Tie each tooth to the needle. Use short pieces of 0.20 gauge ligature wire (page 110).

Put one end of the wire **under** the needle. Bring it around the back of one tooth and out to the front again **over** the needle.

Use the end of a small instrument to hold down the wire at the back of the teeth. Then twist the ends together. Tighten the wire around each one of the 6 teeth.



4. Cut the ends of the ligature wire. Turn them toward the teeth, so they will not cut the lip.



5. Tighten the wires the next day, and then once each week. But be careful. Only ½ a turn usually is needed. More, and the wire will break. Always twist in the direction a clock moves. With this habit, you will remember which way tightens the wire and which way loosens it.

6. Explain to the person that it takes 4 weeks for the bone to heal. The wires must remain on the teeth for this time. To help the teeth to heal, ask the person to:

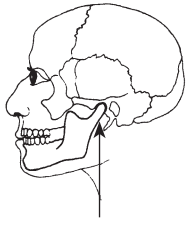
- give these teeth a rest. Use other teeth for chewing.
- clean both the teeth and the wires with a soft brush.
- rinse with warm salt water, 2 cups every day (page 7).
- return to have the wires tightened every week.

7. After 4 weeks, cut and remove the wires. Ask the person to watch those teeth. A dark tooth and gum bubble are signs that the tooth is dying. Take it out, unless you can give special nerve treatment.

DISLOCATED JAW

If a person opens her mouth wide and then is unable to close it, we say her jaw is **dislocated.** It is stuck in the open position. This problem often happens to a person who does not have several of her back teeth. When she opens wide to yawn or shout, the part of her jaw that joins her head moves too far forward inside the joint. It is then unable to return to its normal position. You can also dislocate the lower jaw by accident while extracting a tooth.

SIGNS:



normal

dislocated

- She is unable to close her teeth together.
- She cannot close her lips easily.
- Her lower jaw looks long and pointed.
- It hurts when you press on the joint in front of her ear.
- She cannot speak clearly.

TREATMENT:

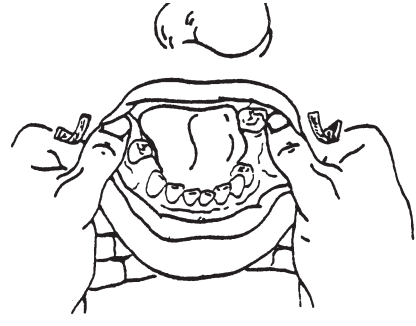
The treatment is to try to move the lower jaw back where it belongs. Then hold it in that position until the muscles can relax.

1. Find a way to support the person's head. For example, have the person sit on the floor with her head against a wall.

2. Kneel in front of her. Put your fingers under her jaw, outside the mouth. Put your thumbs beside her last molar tooth on each side. Do not put your thumbs on the molars. The person may bite them!

Press **down** hard with the ends of your thumbs. Force the jaw to move quickly down and back into position. Be sure to press **down** before you press back.

If the jaw will not move, perhaps the muscles are too tight. A doctor or dentist can put the person to sleep, which will relax the muscles.



3. Support the jaw with a head–and–chin bandage for 3 to 4 days (page 110).

4. Give medicines for pain (pages 94 to 95).

5. Explain the problem to the person and tell her how to care for her jaw: **(a)** eat mostly soft foods for 2 weeks; **(b)** hold a warm wet cloth against the jaw; **(c)** remember not to open the mouth wide anymore. **If possible, replace the missing back teeth with dentures** (page 107)**.**

PAIN IN THE JAW JOINT

A **joint** is the place where one bone joins another. The jawbone has two joints, for it joins the skull in front of each ear.

The mouth opens and closes because:

- muscles pull the jawbone; and
- the jawbone slides against the skull, inside the joints.

Pain in these joints may be because:

1. The muscles are tight because the the person is tense or nervous.
2. The jawbone is fractured in the area of the joint. (Also check the lower jaw on the other side since a fracture near the joint is often caused by a blow to the other side of the face.)
3. The teeth do not fit together properly.

TREATMENT:

Before you treat, decide what is causing the pain. We will discuss the three causes mentioned above.

1. **Tension.**

   Talk with the person and help, if you can, to find a solution to her personal problems. This can do much to help her and her muscles relax. In addition, explain how to care for the sore joint:

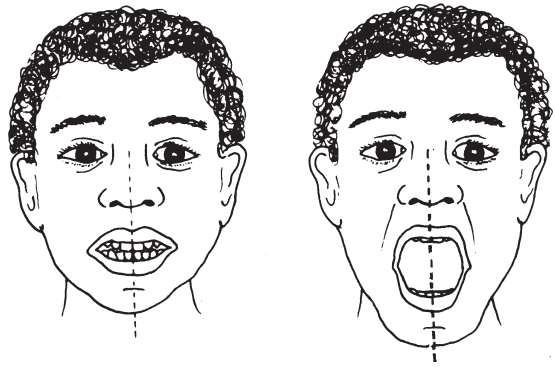
   a. Eat only soft foods until it no longer hurts to chew.
   b. Hold a hot, wet cloth against the jaw, to help relax the muscle. Do this as often as possible, but be careful not to burn the skin.
   c. Take aspirin, paracetamol (acetaminophen), or ibuprofen to reduce the pain (pages 94 to 95).

2. **Fracture.**

   If an X-ray shows a fracture, the person needs expert help. A dentist can wire the teeth in a way that will allow the bone to heal.

3. **Teeth do not fit together properly.**

   Imagine a line that passes between the 2 middle upper teeth and the 2 middle lower teeth in the person's closed mouth (see the next page). When the person opens the mouth, this line becomes longer, but it is still a straight line. If it is not, this condition can, after a long time, cause pain in the jaw joint.



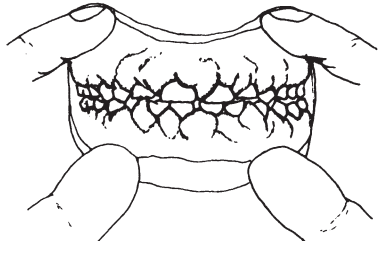
These teeth are normal. The line formed between the two middle teeth does not shift when the mouth opens.

When you see teeth that do not fit properly:

- Warn the person not to open his mouth wide. Suggest, for example, that he take his food in small bites.
- Tell the person what can be done to help. Often a dentist can grind the teeth in a special way and this can end the pain.

These teeth do not fit properly. Because the line shifts, this means the jaw is also shifting. This shift can cause pain in the jaw joint.

SWOLLEN GUMS AND EPILEPSY



Many persons who suffer from **epilepsy** (see *Where There Is No Doctor,* page 178) have a problem with swollen gums. In severe cases, the gums are so swollen they cover the teeth. This problem is caused not by epilepsy but by diphenylhydantoin or phenytoin *(Dilantin),* a drug used to control epilepsy.

When you see swollen gums, find out what medicines the person is taking. If possible, change to a different drug. If the person must continue using diphenylhydantoin, explain how to prevent this swelling of the gums. Show the person this book, especially pages 69 to 72. Persons who take this drug **may** be able to prevent the swelling by **brushing the teeth carefully after each meal, and taking special care to clean between the teeth** (page 71).

BLOOD IN THE MOUTH

Use wet cotton gauze to wipe away the old blood from inside the mouth. Then you can see where it is coming from. Treat the cause of the bleeding.

IF YOU SEE:	TO STOP THE BLEEDING:	SEE PAGE
a large red clot growing out of a socket where you have taken out a tooth	1. Remove the clot with cotton tweezers. 2. Ask the person to bite on a piece of cotton.	118
sore and bleeding gums and the mouth smells bad (Vincent's infection)	1. Rinse with a mixture of hydrogen peroxide and water. 2. Remove as much tartar as you can.	8 127
a red, bleeding growth inside the cavity in a tooth	Take out the tooth; it has an abscess.	93
a loose tooth with bleeding gums around it	Hold the tooth with wires, or if the root is broken, take out the tooth.	112 163
torn gums with broken bone and bleeding	1. With wire, hold the broken parts of the bone together. 2. Send the person to an experienced dental worker.	110

PROBLEMS AFTER YOU TAKE OUT A TOOTH

Problems such as swelling, severe pain, and bleeding can occur after you take out a tooth. Tetanus (page 118), a more serious problem, can also occur, especially if your instruments were not sterilized.

Swelling of the face

You can expect some swelling after you take out a tooth. But if the swelling continues to grow and is painful, this is likely a sign of infection. The treatment is the same as for a tooth abscess: **antibiotics** to fight infection (page 94), **heat** to reduce the swelling, and **medicines to relieve pain** (pages 94 to 95).

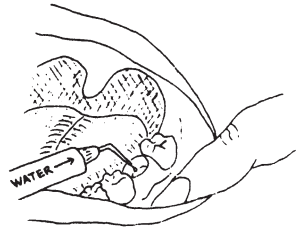
Pain from the Socket

There is always some pain after a tooth is taken out. Aspirin, paracetamol (acetominophen), or ibuprofen (pages 94 to 95) is usually enough to help.

However, sometimes a severe kind of pain starts inside the tooth's socket (the wound) 2 to 3 days after you take out the tooth. This problem is called **dry socket** and it needs special care.

TREATMENT:

1. Place a dressing inside the socket. Change it each day until the pain stops.



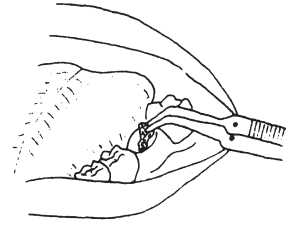
First, clean out the socket.

Squirt warm water inside the socket with a clean syringe. After the person spits out the water, squirt water inside once more. Use a blunt needle so that it does not hurt the gums or bone if it touches them.

Second, prepare the dressing.

Soak 1 to 2 small pieces of cotton in eugenol (oil of cloves).
Squeeze each piece so that it is damp but not wet.

Note: There may be local medicine in your area that relieves pain. Use it instead of eugenol.



Third, place the dressing gently inside the socket.

Place one piece of dressing into each root space. Push it down into the root space gently.

Cover the socket with plain cotton gauze, and send the person home bitting against it. He can remove the plain cotton in an hour. The dressing should remain inside the socket.

2. Give aspirin, paracetamol (acetaminophen), or ibuprofen for pain (pages 94 to 95).

Bleeding from the Socket

When you take out a tooth it leaves a wound, so you can expect some blood. However, if the person bites firmly against a piece of cotton, it usually controls the bleeding. To help the wound heal (form a clot), tell the person not to smoke, rinse with salt water, or spit for 1 or 2 days after you take out the tooth.

When the first bleeding occurs, put a new piece of cotton on top of the wound and ask the person to close her teeth against it for an hour. Keep her there with you, to be sure she continues to bite on the cotton. (If it is too painful, you may want to inject anesthetic. See Chapter 9.) Change the cotton if it becomes soaked with blood.

TREATMENT (if the bleeding continues):

1. Take her blood pressure (see *Where There Is No Doctor,* pages 412 to 413). If it is high, you may need medicine to bring it down. That can help slow the bleeding.

2. Look carefully at the wound. If the gum is torn or loose, put in a suture (pages 167 to 168).

3. Wrap tea leaves in cotton gauze. Soak the bundle in water and then put it on the socket. Have the person bite against it. Or, have her bite against cotton gauze soaked with cactus juice.

Let the person go home only when the bleeding stops. Give her some clean cotton to use in case the bleeding starts again later (see page 169).

TETANUS

This is a very serious infection. Tetanus germs enter the body when a wound, like a wound on the bottom of the foot, gets dirty. Germs can also be carried to the socket when you use a dirty instrument to take out a tooth. To avoid this, **carefully read pages 86 to 91.**

SIGNS:

- The jaw becomes stiff and tight.
- It is hard to swallow.
- The whole body becomes tight, with sudden spasms.

TREATMENT:

A person with signs of tetanus requires **immediate** medical help. See *Where There Is No Doctor,* pages 182 to 184, if you cannot get help immediately.

INFECTION INSIDE THE SPIT (SALIVA) GLAND

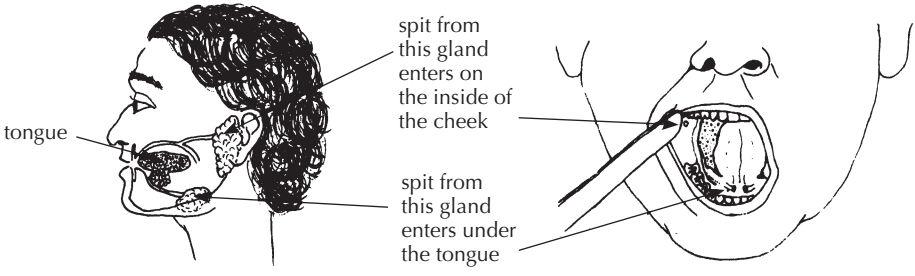
Spit glands are places where the spit or saliva is made. They are located in front of the ear and under the jaw, on each side of the head. If there is an infection inside a spit gland, the face will become swollen and the area will hurt.

Spit is sent from the gland to the mouth through a thin pipe called a duct. Ducts open into the mouth in two places: on the inside of each cheek and under the tongue.

A small stone can often block a duct and cause an infection in the spit gland and swelling of the face. You may be able to feel the stone near where the duct enters the mouth.

SIGNS:

- Swelling in the area of the spit gland.
- Pain which gets worse when the person is hungry, and when he sees or smells food.
- The opening of the duct is red, swollen, and hurts when you touch it.



TREATMENT:

Reduce the infection and swelling first. Later try to remove the stone.

1. Give dicloxacillin (500 mg by mouth, 4 times a day for 7 to 10 days) or clindamycin (300 mg by mouth, 4 times a day for 5 to 14 days). ***Warning:*** Do not give dicloxacillin to people who are allergic to penicillin.

2. Give aspirin, paracetamol (acetaminophen), or ibuprofen for pain (pages 94 to 95).

3. Have the person drink a lot of fluids and hold a hot, wet cloth on the swelling as often as possible.

4. Give enough soft food to prevent the person from feeling hungry. The pain will be less then.

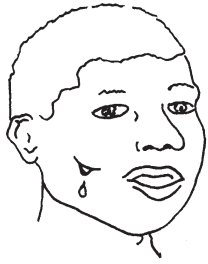
5. When the person feels better, a dentist or doctor can remove the stone that is blocking the duct.

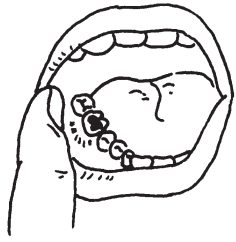
SORES ON THE FACE

Whenever you see a sore on a person's cheek or under his chin, remember there may be a tooth or gum problem. If it is a gum problem, it may be *Noma.* See the following pages.

A bad tooth:

Ask him to open his mouth. Look for an infected tooth in the area of the sore. There may be a large cavity and the tooth may be loose.





Or the tooth may be darker in color than the others. This is because it is dead.

The pus is draining onto the skin, so the pressure is reduced and the person does not complain of pain.

TREATMENT:

1. Take out the tooth (see Chapter 11).

2. Give amoxicillin, 500 mg, 3 times a day for 5 to 14 days.

3. After the antibiotic treatment, check the sore. If it has healed, there is no longer infection inside. The treatment is finished.

But if the sore is still open and you can squeeze out pus, you will need the help of experienced health workers who can:

- test the pus to see if it is resistant to amoxicillin. **The person may need to take a different antibiotic.**
- take an X-ray to see if there are dead pieces of bone which are keeping the infection alive. If there are, they must be removed.

If infected gums (and not a bad tooth) are the cause of a sore on the cheek or chin, the problem is more serious. See the next 4 pages.

NOMA

When a child is sick, a simple gum infection can get out of control and spread through the cheek to the face. When that happens the condition is called **Noma** or **Cancrum Oris.** Noma is a complication of Vincent's infection of the gums (page 102).

You will usually see Noma in children. It will only develop if these 3 things are true:

1. The child's general resistance is low. Usually, he is undernourished and anemic (lacks iron). He may have tuberculosis.
2. The child has Vincent's infection.
3. The child has recently had a serious illness such as measles or malaria.

Noma can also be a problem for adults living with HIV. See page 191.

SIGNS:

The infection starts in the mouth. Then it passes to the gums.

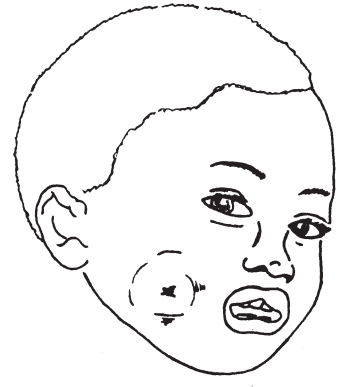
1. Sore mouth with itching gums.
2. Swollen, sore gums.
3. Gums bleed when eating or when teeth are cleaned.
4. Bad breath, spits a lot.

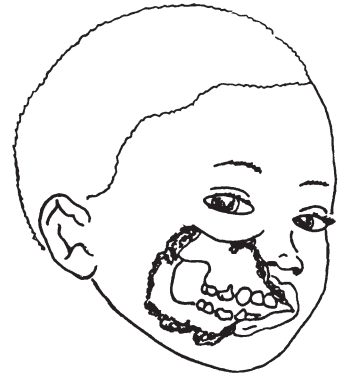
Then it reaches the jaw.

5. Loose teeth.
6. Loose pieces of bone around the teeth.

Finally, it affects the cheek.

7. Skin is tight with dark red swelling.
8. Black spot on the cheek breaks open, leaving a hole into the mouth.
9. A line separates dead tissue from healthy tissue.





TREATMENT:

You must start treatment for Noma immediately in order to prevent the hole from getting bigger. The bigger the hole, the tighter the scar that forms after you close the hole. A tight scar will prevent the child from opening his mouth and chewing the food he needs to grow stronger.

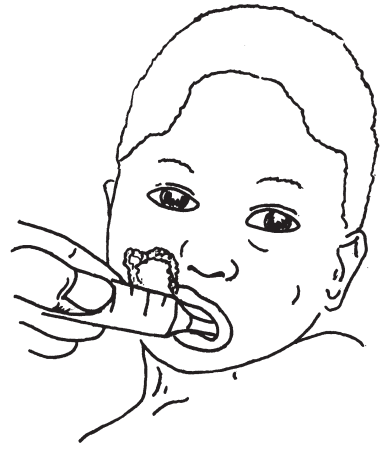
1. Give fluids.

The child needs to overcome both the lack of body water (dehydration) and his lack of resistance to disease.

Start giving the milk-oil drink described on page 111.

If he cannot drink by himself, help him. Use a spoon or syringe.

Place the fluid on the inside of the healthy cheek and ask the child to swallow.



2. Treat the anemia.

Start giving iron (ferrous sulfate) now. The child should continue taking the tablets or mixture for 3 months, with food.

	Ferrous Sulfate Tablets, 200 mg
over 12 years	200 mg (1 tablet) 3 times a day
6 to 12 years	200 mg (1 tablet) 2 times a day
1 to 6 years	100 mg (½ tablet) 2 times a day
under 1 year	50 mg (¼ tablet) 2 times a day

You can also use ferrous fumarate. Advise the mother that the iron will make the child's stool black.

Also give food rich in iron: meat, fish, eggs, dark green leafy vegetables, peas and beans.

Note: A child may have anemia because he has worms. It is a good idea to do a stool analysis to find out. If he has worms, give him medicine right away. Mebendazole and albendazole treat many different worm infections. Praziquantel treats tapeworm infections and blood flukes. Also give **folic acid.** For doses, see *Where There Is No Doctor,* pages 375 to 378, and page 394.

3. Start antibiotics.

Metronidazole is the best medicine to use. Give metronidazole 4 times a day for 5 days. If you don't have metronidazole, give clindamycin 3 times a day for 5 days. To decide how much to give, weigh the child or dose by age. For adults, see the medicines and doses on page 191.

Weight (age)	Dose for metronidazole	Dose for clindamycin
10 to 20 kg (1 to 5 years old)	75 mg by mouth	150 mg by mouth
20 to 30 kg (6 to 8 years old)	150 mg by mouth	300 mg by mouth
30 to 45 kg (9 to 12 years old)	250 mg by mouth	450 mg by mout
over 45 kg (over 12 years old)	500 mg by mouth	600 mg by mouth

4. Treat the other illness that helped Noma to develop.

It is wise to assume that the child has malaria and to begin treating with antimalarial drugs (see *Where There Is No Doctor,* pages 363 to 369).

Look for any other illnesses and treat them, too, especially measles and tuberculosis.

5. Clean the sore.

Gently pull away any dead skin with tweezers. Wash the inside of the sore with hydrogen peroxide. Be sure you measure the hydrogen peroxide carefully (see page 8). You can also clean the sore with an iodine solution. Then put in a wet dressing.

The dressing:

- Soak cotton gauze in salt water. Squeeze out the extra water so that it is damp but not wet.
- Put it in the hole and cover it with a dry bandage.
- Every day, remove the bandage, wash the hole with hydrogen peroxide, and put in a new dressing. Do this until the hole does not smell anymore and there is no more dark dead skin.

6. Remove the loose teeth and dead bone.

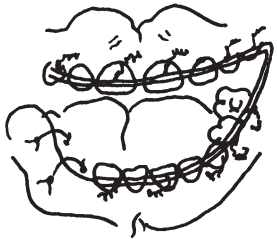
You can use a local anesthetic (Chapter 9). Usually there is not much bleeding. If gums are loose, join them with a suture (see pages 167 to 168).

7. Keep the mouth clean.

- Use a soft brush gently to clean the remaining teeth. Do this 3 times a day for the child.
- Wipe the gums with a weak solution of hydrogen peroxide (see page 8). Use cotton gauze that is damp with the solution. Do this at least 4 times each day for 5 days.
- Then after 5 days, start rinsing with warm salt water, 3 cups a day.

8. Get advice on whether surgery is needed.

Unfortunately, the child will probably need surgery, to release the scar. Without this surgery, the child will not be able to open his mouth properly.



Send the child for medical help when the infection is finished and the wound starts to close.

You may also need a dentist's help at this time. The child's jaws may need to be wired. The wires are put on the healthy teeth in a way that holds the mouth open while the tight scar is forming. When the wires are removed, the child will be able to open and close his mouth to chew food.

PREVENTION OF NOMA:

Noma need not occur. We can prevent it. Always give special attention to the mouth of a sick child, to be sure to keep his teeth clean.

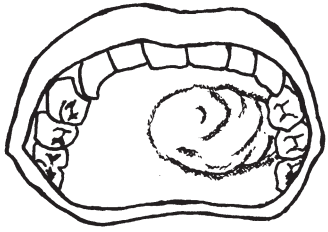
Whenever someone is nursing or caring for a sick child, that person should clean the child's teeth as a normal activity. This is especially true for a child who is weak, undernourished, and with little body water (dehydration).

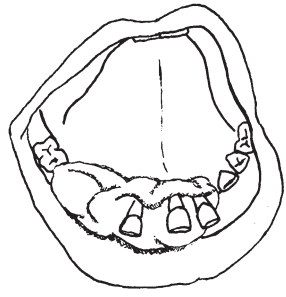
Such a child should always:

- have his teeth carefully cleaned each day with a soft brush.
- rinse his mouth with a warm salt water solution (page 7), 2 times a day.
- eat fresh fruits and vegetables, especially the kind that have vitamin C: guavas, oranges, pineapples, papayas, tomatoes, peas, and dark green leaves.

TUMOR

A tumor is a lump that grows under the skin or inside the bone. It grows slowly but steadily, usually without any pain.





If the swelling does not get better after 5 days of antibiotics and heat treatment (page 94), it may be a tumor.

TREATMENT:

Do not waste any more medicine or any more time. **A tumor may be cancer.** Send for medical help. Surgery is needed to remove a tumor.

CANCER

Any sore or bump that does not heal within 2 weeks may be cancer. The tongue, the floor of the mouth under the tongue, and the insides of the cheeks are the places in the mouth where cancer starts most often. Also check the lips, the soft part of the roof of the mouth, and the gums.

Cancer is deadly.
Cancer can spread quickly to the inside of the person's body where you cannot see it. This can lead to the person's death. But cancer can be treated if you notice it early. For more information, see the *New Where There is No Doctor* Cancer chapter online: https://en.hesperian.org/hhg/New_Where_There_Is_No_Doctor:Chapter_20:_Cancer.

TREATMENT:

Whenever you treat a sore and it does not get better, send the person for medical help immediately. A doctor can cut out a piece from the sore, look at it under a microscope, and decide if it is cancer. If it is cancer, the person will need specialized treatment.

"METH MOUTH"

The drug methamphetamine (also called meth, speed, yabaa, and other names) is used by increasing numbers of people around the world. This very addictive drug is harmful to the brain, the body, and especially the teeth and gums. People who abuse methamphetamine develop "meth mouth," a condition where most of their teeth are badly decayed and appear stained, blackened, and rotting. If left untreated, these teeth can not be saved.

SIGNS:

- Dry mouth (xerostomia). Meth use stops the mouth from making saliva which helps to buffer the teeth from sugar and acids in the mouth after eating and drinking. This can cause tooth decay.
- Many cavities in the teeth from the drug itself and from sugary foods and drinks craved by meth users.
- Gum disease. Meth use shrinks the blood vessels in the mouth, and lack of blood flow causes the gums to break down and prevents the healing of cuts and sores in the mouth.
- Tooth grinding caused by the drug causes cracked teeth and other increased damage and wear to the teeth.
- Bad oral hygiene, common among meth users.

TREATMENT:

If someone with meth mouth comes to you for care, you can do your best to clean his teeth, treat cavities, and treat for gum disease. But if he continues to use the drug, his teeth will quickly get bad again. The most important thing you can do is help the person get treatment for his drug addiction. The international organization Narcotics Anonymous has programs in more than 131 countries and may be able to help. Find a chapter near you by looking on the internet: www.na.org/meetingsearch.