

PART 2

Dangers and Solutions

Chapter 5

Work Dangers and Solutions

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5

WORK DANGERS AND SOLUTIONS



This chapter will help you identify and talk about different hazards that affect workers who operate machines, use chemicals, or work in unclean conditions. Information about other problems, like low wages and sexual harassment, which we call “social dangers,” can be found in Chapter 6.

Workers in factories in Export Processing Zones around the world face many of these problems, but the importance of each danger differs by

industry and the specific tasks a worker does. The drawings in this chapter may not show the exact equipment you use, but you and your coworkers probably face similar problems. There are too many machines and jobs to show solutions for every task and every machine. Instead, we try to explain the different types of dangers and some examples of solutions. You will need to decide what information is useful, what is not useful, and which ideas need to be changed to make them more useful in your factory.

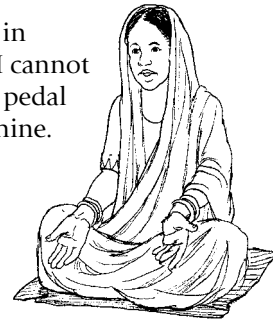


Strain and overuse injuries (ergonomics)



*Do workers have body aches at the end of the work shift?
Which work tasks make workers' shoulders sore?
Have workers been hurt while lifting heavy things?*

My name is Asma. I work as a sewing machine operator in Bangladesh. By the end of the day, my leg gets so tired that I cannot press down on the foot pedal. I know that pressing the foot pedal all day is hurting my leg, but it is the only way to run my machine. Some of my co-workers have been hurt so badly that they cannot sew after working for 4 or 5 years. Sometimes their injuries are so bad they cannot work at all. The work is just too hard. My family needs the money I am earning now, but the work is hurting me.



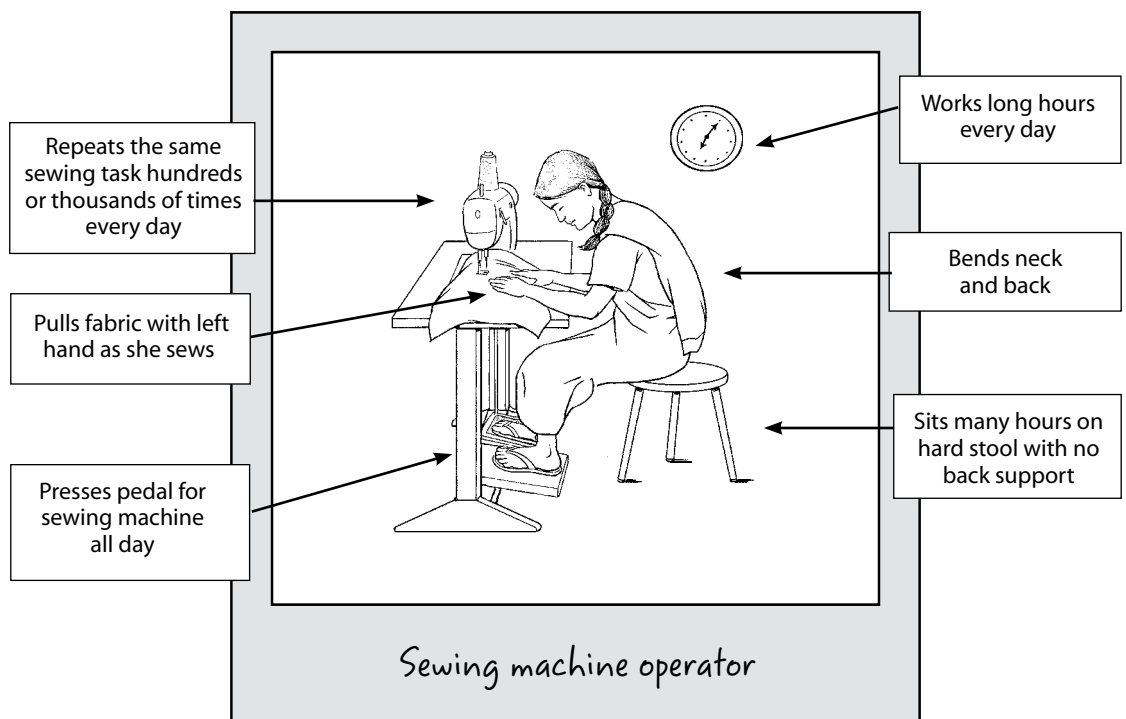
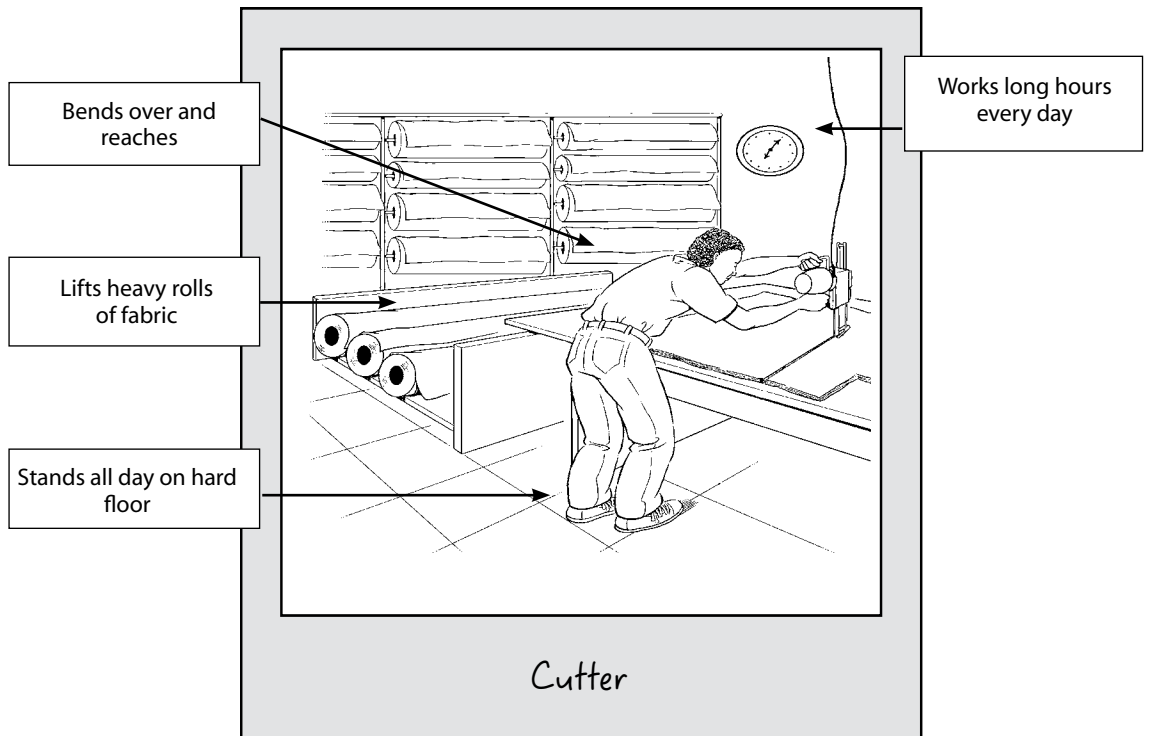
Compared to farming or construction, working in a factory making clothes, shoes, toys or electronic equipment can look like easy work. Farmers and construction workers do hard physical labor in all kinds of weather and often work from sunrise to sunset. Factory work looks easy because workers are usually sitting down or standing still and they rarely sweat from the effort.

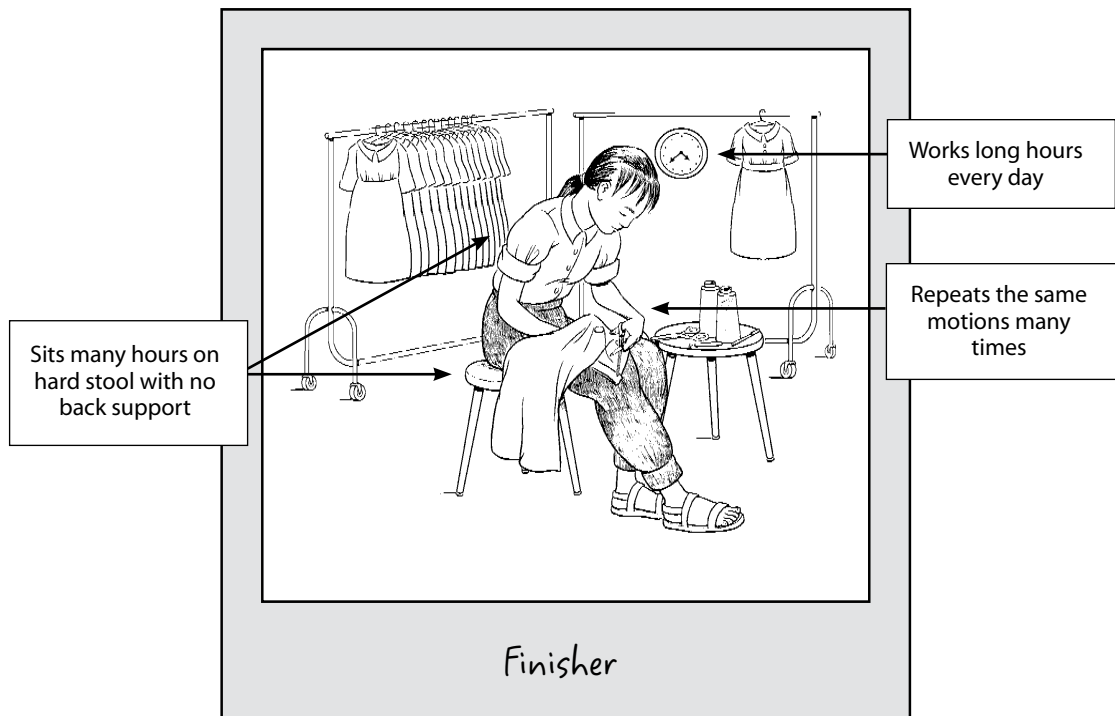
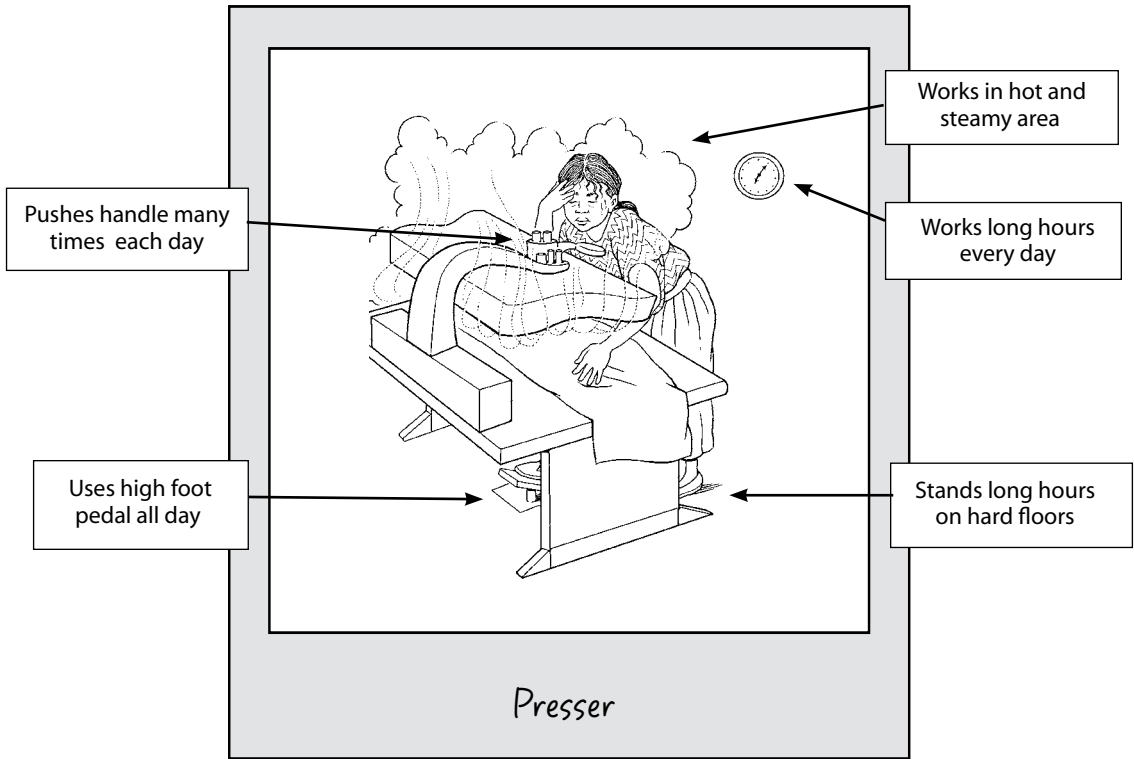
Most factory workers in Export Processing Zones are young women, so many people assume it cannot be difficult work. But factory work uses the body in a different way than farm work. Farmers use their arms, legs and back to move heavy sacks, turn soil, or harvest crops. These large muscles work hard, and the farmer gets sweaty and tired. But factory workers who sew use the much smaller muscles of the fingers, hands and eyes to make the same small, repetitive movements thousands of times each day. They sit hunched over their work for many hours each day. The movements may look small and easy from a distance, but the strain on the worker's body is painful and tiring.

Garment workers often suffer injuries to the back, shoulders, knees, arms, and hands. These injuries are usually caused by work that pushes the body beyond its limits. Work may be harmful even if it does not cause any pain right away. When the injury becomes more serious, the person may feel pain, numbness, weakness, or tingling. With some injuries the pain gets much worse over time. Sometimes the injury and pain get so bad the person cannot work.

The study of how a job pushes the muscles, joints, tendons, and the other soft parts of the body beyond their limits is called "ergonomics." Ergonomics is also the study of how to prevent injuries by designing work and equipment that does not push workers beyond their limits. Ergonomics proves what most workers know already: different parts of the body have limits that must be respected or they will become tired, weak, or hurt. Since every person is different, these limits may vary - but everyone has them.

Different workers face different ergonomic hazards based on their job and workplace. Certain tasks are harder on the body than other tasks and can cause pain and injury more quickly. Below are examples of the ergonomic hazards experienced by some garment workers:





Prevent injuries by making your job fit you

Ergonomics points to ways workers can prevent strain and overuse injuries:

- Use the right equipment and tools for the job.
- Use the right equipment and tools for your body.
- Change how the work is done so it does not exceed your physical limits.

Workers in a factory must decide what changes are needed in their workplace to make it safer. The 4 steps below are a way for a group of workers to do this. Each step refers you to other parts of the book that will be helpful.



STEP 1 – Talk to other workers to find out if they have signs of strain or overuse.

This helps you find out which problems are most common and what changes are most needed in your workplace. (See Chapter 3 “Where Do You Begin” for how surveys and body maps can help identify problems shared by many workers.)

STEP 2 – Evaluate your job.

If you have pain, tingling, or numbness, start your job evaluation by looking at tasks you think may cause the pain. Ask a coworker to help you. Another person watching you work can often see problems with your equipment or tasks that could cause pain and injury. (See the ‘Strain and overuse survey’ activity on the next page.)

STEP 3 – Identify changes to prevent injuries.

Find solutions for problems you found in Step 2 above. The section “Preventing strain and overuse injuries” on pages 56-62 has examples of solutions others have tried. With your coworkers, think of ways to solve the problems in your factory. (See Chapter 4 for ways you and your coworkers can begin campaigning to reduce job dangers.)

STEP 4 – Join together to get the employer to invest in the right solutions.

Most employers will only make changes when workers pressure them. When workers join together to ask for changes, it is harder for the employer to ignore the problem or threaten workers. (See Chapter 4 “Organizing for Change” on page 34.)

Strain and overuse survey

Work with a partner to answer the following questions about the strain caused by your work. She can look at each of the tasks that could cause injuries. Someone else can often see things you cannot. If you have pain, tingling, or numbness, start looking for what might cause this pain. Write down or draw a picture of each problem. Decide which problems are the most important to fix.



Someone else may see things you do not.

Do you *repeat* the same movement over and over again? Garment workers move their hands and arms very quickly and precisely. Some garment workers make as many as fifty different movements a minute with each hand. Repetitive tasks can injure you.

Do you work in *uncomfortable positions*? Twisting your back, arms, or neck, and bending or stretching a part of your body can injure you.

Do you stay in the *same position for a long time*? Sitting or standing for hours without changing your position can injure you. Holding up an arm, leg, or foot, holding your neck or body bent over, or kneeling for a long time can injure you.

Do you *lift heavy loads*? Lifting bundles of fabric or parts, or bending over to lift things out of deep bins can injure you.

Do you use *too much force*? Using your fingers with force by pinching, pulling, or holding can injure you. Scissors and other hand tools can injure you if they are uncomfortable or difficult to use (too big, too small, too stiff, too dull, too straight, or too curved for your tasks). Holding a heavy tool at arms length or pushing or pulling heavy carts can injure you.

Do you use *furniture, equipment, or tools with hard edges*? Sitting on a hard stool or leaning your arms or body against the edges of a hard table for long periods of time can injure you. Hard edges or ends of hand tools and handles pushing into your palm, fingers, or other parts of your body can injure you.

Do you work with *tools or equipment that vibrate*? Using tools or equipment that vibrate a lot can injure your lower back and the feeling in your hands. Using this equipment can also make you tired faster.

Do you work *long hours without breaks*? Working long hours every day can injure you. Your body needs time to recover from the stress and strain of work. It needs short breaks during the day and longer breaks at the end of the day and week.

Strain and overuse survey

Do you work in very *cold* or very *hot* temperatures?

Working in a hot or cold area can contribute to strain, sprain or overuse injuries.

Does your work area have *poor lighting*? Poor lighting may cause you to bend forward or hunch over to see better and this can injure you.



Which of these problems is the most *important* to change?

Organize with a survey

You can use this strain and overuse survey to organize workers. Doing a survey gives you a reason to talk to every worker about what is going on at the factory. You can learn what problems are most important to workers. You can find workers who are eager to be part of a campaign for change. A survey is a good way to create or expand a network for sharing information among workers. It can also inspire a shared understanding and hope among workers that change is possible.

Workers have used surveys in creative ways to share information and to organize. One way is to use the survey on these pages like this:

Look over these questions and change them to fit your situation.

Gather a group of workers to look over the questions and create new ones to suit the group's needs. You might decide to ask about pain and injuries or the number of hours worked over the past month. Workers in some departments or jobs might ask different questions. You might need to ask the questions in several languages so all workers can understand them. Ask workers who show the most interest to help you gather information and plan a campaign.

Recruit a worker from each work area to survey 10 coworkers. With a committee of volunteers, it should be possible to talk with every worker in the factory, even a large factory. Volunteers could speak with workers individually or in small groups at lunch or after work.

Record workers' answers. Note when workers agree or disagree on problems and solutions. Also note which workers are most interested in certain issues. Depending on their jobs, body types, or general health, workers may have different opinions about problems and solutions.

Summarize the responses to the survey and share them with the other workers. Use the responses to help plan a campaign to change things. See Chapter 3 "Talk with your coworkers" on pages 21 to 27 and "Analyze as a group what you heard" on page 28.

For ideas on planning a campaign, see Chapter 4 "Organizing for Change".

Preventing strain and overuse injuries

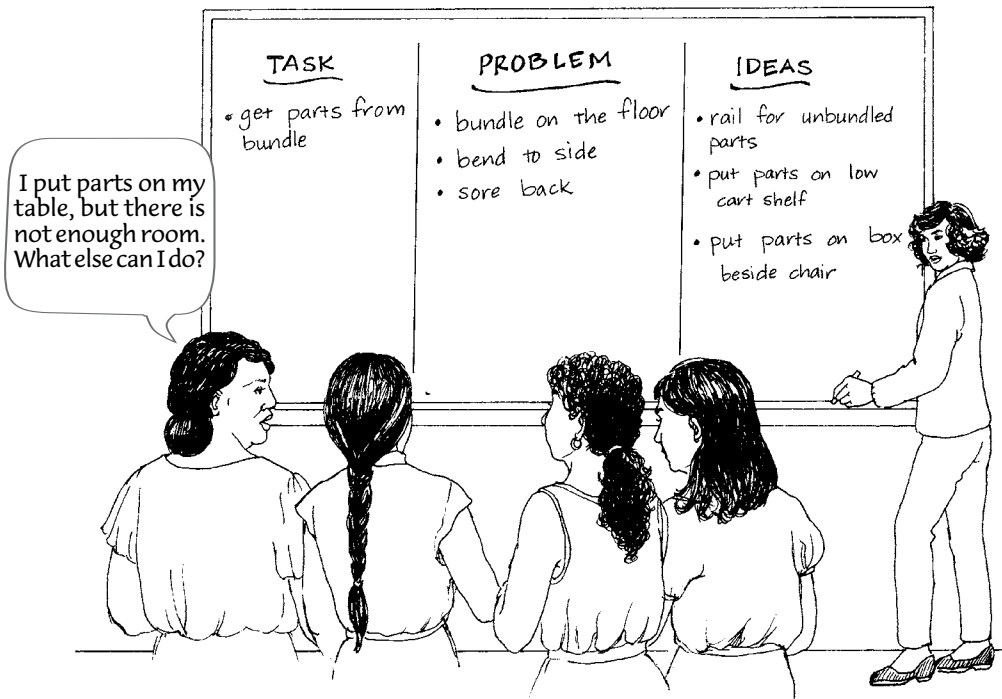
The best way to prevent injuries is to design workplaces so workers can do their jobs without overworking their bodies. Workers can make some changes on their own, but the most effective changes will need the boss' cooperation.

You may be able to do some of the same things workers in other factories have done to reduce strains, sprains, and overuse injuries.

You may think of other changes that will be better for your situation, and you may need to try several changes before a problem is solved. Also, a change that helps one worker may not help another worker. Listen to everyone's ideas. Be ready to try different ideas before deciding which is best.

Ergonomics Job Evaluation

ACTIVITY



Starting with the problem tasks that are most important, think of ways to get rid of the problem by changing the equipment, furniture, tools, or the way work is done. Also think of new problems the change might create. For some ideas on how to do this, see the following pages.

Improve work stations

Work tables

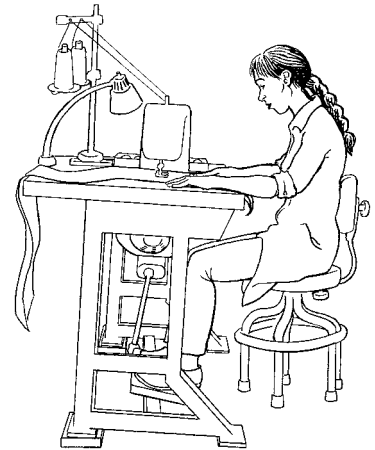
A table should be the **right size** and shape for the task and the right height. Workers who stand need tables that can be raised or lowered to the right height for each worker. Finishers need a table to hold the piece of clothing they are working on.

A **tilted table** can reduce bending over to see the work.

Tables with extensions support heavy fabrics at machine height.

Rails the height of the work table reduce reaching and bending.

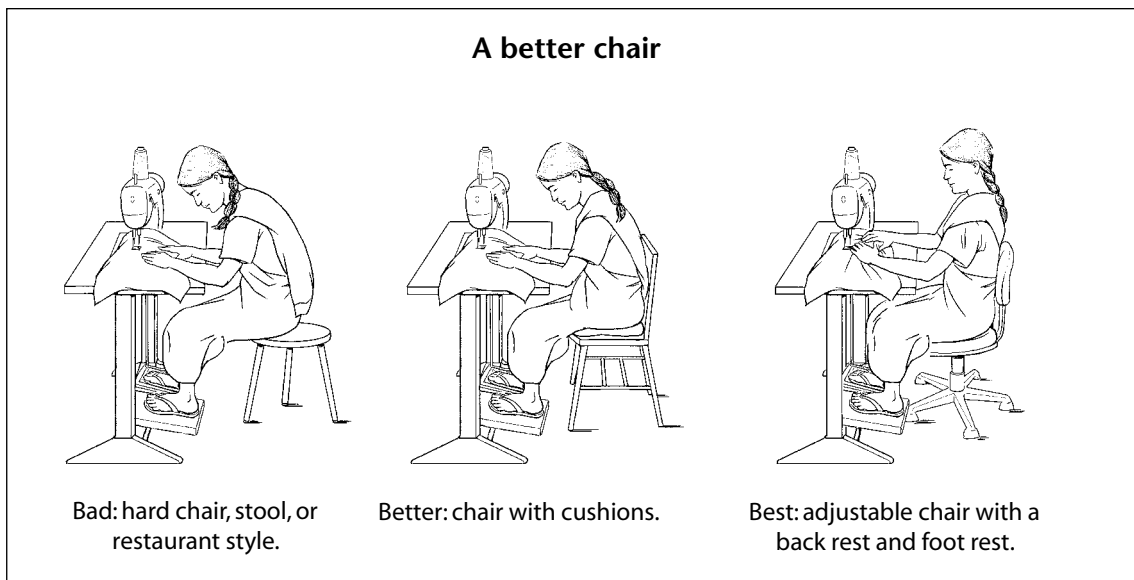
Friction tape or an edge lip prevents fabric from slipping off the table. Friction tape on rails keep fabric from slipping off.



A tilted table makes it easier to see without leaning forward.

Chairs

Adjustable chairs can fit the size and shape of the workers using them. The chair should be adjustable for height, tilt of the seat and backrest, and height of the backrest. Chairs should be padded with a backrest. "Sit-stand" chairs let a worker alternate between sitting and standing with support. Stools or sit-stand chairs should be available for workers who stand a lot, such as finishers and pressers.

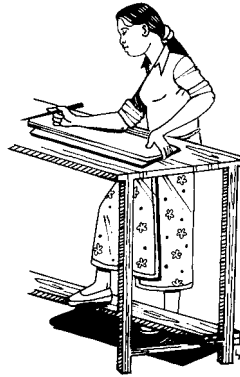


Standing

A footrest supports the non-working foot at a seated work station. A standing worker can use a footrest to prop one foot up and to change positions during the day.

Hard floors

Soft-soled shoes and padded floor mats reduce leg pain for workers who have to stand for long periods.

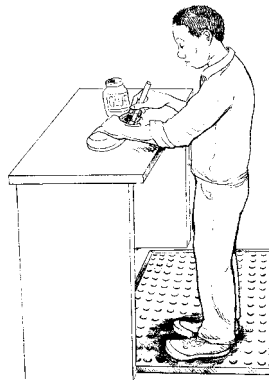


Standing is easier with a padded mat and footrest.

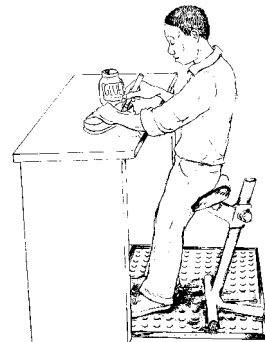
Be comfortable sitting or standing



Sitting



Standing on padded floormat



A sit-stand chair for standing work.

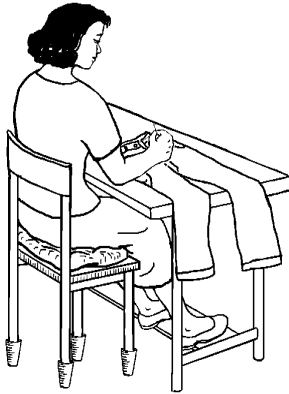
Switches and pedals

Foot pedals, knee pedals, and other switches should be easy to operate without using much force. You should be able to reach switches without stretching or bending over, and you should be able to operate them with only a small movement of your arm, leg, or foot. The steam button on an iron should be near the handle and easy to push.

You should not have to reach or twist your body to operate controls on cutting tools and presses. A treadle should be positioned so that you can sit or stand at a comfortable distance from the machine. A moveable, electronic treadle may be the best choice for machines shared by several workers.

Make a more comfortable seat

Make a chair or work table higher by putting used thread cones (spools) under the feet. Cones under the back legs of a chair or table bring the worker closer to the work. Check the cones for cracks and make sure your chair and table are stable.



Empty spools and a cushion make this chair better.

Put padding or a cushion on your stool or chair. Attach fabric or other padded material on the hard edges of tables and chairs you lean against.

If you have a chair with a backrest, but it does not provide enough support, add a cushion. To give good support, the backrest should fit well against your lower back and help you sit upright.

Make a foot support

Make sure it does not get in the way of a foot pedal. Use stacked cardboard, paper, or a piece of wood. Tape the foot support to the floor. Workers who stand all day can put their foot on a brick or a block of wood for support.

Tips for making a good seat cushion

There are several things to consider when you put together a good cushion.

1. Use rough material to keep the cushion from slipping. Attach the cushion to the chair with string, tape or strips of fabric.
2. Use a firm cushion. Material that is too soft will quickly lose its shape and the support it gives you.
3. Adjust the thickness of the stuffing so you are at a comfortable height for working. Too high will make you bend your neck forward. Too low will make you raise your arms or shoulders.
4. Make the cushion wedge-shaped to allow your knees to be a little lower than your hips.



Moving supplies

A dolly, forklift, or hoist is the best equipment to use for moving heavy things.

Rail systems should allow workers to add and remove hangers without raising their hands above shoulder height.

Carts with shelves at the same height as work tables make loading and unloading easier. Adjust the shelves or do not use shelves that are too low or too high.

A cart with a spring-loaded bottom makes it easy for workers to reach the contents when they unload the cart.

Put things on wheels to make them easier to move. Try this with the garbage cans used for fabric scraps from the cutting tables.

Two workers can share the burden more safely than one. Many tasks can be done more safely and quickly when several workers share the load. For example, two workers can more easily load a bolt of fabric onto the fabric spreader than one worker alone.

Make a better cart

Materials needed:
canvas fabric, grommet-holer or button-holer, 4 strong elastic cords (bungee cords).

1. Make a rectangle out of the canvas to be the false bottom for the cart. You may need two or more layers of fabric.



2. Make a hole in each corner of the canvas rectangle. A reinforced button hole or metal grommet will last longer than a torn hole.



3. Place an elastic or bungee cord through each hole in the canvas and secure it. Place the canvas in the cart and secure the other end of the elastic cords to the top corners of the cart.



4. Adjust the length of the elastic cords to allow the false bottom to rise to just below the top of the cart when it is empty. The cords should stretch to the bottom of the cart when full. If your cords don't do this, find a different kind of cord or a different length.

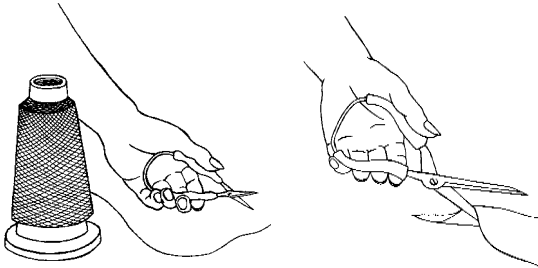


Equipment and tools

Have the right tool for the task you are doing.

Equipment and tools should be easy to use. Fabric spreaders should be easy to load. A bolt stand can make it easier for a worker to lift a bolt of fabric to the spreader. Fabric weights and clamps need comfortable handles and should require little force to use.

Scissors must be sharp and the right size. Small, light scissors are for thread trimming. Larger scissors are for fabric trimming.



These scissors are the right size for the job, lightweight and sharp, shaped to fit your hand, and they open on their own.

Tools should be well balanced for the way they are used. Properly suspended and balanced irons and steamers are important. Cutting knives should be suspended, balanced, and easy to move around the cutting table.

Good heat shields on irons and presses keep the presser's hand from getting hot or hit with steam.

Maintenance

Equipment and work stations should be sturdy and well maintained. Tools should be sharp and working smoothly. Wheels on chairs and carts should roll smoothly, and not be tangled with thread and lint.

Rearrange work station

Rearrange your work station and tools to reduce reaching and bending. Put tools or material in constant use (like scissors, fabric pieces, or zippers) in front or beside each worker in a way that limits reaching to about 40centimeters (16 inches) or less. Workers should not have to twist behind themselves or bend to the floor to reach garment bundles or tools.

Place bins and carts as close as possible to workers who are sitting down. Or put them far enough away so that workers must stand up and move to use them.

Arrange presses to reduce the loads of clothes that workers carry from one press to another. Where possible, workers should change between sitting and standing during the work day.

Lighting

Look at the general lighting to see if it needs to be moved, increased, or decreased. An adjustable task light at each workstation can put more light where it is most needed.



See the work better with a task light.

Improve the way work is done

Changing the way the work is done can make your work safer. You can control many of these changes, but many of them will also need your boss' cooperation. How you work on these problems may depend on how willing your boss is to cooperate. Listen to each other and be creative finding the right solutions for your situation.

Health and safety committee

Form a committee of managers and workers to discuss ergonomic problems and ways to improve conditions in your factory. Workers on the committee should meet regularly by themselves and with coworkers between meetings with managers.

Work together, share tasks

Rotate workers to different work tasks so that one person does not have to keep doing the same movements all day. Cut down on the repetitive and uncomfortable movements by changing the flow of work. Increase the variety of the work tasks done by each worker.

Have two workers do lifting tasks together. For cutting, have two workers together load each bolt of fabric onto the spreader. To reduce reaching, have one worker on each side of the cutting table cut towards the other.

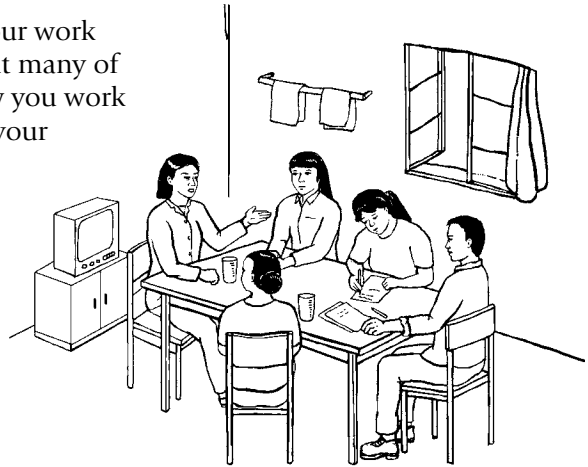
More workers

Suggest hiring more workers to do the same amount of work with less stress and strain.

More pay and fewer hours

Working fewer hours gives your body more rest and time to recover between work shifts. Supervisors should not force workers to work extra hours or extra days.

Piecework pay and incentive pay motivate workers to work as fast as possible. Create an hourly wage system. Supervisors should not force workers to work as fast as possible.



The International Labor Organization (ILO) says every worker has a right to be paid enough that she and her family has "an existence worthy of human dignity." The ILO also says work hours should be no longer than 8 hours per day and 40 hours per week. If the legal minimum wage over a 40-hour week is not enough to cover basic human needs, then workers should be paid more. (See Chapter 6 for information on international standards for decent wages and reasonable working hours.)

Training

Workers and managers should learn about the ergonomic problems of garment work. Everyone should be trained to use and adjust the equipment and tools. Workers can share ways to make tasks safer and easier.

Make small changes to your work station

Many workers have invented ways to protect themselves. For example, some garment workers use empty spools to adjust the height of their stools. These changes can be helpful in the short term while you work toward long-term solutions.

Body moves to reduce strain

Make small changes in the way you do your work. If you bend forward to see the work, try sitting closer to the work surface. Avoid gripping fabric too tightly. Turn your whole body, rather than twisting at the waist or shoulders, when you move a bundle.

Push rather than pull carts and dollies. Pushing creates less strain on your back and shoulders. Fill the cart or dolly to a weight you can safely handle. Make trips with the cart more often but with a lighter load.

Avoid being in the same position for a long time. Switch between sitting and standing.

Take short stretch breaks. Stretching increases blood flow through your body and helps tight muscles relax. Stretch your body before work, during breaks, at lunch, and after work.

Stretches for the neck and shoulders

Neck: Roll your head slowly in a full circle.



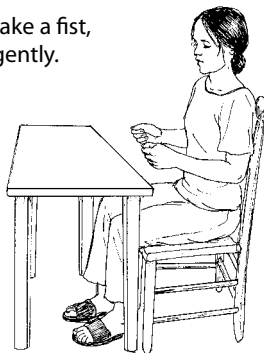
Shoulders: Move them up and down, roll them forward and backward, pull your shoulderblades behind your back.



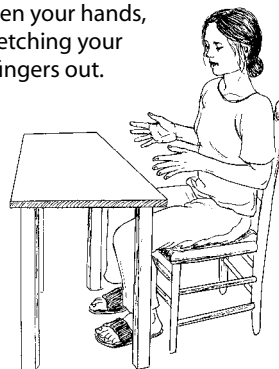
Stretches for the hands and forearms

Hands:

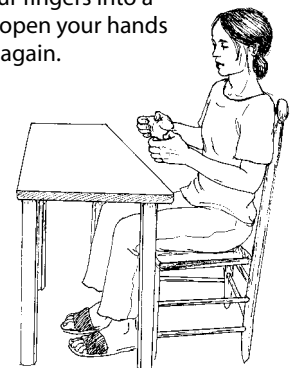
1. Make a fist, gently.



2. Open your hands, stretching your fingers out.

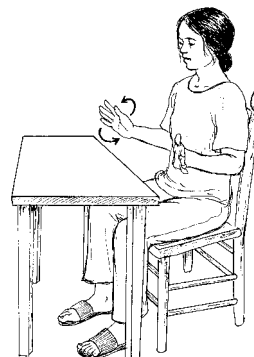


3. Curl your fingers into a claw. Then open your hands again.

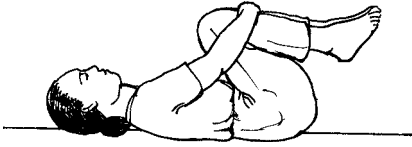


Wrists and forearms:

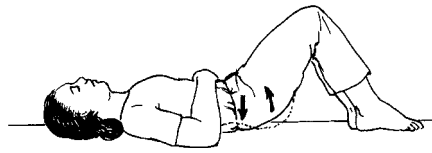
Gently roll your hands in a circle at the wrist.



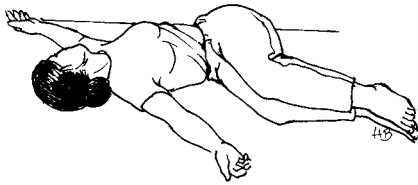
Stretches for the back



Lower Back: Lie on your back and hug your knees. Relax, still holding your knees.



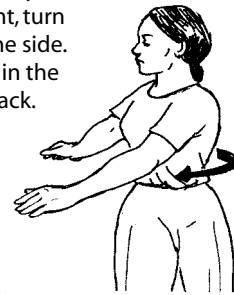
Hip tilt: Lie on your back with your knees bent. Push your lower back into the floor by slowly tightening your stomach and buttock muscles. Relax, and your back will curve up the way it usually does.



Twist: Lie on your back with your arms straight out from your sides with your knees bent. Slowly move your knees to one side. At the same time, turn your head to the opposite side, trying to keep your shoulders on the ground. Raise your knees to the center and slowly bring them over to the other side, turning your head the other way.

Waist and upper body:

With your back straight, turn from the hip to face the side. You should feel relief in the upper and lower back.



KYOUNG'S STORY

My name is Kyoung. I walk home from work with other sewers from my factory in Korea. We talk about problems at home and at work. One problem we all have is pain in our backs and legs. We sit all day bent over our work, and we sit on stools that are uncomfortable. When we started talking, I noticed my stool was too low for me. My friend Yoewan had trouble seeing. Aehwa's legs would get sore and numb. We decided to watch each other work when we had the chance. On our walks home the next week, we gave each other ideas about how we could sit and work so that our backs and legs would not hurt so much. We thought about what we could use to make our stools more comfortable.

I decided to make my stool taller by stacking pieces of cardboard on the seat. Yoewan decided she needed more light near her machine, so she brought in a small lamp she had at home. Aehwa decided to make a footrest from scraps of wood to support her legs during the day. We also made cushions for our chairs out of scrap cloth. Now I see other women trying things like this. We feel better knowing we can change some things.



Medical care for aches, pains, and numbness

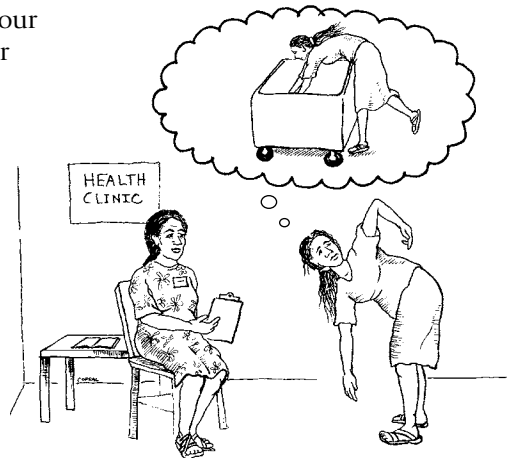
Injuries caused by overusing or straining any part of your body can be very painful and slow to heal. The most serious injuries can disable you permanently. If bosses do not protect workers from these injuries, workers have to quit or are fired when they become injured and can no longer do their jobs. This is one reason why there are very few older workers in EPZ factories.

If you have aches, pains, swelling, tingling, burning, or numbness in part of your body you may be injured.

If these feelings last longer than a week, you should see a health worker. The injury may require rest or other treatment, and may get worse if it is not taken care of. Treating a problem before it gets serious is much easier and faster than treating it later, after it has gotten worse. Sometimes the best cure is to rest the injured part of your body. If this is not possible at your job, try to look for other jobs at your factory that can rest your injuries. Or, find out if your job tasks can be changed temporarily while you are healing.

Many doctors are not helpful treating work injuries. They do not have training or experience with the dangers of factory work. Some doctors do not believe workers' injuries are real. Ask other workers and neighbors if they know a good doctor to see for workplace injuries and illnesses.

When you visit a health worker, explain why you think your pain is due to your work. She has probably never done the work you do, so you must show her. Act out the physical moves required by your work so she can see clearly what you do all day.



Anna tells the health worker how her back hurts from reaching into carts.

Fire and evacuation



Are there piles of fabric and cans of chemicals that can easily catch on fire?

Are there enough exits for everyone to get out quickly if there is a fire?

Are the exits kept unlocked?

Fires are a serious problem in garment factories around the world. For instance, in the 1990s, 115 women died and many more were injured in factory fires in Bangladesh alone. Most of these women died in stampedes as trapped workers rushed to the only unlocked exit.

It does not take expensive equipment or knowledge to prevent fires and deaths.

NEW YORK 1911

About 500 women were working in the Triangle Shirtwaist factory in New York City on a Saturday in 1911. When a fire started on the 8th and 9th floors of the factory, the workers tried to escape. The only door to the stairs would not open. The fire escape collapsed from the weight of too many people. Some workers were so scared of the flames they jumped out of the high windows. In just 25 minutes 146 workers had died.

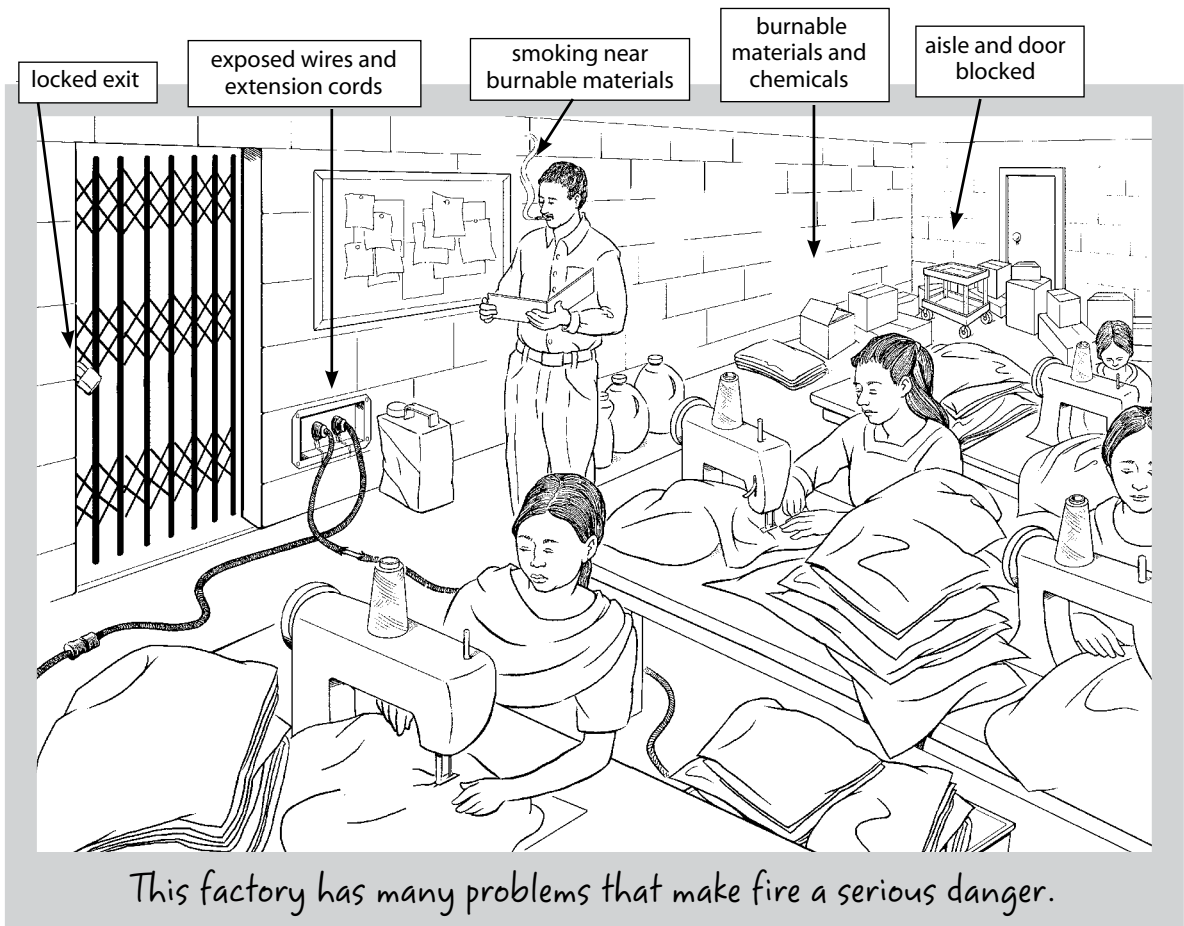
The Triangle Shirtwaist fire convinced more women to unionize the garment factories. Workers' protests and publicity about the fire convinced people in the United States to support laws for safer workplaces and better pay. But fires continue to kill workers in the US and around the world. A fire in 1993 at the Kader Toy factory in Bangkok, Thailand killed 188 workers and injured more than 500. This is considered the worst industrial fire in history.

BANGKOK 1993



My daughter and I worked at the Kader Toy factory in Bangkok. We were so scared when the fire started. There was nothing in the factory we could use to put out the fire. We rushed to the main doors to get out, but they were locked. Everyone ran to the narrow exits. My daughter fell and could not get up as people pushed over her. The crowd pushed me out the door.

She died there on the floor. I think of my daughter every day, especially when I see the locked doors of the factory I work in now. Those of us who lost family in the Kader fire are fighting for compensation from the company. And where I work now we are fighting with the boss to keep the doors unlocked.



Prevent a fire in your garment factory and dormitory

Both factories and dormitories should have fire prevention plans. To prevent fires, managers and workers can:

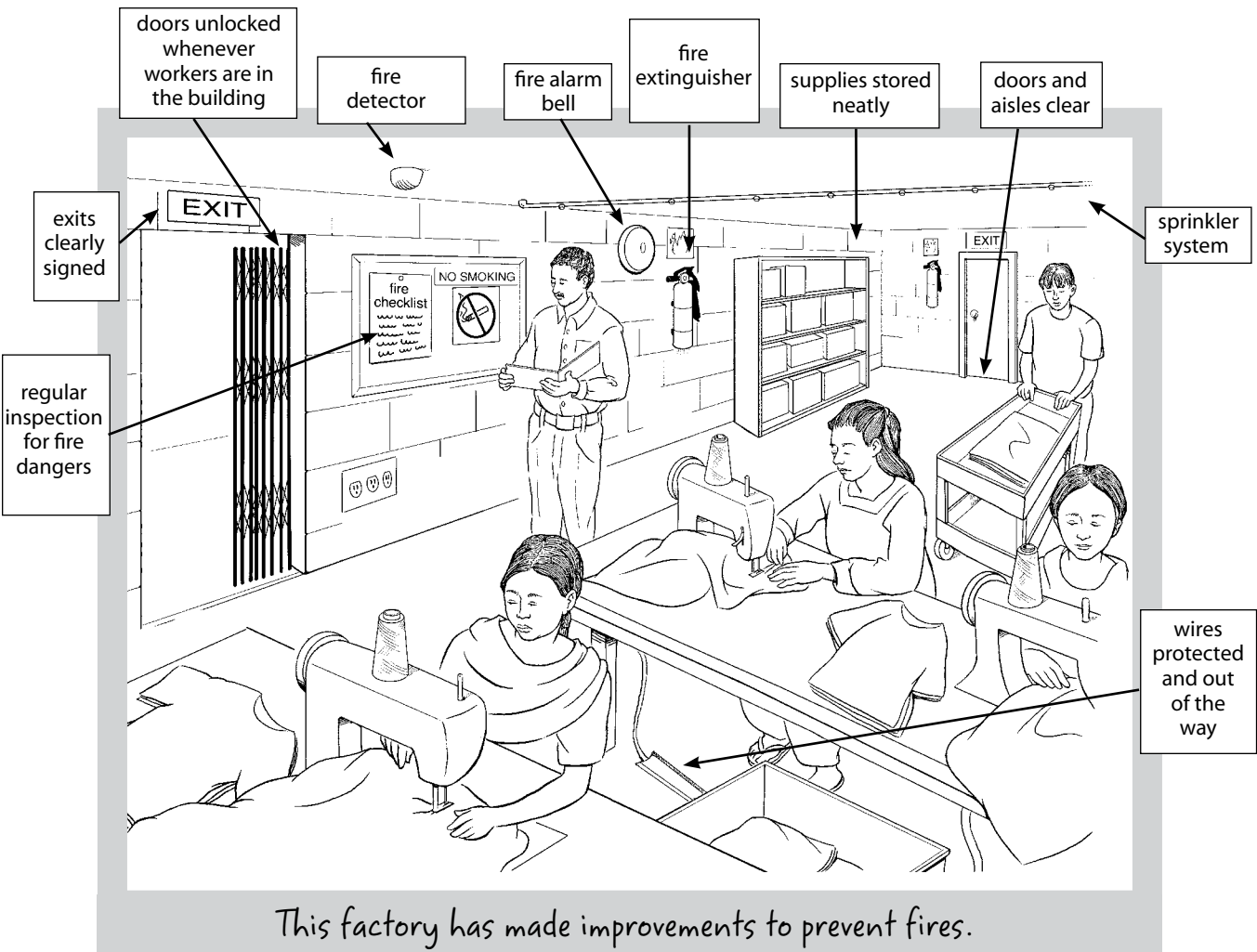
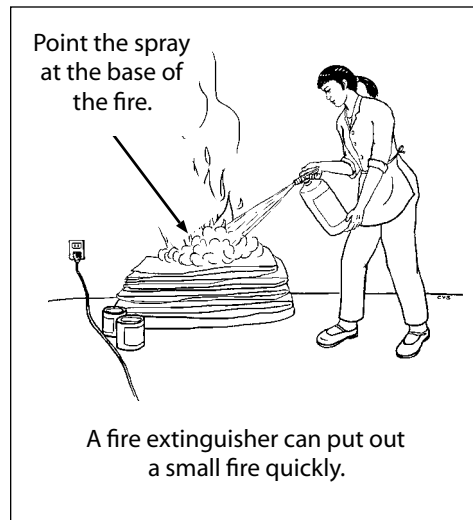
- Clean up paper, dust, fabric scraps, cardboard, and other flammable materials every day.
- Inspect the factory and the dormitory regularly to look for fire dangers such as electrical problems. Inspect electrical, gas, and kerosene stoves, heaters, and lights to be sure they are safe to use and are located in a safe place.
- Since solvents can catch fire more easily than almost anything else, store them apart from fabrics, materials like foam insulation, and chemicals that also burn easily.
- In crowded dormitories, keep curtains and bedding away from open burners or flames (like stoves, heaters, or kerosene lamps).
- Keep chemicals in containers with tight lids. Do not store chemicals in dormitories.
- Encourage workers and dormitory residents to report frayed electrical wires to a manager and make sure that a skilled worker repairs frayed wires immediately.
- Be sure workers and dormitory residents do not smoke near fabric, dust, chemicals, or fuel containers (gas, kerosene, propane) that could catch fire.

Be prepared in case of fire

Every factory and dormitory should have plans for what to do if a fire breaks out. You should have:

A fire alarm that makes a loud noise so everyone will know a fire has started. Workers in one area of a building may not see or smell a fire in another area of the building until the fire is large and dangerous. Workers living above a factory may be sleeping when a fire starts.

Fire extinguishers that are well-marked and easy to reach. If a worker can put out a small fire quickly with an extinguisher, she can prevent it from growing. All workers should be trained to use a fire extinguisher. Water buckets do not hold enough water to put out a fire. It is dangerous to put water on electrical or chemical fires.



Exits for everyone to get out quickly. Exit doors should be well-lighted, marked with a sign workers can understand, unlocked when people are in the building, and not blocked.

Open aisles should lead directly to exits. Aisles should be at least 1 meter wide, and wider in large work areas. It is very important the aisles always be kept clear and not cluttered with boxes, racks and containers during the work day. A fire can break out any time.

Practice evacuation twice a year. If there are a lot of new workers, practice more often. Everyone needs to know what to do if a fire

happens.

During a fire the smoke is thick and makes the room very dark. You will not be able to see which aisles are clear and which doors are open. Drop to the floor and crawl on your hands and knees to get below the smoke where you will be able to see and breathe more easily.

An overhead sprinkler system can quickly put out a fire in factories with water pipes and plenty of water. Every factory should have overhead sprinklers in all work areas and dormitories.

First aid for burns

Minor burns that do not form blisters: Put the burned area in cold water immediately. This will reduce pain and lessen the damage. No other treatment is needed.

Burns from hot water or oil: Take off any clothing that has the hot oil or water on it. Immediately rinse the burn with cool water.



Burns that cause blisters: Put the burned area in cold water immediately. Do not break the blisters. If the blisters break, wash gently with soap and water. Keep the burn clean and protect it from dirt, dust and flies. If healing is slow or the skin stays red, swollen, or painful, see a health worker. You may need treatment for infection.

Large or deep burns: Burns that cover a large area of the body or expose raw or charred flesh are always serious. Take the burned person to a health center immediately.

Note: Never put grease, fat, hides, coffee, herbs or feces on a burn.

First aid for breathing smoke

Breathing smoke can burn the lungs. This can be very serious. Take the person to a health care center immediately if he has difficulty breathing, a burning feeling in the lungs, a tight feeling in the chest, or severe coughing.



FIRST
AID

Chemicals



Do you know what chemicals are used in your factory?

Are chemicals used in the factory labeled with their name and health effects?

Are workers trained to use chemicals safely?

Chemicals cause many health problems

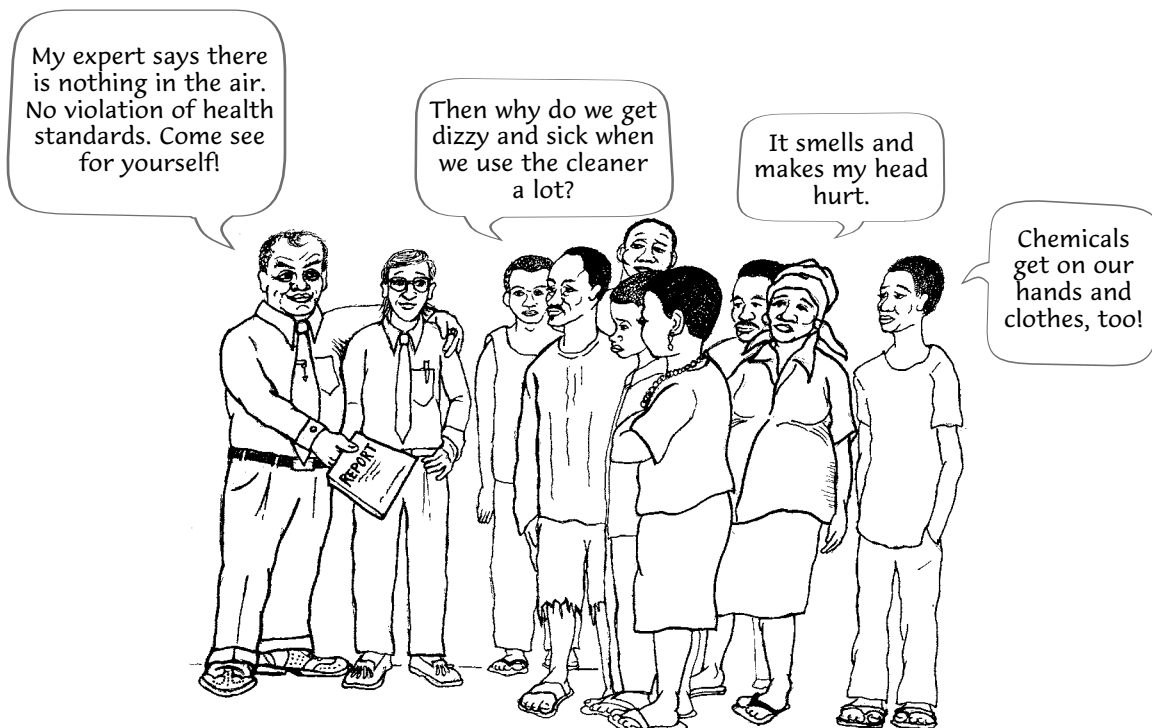
Chemicals have become a part of everyday life. Workers may have chemicals at home including kerosene, rat and insect poison, cleaning products, and paint. Workers often use chemicals on their job that they would never use at home. Some chemicals cause only minor health problems, but others are very dangerous. Chemicals can cause health problems in a number of ways:

Irritation

Irritation makes skin or eyes dry, red, sore, itchy, or puffy. For example: vapors from bleach irritate the eyes, and the chemicals in smoke from a fire irritate the eyes, nose, throat, and lungs. These effects usually heal quickly after a person stops being exposed to the chemical.

Burns

Mild chemical burns only make the skin red and will heal quickly. More serious burns cause blisters. Severe burns can go through the skin into the flesh below. Concentrated bleach or ammonia can burn through the skin.



Who Knows Best?

Cancer

Cancer causes cells in the body to grow out of control. Cancer can be hard to cure and can kill you. Breathing asbestos causes cancer of the lungs and other parts of the body. Some solvents like benzene cause cancer of the bone marrow or other parts of the body. Chromium, tar and other chemicals can cause cancer of the skin. These are just a few examples of cancers caused by chemicals.

Fire and explosion

Gasoline, propane, and kerosene can all explode if the container they are in gets too hot or if they are spilled near a spark or flame. It is easy to forget this because they all burn in a controlled way in engines, stoves, and heaters. Many solvents can also burn and explode, such as trichloroethylene, methylene chloride, benzene, acetone, and alcohols.

Electrical problems can start a fire if they cause heat or sparks near chemicals that burn. It is very dangerous to smoke, light matches, or use flames near chemicals that burn.

Allergies

After you breathe or touch a chemical you may get a skin rash, asthma, or other breathing problems. If you get this reaction every time you breathe or touch the chemical, you have an allergy or you are "sensitized" to this chemical. In the future, you will get this same reaction when you touch or breathe this chemical. Not everyone who works with the same chemical becomes "sensitized" to it. In some people, the allergy becomes so strong it can cause shock and the person can die if they do not get immediate medical care.



Work clothes can bring chemicals home

When you work with chemicals, some of the chemicals get on your clothes, skin and hair. After you go home, you and those you live with can touch and breathe these chemicals and be harmed by them.



To prevent this, workers should have protective clothing and safe processes to keep chemicals off their bodies and clothing. The next best option is to have a changing room at the factory so workers can change into clean clothes before going home. Some employers have a laundry and wash workers' clothes between shifts.

A worse option is to wash work clothes at home. To keep the factory chemicals out of the home and other clothes, wash work clothes separately from other family clothes.

Harm to specific parts of the body

Some chemicals harm specific parts of your body.

Lungs: Breathing acid vapor can harm the lungs. Some chemicals cause asthma.

Brain: Drinking alcohol can affect your brain, making you sleepy, dizzy, and clumsy, and giving you an upset stomach, headache, and blurry vision. Some solvents cause similar effects if you breathe them or absorb them through your skin. Solvents can also cause permanent damage to the brain and the nerves of your hands and feet.

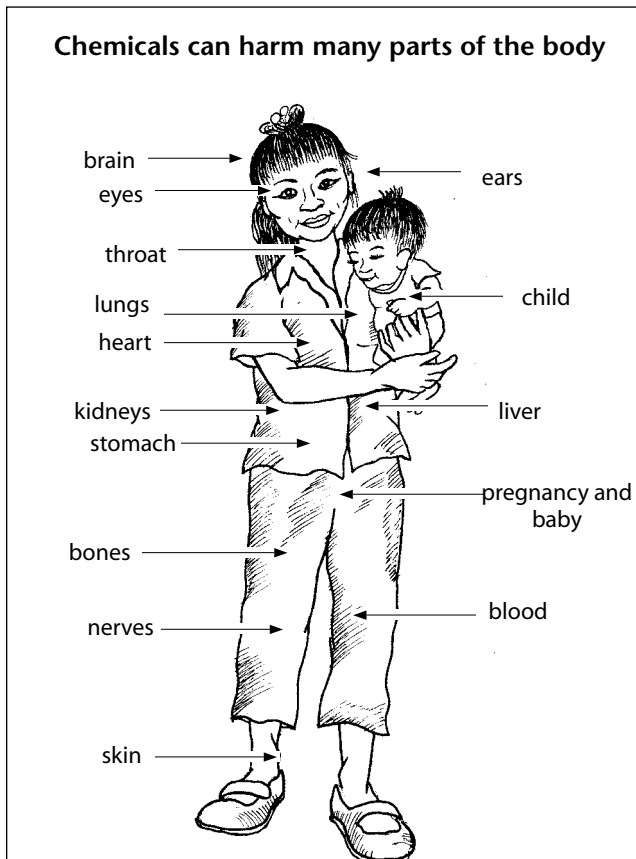
Liver: Breathing or absorbing some solvents through your skin can damage your liver. Accidentally drinking these chemicals in polluted drinking water or food would also harm your liver.

Eyes: Some chemicals can make you blind if you drink them (such as methanol).

Ears: Some chemicals can damage your inner ear, hurting your hearing (such as carbon monoxide, carbon disulfide, and trichloroethylene).

Kidneys: Some chemicals can damage your kidneys (such as carbon tetrachloride).

Pregnancy and baby: Some chemicals can make it difficult for a man and woman to become pregnant and have a healthy baby, or harm a baby in the womb. (For more information see 'Getting pregnant and having babies' on page 94.)



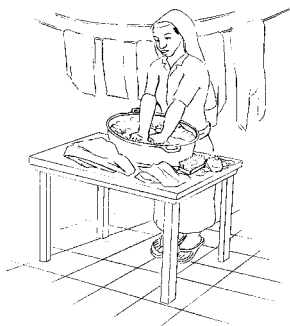
Health problems may happen right away or later

Chemicals can cause:

- **Short-term problems**, which happen right away.
- **Long-term problems**, which happen after years of being regularly exposed to a chemical or that show up years after you were exposed to the chemical (even if exposure stopped).

Example: Soap – a common, mild chemical

We use soap to wash dirt from our skin and hair. Most soap is not harmful used this way a few times a day.

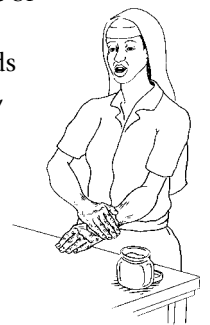


Short term exposure and short term harm: If you get a little soap suds in your eyes, your eyes will sting and turn red. If you swallow some of the soap it might taste bad and cause an upset stomach.

Long term exposure and long term harm: If you spend hours each week using soap and water to wash clothes, dishes, cooking pots, the stove and floor, your skin may become very dry, cracked, sore and bleed. The skin on your hands can become permanently rough and thick and may crack open more easily than healthy skin.

Protect your skin: Dry, cracked, red skin is a health problem. Healthy skin protects the body from germs. When your skin is cracked or bleeding, germs can get into your body through those openings. Skin does not keep chemicals out of your body well, but chemicals get inside even faster when your skin is cracked or bleeding.

When the skin on your hands gets dry and red from irritation, rub oils or fats from plants into the skin. If you regularly rub oils into your skin and protect it from too much soap and other chemicals, your skin will heal.



Short-term problems may be mild or serious

If you breathe in small amounts of the solvent methylene chloride during an hour, it can make you dizzy and give you a headache. If you breathe in a lot of methylene chloride during one hour, it can cause you to lose consciousness and die.

Long-term problems may be mild or serious

If your hands are exposed to water with bleach every day for years, over time the skin will become thicker and less sensitive. But if you are exposed to asbestos even for a few years, you can develop lung diseases and cancers that usually kill you years later.

Exposure and harm

We all use chemicals. We use them at home to clean the house and wash the dishes. We use chemicals at work. Garment workers use chemicals for many jobs, like removing stains. Some chemicals are safe, some a little harmful, and some very harmful. Chemicals can hurt you in several ways. Some chemicals cause only one type of health problem, others cause several types of health problems. For most chemicals, the health problems they cause depend on HOW you are exposed to the chemical, HOW MUCH you are exposed, and HOW LONG you are exposed.

HOW are you exposed?

There are three ways a chemical can get into your body to cause harm.

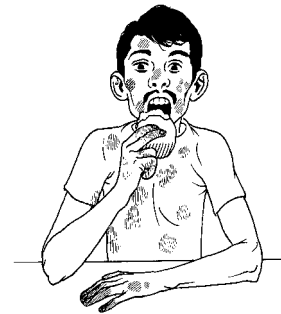


Air: You can breathe in a chemical through your nose and mouth.



Skin: You can absorb a chemical into your body if it gets on your skin or in your eyes.

Mouth: You can swallow a chemical. This can happen directly, but it usually happens when the chemical is on your hands and you touch food or a cigarette that goes into your mouth. You also swallow chemicals that are already in cigarettes, the food you eat, or the water you drink.



HOW MUCH are you exposed?

If a worker gets a little chemical on his hand and washes it off very quickly, this is not much exposure. If a worker is splashed with the same chemical and breathes it, this is a lot of exposure. Different chemicals are dangerous in different amounts.

HOW LONG are you exposed?

For some chemicals a few minutes of exposure is not harmful but being exposed all day would be very harmful. Some chemicals are harmful even if you are exposed only for a minute. A few minutes of exposure to a chemical may not harm you if it happens once, but may cause harm if you are exposed for years.

Chemicals in fabric

As you handle fabric, chemicals from the fabric get on your skin and you may breathe in chemical vapors. The warehouse, where large amounts of fabric are handled, may have more vapors in the air than other work areas. More chemical vapors come off when the fabric is first unrolled or when it is warm. **Cutters, pressers, and warehouse workers** may breathe in more formaldehyde or other chemicals in the fabric than other garment workers. Some people develop an allergy to fabric treated with certain chemicals, like formaldehyde or dyes, and get a skin rash when they handle treated fabric.

Formaldehyde

In garment factories, the most common and dangerous chemical is formaldehyde. Formaldehyde is used to treat fabrics so they do not wrinkle or fade. If the fabric is "wrinkle free" or "permanent press," it was probably treated with formaldehyde.

Formaldehyde can cause irritated eyes, nose, throat or lungs; asthma; rashes or skin problems (like eczema) on hands and arms; and cancer. Dipping fabrics treated with formaldehyde into an acid wash can create vapors of a very dangerous chemical that causes cancer if you breathe it (BCME or bis-chloromethylether).

In some countries, there are strict regulations on how formaldehyde can be used because it is so dangerous. Some countries require a warning label on fabrics treated with formaldehyde.

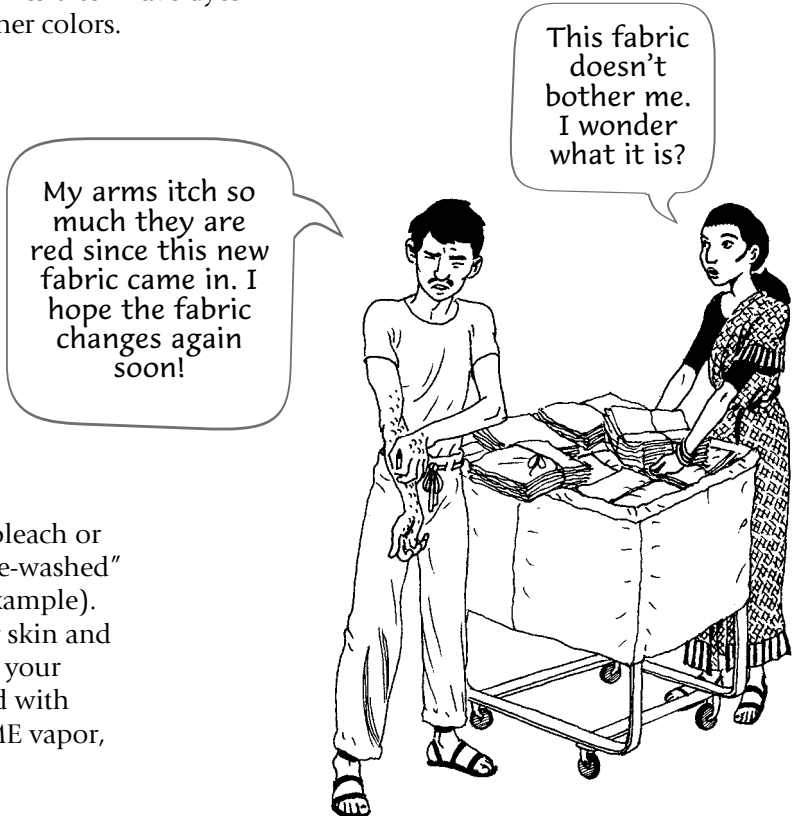
Dyes

Black fabrics and other dark fabrics often have dyes that are more irritating than other colors.

These dyes can cause a rash, allergies, or breathing problems. It is almost impossible to get information on the kinds of dyes used in different fabrics. Sometimes, the only way workers find out about the danger of a dye is when they get sick.

Bleach and acid

Some clothes are treated with bleach or acid after they are made ("stone-washed" and "acid washed" jeans, for example). Bleaches and acids irritate your skin and can injure you if they splash in your eyes. Acid washed fabric treated with formaldehyde also creates BCME vapor, which causes cancer.



Protection from chemicals in fabric

If you get a rash from handling a fabric, it is important to stop touching the fabric as soon as possible, so you do not get an allergy. Work with your coworkers to tell your employer about the fabrics that cause health problems like rashes or breathing problems. Employers should pressure manufacturers to use fabrics that are not treated with formaldehyde or other sensitizing dyes or chemicals. If you must use fabric treated with these chemicals:

Wear rubber gloves to keep the chemicals off your skin

Latex rubber gloves can cause allergy in some people, but other kinds of rubber do not. Cloth or leather gloves may help, along with wearing long sleeves.

Wash your hands before eating, drinking, or smoking

You may have small amounts of chemicals left on your hands that can get into your body when you touch your food or your mouth.

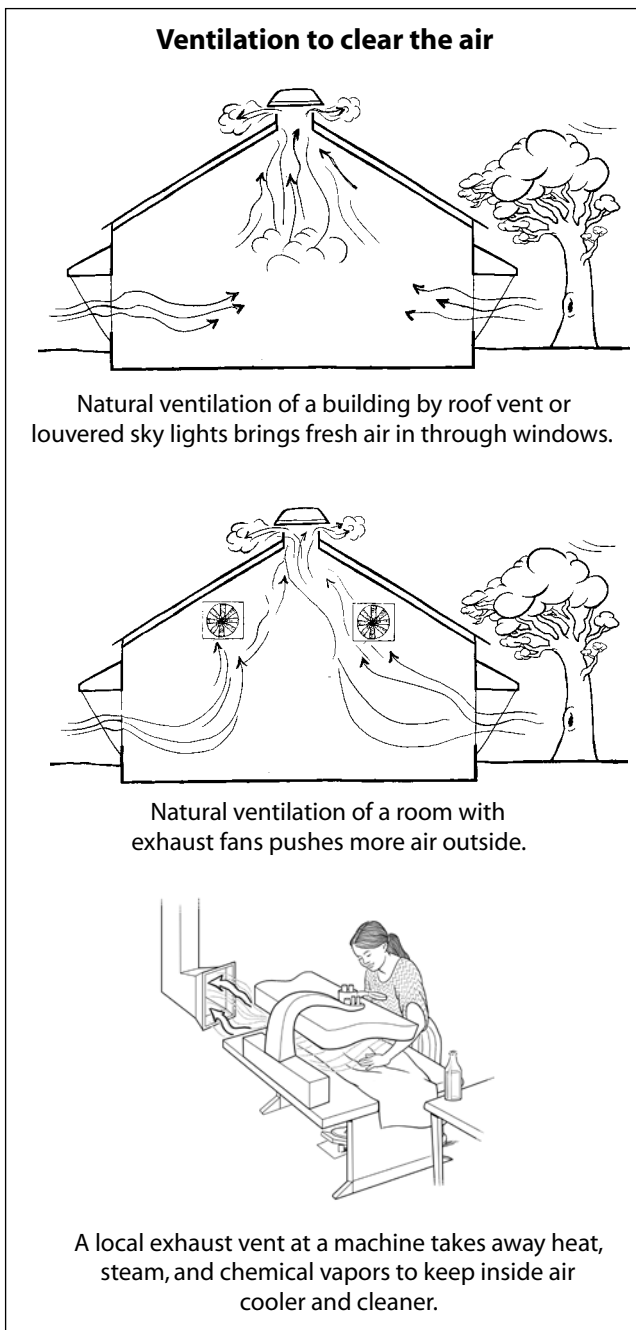
Create good ventilation

Fresh air should flow through all work areas, especially in the cutting and pressing areas. Open windows and doors and use fans to help move the air.

An exhaust fan in the wall takes some vapors outside and brings in fresh air. This kind of fan is not as effective as using less chemicals or local exhaust vents. A local exhaust vent pulls the vapor out of the air close to where chemicals are being used.

A mask will not help

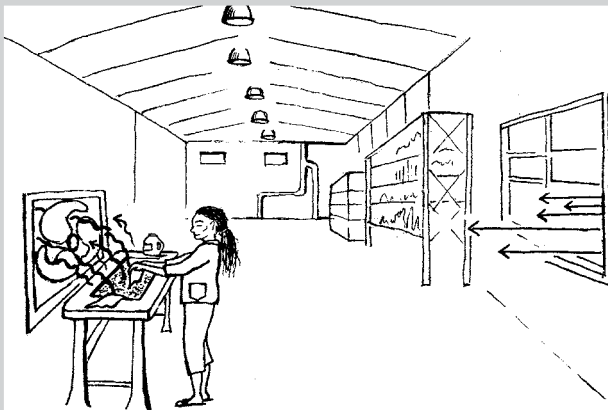
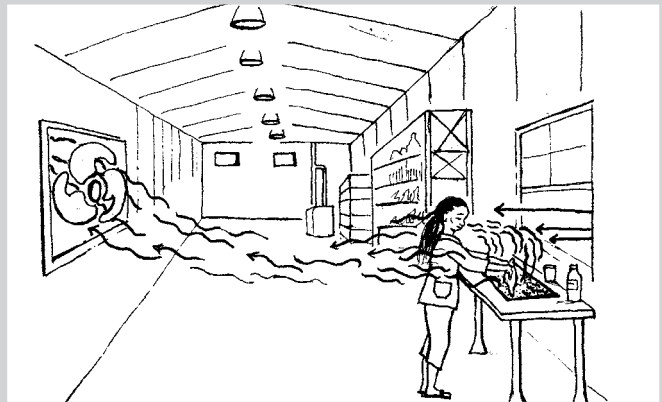
A paper or cloth dust mask keeps irritating dust out of your nose and throat, but it will not protect you from formaldehyde or other chemical vapors. See page 40 for more information on masks.



Chemicals travel with the air

Exhaust fans and open windows can pull bad air out of a factory and bring fresh air in. A worker may not get fresh air to breathe just because there is an open window nearby. The drawings below show how the air might carry chemical vapors towards her instead of away. Because of this problem, it is best to keep chemical vapors out of the air. This can be done by not using the chemical, using less of it, or by using a local exhaust vent to pull vapors out of the room right away.

Martina works in front of an open window, but the breeze from the window carries the chemical vapors from her work table towards her. She breathes both chemical vapors and some fresh air.



Martina moved her work bench to the other side of the room by the exhaust fan. Now she breathes fresh air coming in the window and the fan carries the chemical vapors out of the factory.

Celeste now works in front of the window and both workers breathe chemicals. The breeze coming in the window carries chemical vapors from Celeste's work towards her, and the wind carries it across the room to where Martina works before the fan carries the vapors outside.



Protection from solvents

There are several ways to protect yourself from solvents you use. Some require the cooperation of your boss, but some you can do on your own. Here are some of the best ways to protect yourself from solvents.

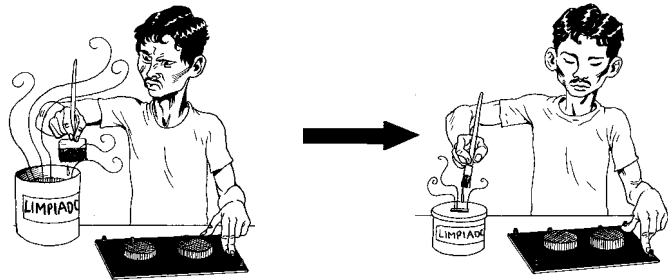
Reducing the need to use chemicals is the best solution. You may not need to use a strong chemical to remove spots and stains if you clean up work areas often. Wiping up spills immediately before they spread or dry also prevents workers from falling on a slippery floor.

Finding a safer solvent is also one of the best solutions. To know which solvent product is safer than another, you need to know what chemicals are in it. If you can find out the chemicals in a product, you may be able to find a safer chemical.

All workers who use solvents need to **know about the problems** they can cause and how to protect themselves.

Washing your hands before eating, drinking, or smoking will help remove small amounts of chemicals that can get into your body when you touch your food or your mouth.

Keeping chemicals in closed containers when you are not using them keeps vapors out of the air. When you are working with solvents, use containers with a small opening and use small amounts at a time. Do this type of work away from other people. Hold the clothes, brushes, rags or mops away from your face as you work so you breathe in less vapor.



Breathing too much chemical vapor is dangerous.

Cover containers and use a small amount of the chemical.



NIKE WORKERS WIN SAFER GLUE

Labor rights organizations have worked for years to improve the unsafe conditions in factories making shoes and clothes for the Nike brand. Non-governmental organizations (NGOs), factory unions, and workers have exposed problems like workers made ill from using chemicals. With help from labor rights groups in countries like the US, Australia, and Europe, people who buy Nike products in those countries are learning about the struggles of these workers.

For a long time Nike ignored the complaints and did not do anything to make the work safer. Then in 1997, activists gathered information and reported that about 77% of workers in one factory in Vietnam had lung diseases. This terrible news was printed on the front page of a major US newspaper. The news report embarrassed the Nike company and was used by activists in Vietnam and around the world to increase pressure on the company to make changes.

In 1998, Nike began to tell their subcontractors to use less dangerous glues and solvents. Most workers feel better after the change, though some still have problems from the new chemicals.

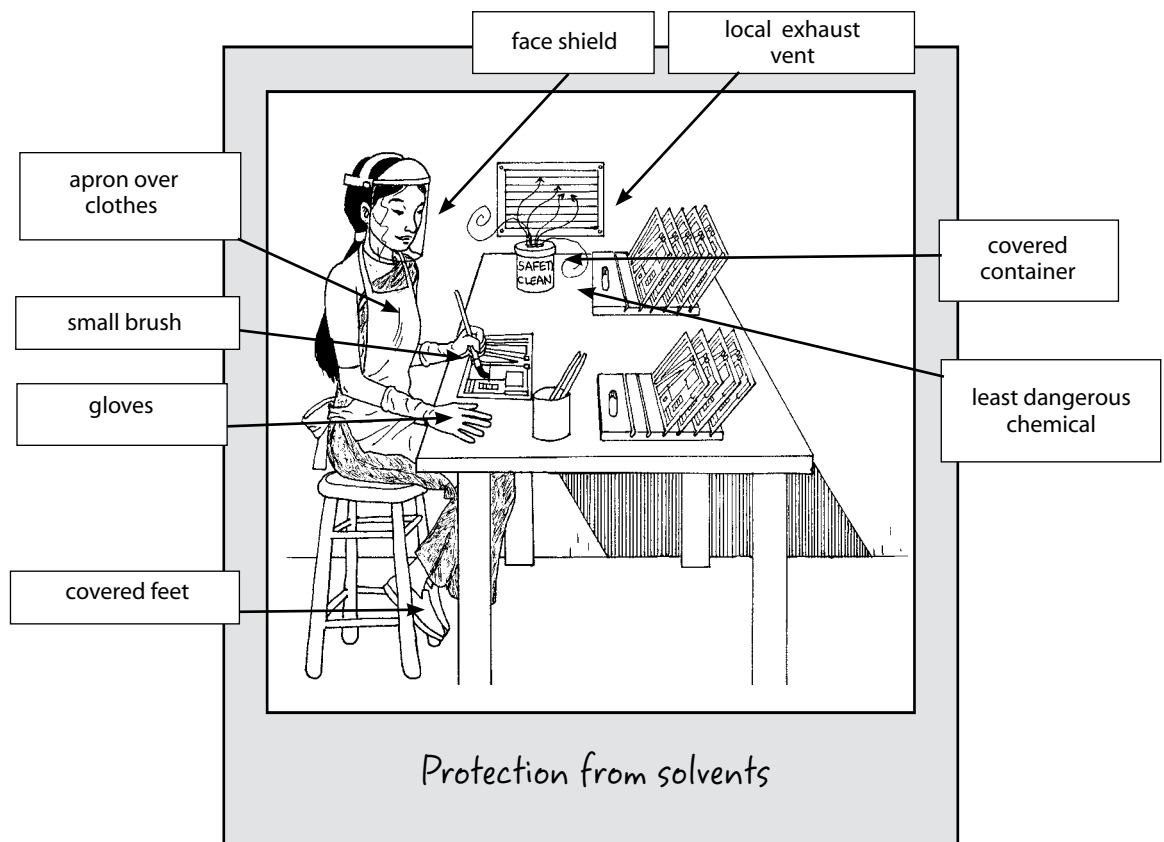
Keep chemicals off your skin when you are working with them. Avoid touching chemicals. Use the smallest amount you can. Avoid splashing and spilling the chemical.

Wearing gloves, an apron, and long clothes can help keep chemicals off your skin but can be hot and uncomfortable. It is best if the gloves and apron are rubber or plastic so the chemicals do not soak through to clothes and skin. Latex gloves can cause an allergy in some people, so try not to use them. Do not use leather or fabric gloves, because they can soak up chemicals. Gloves can feel clumsy and make it more difficult to do precise finger work. Also, gloves and long clothing can get caught in equipment and machines and cause injuries.

Wearing goggles or a face shield can keep chemical splashes off your eyes, mouth and face, but they can also be hot, uncomfortable and clumsy to wear.

Good ventilation keeps fresh air flowing through all work areas. Open windows and doors, and use fans to help move the air. In addition, vents at each workstation should pull vapors out of the air before you breathe them. Exhaust vents should be at every work station where chemicals and spot removers are used. (See page 76 and 77 for more information on ventilation.)

Label all containers. If you move chemicals from one container to another, write on the new container what is in it. Never put chemicals in containers that are used for food or drinks. Someone may accidentally drink the chemical or use it unsafely if the container is unlabeled or they think it might contain food or drink. After the container is empty, it should never be used for food, drinks, or water, even if you wash it out. A container that looks clean can still have enough chemical in it to cause harm.



Masks are NOT the best protection from breathing chemical vapors

It is much more effective to remove dangerous chemicals from the worksite than to wear a mask.

Rubber masks that can keep out chemical vapors are hot and can be uncomfortable to wear, so many workers will not wear them. Rubber masks are expensive to buy, and filters and other parts need to be repaired often. Rubber masks often leak, so workers still breathe in chemicals. This is partly because

most masks are designed to fit large, white men and often do not fit small or flat faces very well. **Cloth and paper masks cannot keep chemical vapors out.**

If you feel ill from the chemical while wearing a mask, you know the mask is not keeping out the chemical vapors, or you are being exposed some other way.

Paper or cloth masks will NOT keep you from breathing in chemicals!

It is best to keep chemicals out of the air. Once chemicals are in the air, good ventilation is the best way to clear the air. If the ventilation is not good enough, the right mask may help.



Loose cloth mask

A loose cloth or paper mask **will not** keep you from breathing in chemical vapors or dust. Chemical vapors pass through paper and cloth and leak in around the edges of the mask.



Paper dust mask

This paper dust mask **will** keep you from breathing in most dust. It needs to touch your face all the way around. It **will not** keep you from breathing in chemical vapors.



Rubber mask with filters

This rubber mask with filters **may** keep you from breathing in chemical vapors. It must fit your face snugly so no air leaks in between your skin and the mask. You need a specific filter for different chemicals and must change the filter often. You need special training to fit, use, and clean this mask. This mask is hot and uncomfortable to wear.

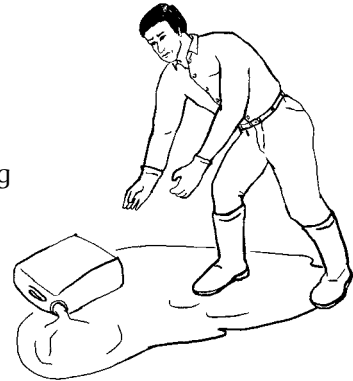
Cleaning up a chemical spill

Workers should be trained how to prevent chemical spills and safely clean up a small spill, and when to evacuate the area if a spill is too dangerous.

Before you clean up a chemical spill, protect yourself, people nearby, and water sources. If there is someone more prepared than you to clean up a spill—for example a person who has been trained to do this work—call her. Always wear protective clothing to do this work.

Control the spill

The most important thing is to keep the spill from getting bigger. Shut down any leaking equipment, turn a fallen container right side up, or put a leaking container inside another one.



Contain the spill

Absorb the chemical by putting soil, sand, sawdust, clay, or other material on the spill. If the material may blow away, moisten it with a little water or cover it with a cloth or tarp.

Clean up the spill

Scoop the materials into drums or thick plastic containers. Do not use water because it will spread the chemical and make the problem worse. Dispose of the material safely.



Handling chemical waste

Many chemicals are too dangerous to put into a garbage dump, sewer, or stream. Chemical waste should never be burned, poured on the ground or into streams, or stored in barrels that sit in stacks outside. Chemicals need to be disposed of by companies specially trained to safely handle and dispose of dangerous chemicals. This kind of company may not exist in your area, or may be badly run.

If you must handle chemical waste, you can take some precautions to protect yourself. Wear chemical protection clothing to keep the chemicals off of your clothes and skin.

Health dangers of solvents

Workers in garment factories use many different kinds of solvents. Some are extremely dangerous and some catch fire easily.

Soap and water are a safe alternative for many cleaning tasks around the factory. As a fabric cleaner, they only work on fabrics that do not need to look new, like stone-washed jeans.



Less dangerous:

Some solvents are less dangerous for workers' health but catch fire more easily.

- Acetone can irritate your eyes and nose and catch fire easily.
- Ethanol (or ethyl alcohol) can irritate your eyes and nose and catch fire easily.
- Isopropyl alcohol (or isopropanol) can irritate your eyes and nose and catch fire easily.



Dangerous:

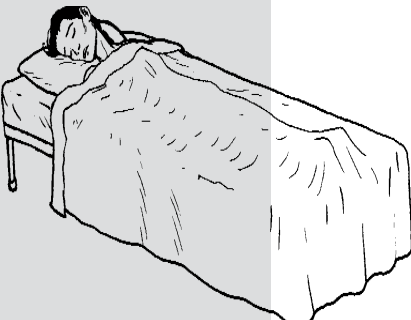
These chemicals can cause serious health problems. Pressure your employer to use safer alternatives.

- Toluene can cause birth defects, kidney and liver damage, and it catches fire easily
- Trichloroethane (TCA, or methyl chloroform) can cause nerve damage.

More dangerous:

These chemicals can cause serious health problems. Pressure your employer to use safer alternatives.

- Methylene chloride can cause cancer in the lungs, liver and pancreas.
- Trichloroethylene (TCE) can cause liver damage and possibly liver cancer.
- Perchloroethylene (PERC) can cause liver and kidney damage and possibly cancer.



Extremely dangerous:

These solvents are not used in many garment factories because they cause very serious health problems. Push your employer to use safer alternatives.

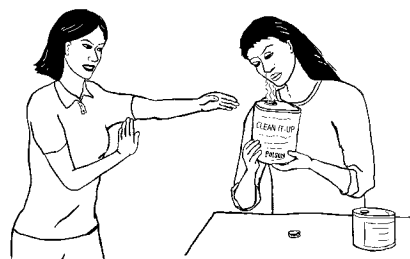
- Benzene can cause bone marrow damage and cancer (leukemia).
- Carbon tetrachloride can damage your liver and kidneys and may cause cancer.

How can you tell which chemicals are dangerous?

You can identify some of the fabrics or chemicals that cause short-term health problems. If you have symptoms like headaches, dizziness, irritated eyes or nose, or rashes, talk with your coworkers to see if they have the same problems.

Even if you do not have any symptoms now, a chemical may still be hurting your health. Some health problems, like cancer, do not show up until years after you have been exposed to the chemical. To learn about the long-term health affects of a chemical, look at the health of workers who have used it for a long time. If you can find out the name of a chemical, you can look for more information about the harm it can cause.

Your nose does not always know



Your nose cannot always tell you if you are being exposed to a chemical. Some chemicals are very dangerous even when you cannot smell them, while other chemicals smell very bad but are not very dangerous. Your nose often gets used to the smell of a chemical so after a while you cannot smell it. Some people cannot smell odors well.

Find out what chemicals you work with

Many national and international laws require that information on chemicals be available on labels, on information sheets, and through training. Many factory owners and fabric producers do not do this, so finding out about chemicals can be very difficult. Here are a few ways to find out what chemicals you work with and how dangerous they are.

The label

All containers of chemicals should be labeled in your language. Labels should warn if the chemical catches fire easily, if it causes health problems, and how to protect yourself.

Chemical information sheets

There should be a written information sheet for every chemical product in your workplace. Some large companies post these sheets in work areas, but usually this information is not available to workers. The information is often written in English using technical language that is difficult to understand. Sometimes the information is wrong, making the chemical seem safer than it really is.

The manufacturer of the chemical writes the information sheet. If your employer does

not have the sheets, you can request them from the manufacturer. In some countries these sheets are called Material Safety Data Sheets (MSDS).

A good sheet will name all the chemicals in the product, describe how these chemicals may affect your health, tell you whether these chemicals can cause cancer or birth defects, describe protections you need to work safely with the product, and give other information about the product, such as how easily it catches fire.

Information from your employer

When you start a new job or are assigned new work, your employer should tell you about the chemicals you work with and how to use them safely.

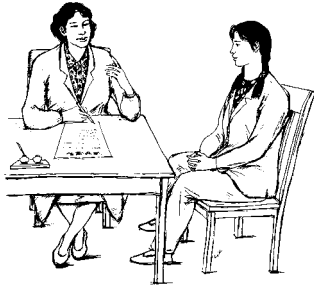
Labor groups and community resources

Information about chemicals may be available from labor unions, universities, and community resources like libraries and the internet. If you do not have access to libraries or computers with internet, ask someone who does to help you. You will need to know the names of the chemicals you work with.


**FIRST
AID**

First aid for chemical illness or injury

If you go to a health worker about a health problem caused by chemicals, try to bring information about the chemical with you.



Most doctors and health workers do not know much about the health effects of chemicals or products containing chemicals. Bring the name of the product or chemical and the label from the container, if you can. Describe what the chemical looks like, how it smells, and what it is used for. Explain why you think a chemical at work is causing your illness or injury.

First aid for a splash or spill

For chemicals on the skin:

Wash the skin immediately with lots of water and continue washing for 5 minutes. Be sure all the chemical has been washed away.

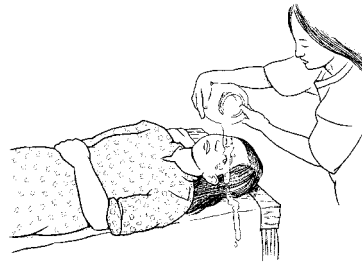
For chemicals in the eyes:

Rinse the eyes immediately with lots of water and continue rinsing for 5 minutes. Go to a health worker to see if you need more treatment.

For chemicals breathed in:

If you are very short of breath or have a lot of trouble breathing, go to a health worker right away.

See page 41 for information on cleaning up spills.


Emergency

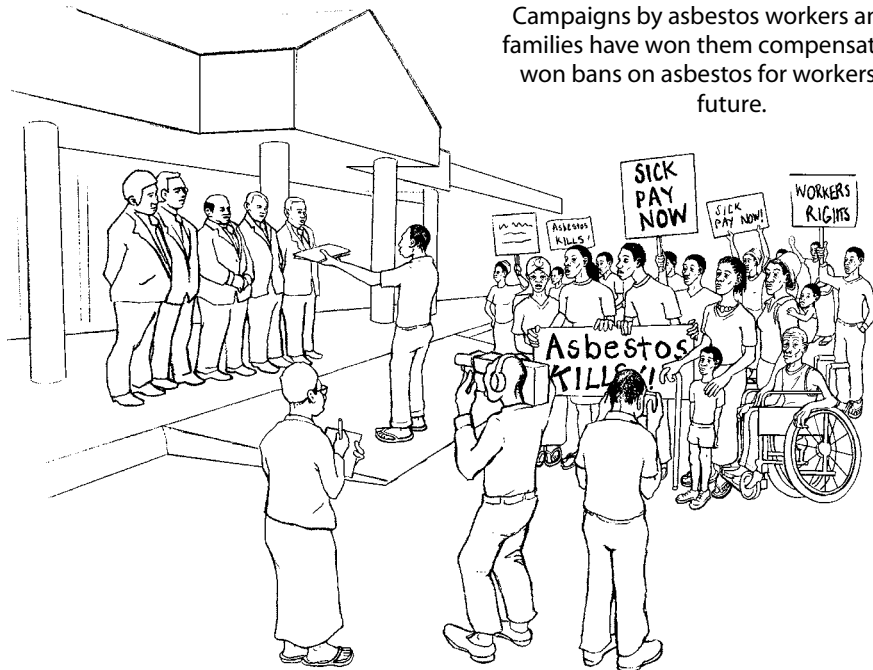
If a worker becomes **very ill** or **passes out** while using a chemical, take the person to a health worker immediately.

ASBESTOS KILLS... LATER

Asbestos is a mineral mined from the earth. It is made up of small fibers that are fire-proof, very hard, and not easily damaged by chemicals. Asbestos is deadly to people when its fibers are inhaled. People who breathe in asbestos fibers do not feel any harm right away. If they feel anything, it is irritation from the dust the asbestos fibers are traveling with. Ten years or more later, many of these people begin to get lung cancer, mesothelioma (another kind of cancer), asbestosis or other diseases. These diseases usually cause a slow, painful death as they destroy the victim's lungs or other organs. Asbestos has killed millions of people worldwide.

Asbestos was used as insulation for buildings, factories, and ships, and put in many things that need insulating or chemical-resistant parts. It was used in cars, heaters, laboratories, and even in cigarette filters. The people dying from asbestos include the miners who dig the mineral out of the ground, the millers and factory workers who refined and made asbestos-containing products, the construction, maintenance, and shipyard workers who installed and maintained buildings, factories, ships, and equipment containing asbestos, the demolition workers tearing down buildings, ships, and factories filled with asbestos, the people working and living around crumbling asbestos or asbestos waste, and the families of asbestos workers.

Early in the 1900s it became clear to asbestos mining and manufacturing companies that their workers were getting very ill. The workers died young of terrible lung diseases. The asbestos companies, their doctors, and insurance companies hid this information from the asbestos workers and the public. But workers could see what was happening to them. Workers and their unions, doctors, and advocates have struggled for decades to get compensation for workers hurt by asbestos from the companies and governments. Some workers have been compensated, but many still have not.



Campaigns by asbestos workers and their families have won them compensation, and won bans on asbestos for workers in the future.

The most effective way to protect people from asbestos is to stop using it. We would still have all the asbestos currently in use to worry about, but no new asbestos would be unearthed to cause harm. There is now an international campaign of workers and their advocates to ban asbestos in every nation. As a result of this, many nations have passed laws banning asbestos.

Why are there poisonous chemicals in factories?

Many people believe a chemical should be tested to show it is safe before a company can sell it to factories and the public. This approach puts the health of people and the environment first. If poisons are not used, we do not have to clean up the pollution or suffer the health problems they cause. Unfortunately, industry and most governments do not use this preventive approach right now. They put the burden on workers and the public to point out the damage and prove a chemical causes health and environmental problems.

In most countries, a company can sell a new chemical without permission from anyone. Only after a new chemical is shown to cause health problems, the government may decide to regulate it. National regulations to limit use of these chemicals are very few compared to the number of chemicals being used. For example, the United States only regulates 600 chemicals to limit how much workers can be exposed to them.

More than 60,000 chemicals are used in the industrialized countries. About 3,000 new chemicals are added each year. Most of these chemicals have not been tested for all of the health damage they can cause people and the environment. Fewer chemicals are used in less industrialized countries, but workers in factories around the world use many untested and unregulated chemicals.

Testing chemicals to learn how they harm people and the environment is slow and uncertain. Most tests are done on animals in a laboratory. Chemicals can affect people differently than they affect animals, so these tests do not always help us understand how chemicals will affect people. Testing does not cover all types of health effects, either. For example, very few chemicals have been tested to find out how they affect our ability to give birth to healthy children. Most workers are also exposed to combinations of chemicals, not to one chemical at a time. Only a few combinations of chemicals have been tested for their health effects on people.

Dust



Is the air full of fine dust from the fabric?

Do workers always have stuffed up noses?

Dust can cause asthma, lung disease, allergies, and other breathing problems. Breathing in a lot of dust can irritate your nose, mouth, and throat, and make working very uncomfortable.

The dust a garment worker breathes mostly comes from natural fibers (like cotton or wool) or chemically-based fibers (like polyester). Dust from treated fabrics also contains chemicals and dyes that are on the fabric.

Signs of too much dust

The best way to tell if there is too much dust is to talk to other workers. Do workers have difficulty breathing, wheeze when breathing, cough or sneeze often, or always have a stuffy nose? If so, there is too much dust. Other signs of too much dust include:

- Dust collects on workers during the day (on their hair, face, or clothes).
- Dust collects on the floor, equipment, lights, windows, or walls.
- The air is hazy, like a thin fog is in the air.
- The mucous in workers' noses is the color of shop dust.



What you can do to get rid of dust

Commonly used ways to get rid of dust are:

Ventilation: A very effective way to get dust out of the air is to pull dust to the outside directly from the machine making the dust. Fans high up on the wall or ceiling can pull air out of the building. They are too high up to keep the dust from getting into the air. For more information on ventilation see page xx.

Dust bags: Some equipment that makes dust can have a special bag attached that catches the dust. This bag must fit the machine well, have no holes, and be emptied often.

Cleaning: Clean up dust on floors, tables, carts, boxes, and lamps. Use a wet rag, dry

dust mop, wet mop, or vacuum machine. Brooms stir up dust from the floor. If you only have a broom for cleaning, sprinkle water on the floor and sweep gently. Also, clean the whole factory regularly. Clean the lights, windows, walls, and other places where dust collects.

Dust mask: Wear a dust mask over your nose and mouth if there is not good ventilation. A face-fitting dust mask will keep more dust out of your lungs than cloth strips will. A dust mask will not stop chemical vapors in the air, only dust. If you use a cloth strip, cover both your nose and mouth to avoid breathing in dust. If you just cover your nose, try to keep your mouth closed and only breathe through your nose. For more information on dust masks, see page 80.

YOLANDA'S BLUE FACE

Yolanda works in a large garment factory in Piedras Negras, Mexico. After years of enduring difficult working conditions, one day Yolanda and her co-workers decided they had to do something about the fabric dust that completely covered them after just a few hours of work. The ceiling fans just blew the dust around and the loose paper masks were not enough protection and hot to wear. "If we're covered with this stuff on the outside, imagine what we look like on the inside," said one worker. "I have to wipe off my face every few minutes." When the factory brought in a new manager, the women decided to push for changes.

Yolanda agreed to work for a while without wiping the dust off her face. By 11 a.m., she was covered by fine blue fuzz from the pants she was sewing. The workers went together to speak with the manager. "You said you didn't want to see sad faces in the factory... what do you think of this?" Seeing Yolanda's blue face, the manager turned bright red with embarrassment. The women told him, "We need ventilation at each of our sewing machines to pull the dust outside." He said he would see what the company could afford. "When will we see the ventilation?" the women insisted. "Whose idea was this?" he demanded. The women replied simply, "Everyone's." Realizing the women were going to stick together, he agreed to install three ventilators each week until the entire production line had them.

The women in Yolanda's factory continued demanding and winning changes, including better treatment for pregnant women. They formed a union and learned the law. Through direct actions, they have forced their boss to obey laws such as those on maternity leave and year-end bonuses.



Water and toilets



Can workers drink when they are thirsty?

Can workers go to the toilet when they need to?

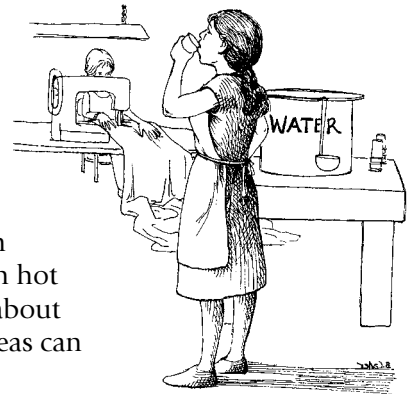
Is the toilet room clean?

Basic human needs

Water: People need water for good health. If you do not have to pee during the day, or you pee only a small amount, you need more water. Not enough water can make you feel weak, have a headache, have an ill stomach, and have cramps and aches in your muscles and belly.

Toilets: If you cannot pee when you need to, your bladder may get infected. This is more important for women since women get bladder infections more often than men. In hot areas workers need to drink lots of water without worrying about being denied a toilet break. Dirty toilets, sinks, and water areas can spread diseases from one worker to another.

Washing: Washing hands with soap and water prevents illnesses from spreading at work or being taken home. Hand washing before eating is especially important for workers who use chemicals.



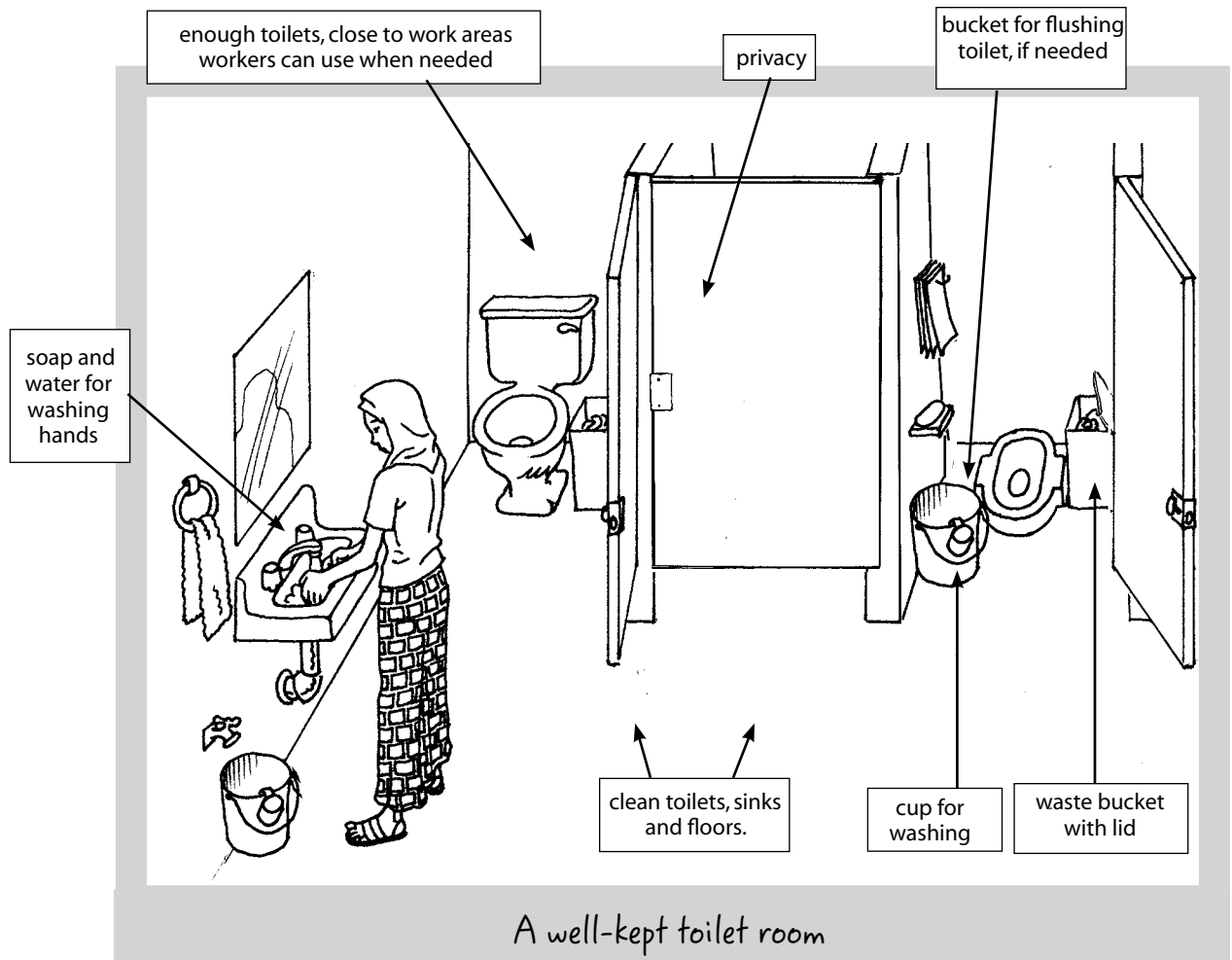
Do you have these things in your work site?

Drinking water: In hot climates, you need to drink 1 cup of water every half hour to prevent heat stress. Pregnant women need to drink even more water. Safe drinking water should be available in each work area, and you should be able to drink it whenever you want. Each worker should have a clean cup to drink from. If you have only one cup or ladle, workers should not touch it to their lips when drinking. This will prevent illness from being passed on the cup.

Drinking plain water is the best way to give your body the liquid it needs. In places where the water isn't safe to drink unless it is boiled, workers often drink tea. But the

tea draws water out of the body, so you need to drink plain boiled water in addition to the tea. Coffee, alcohol, and carbonated drinks also draw water out of the body.

Toilets: Workers should be allowed to use the toilet whenever they need. For privacy and dignity, men and women should not share toilet rooms at the same time. There should be enough toilets so neither men nor women wait in line. This may be 1 toilet for every 20 workers. Toilet rooms should be close to work areas. In very large factories, several rooms around the factory are better than one large toilet room.



Soap and water: Workers need soap and water to wash their hands after using the toilet, after using chemicals, and before eating.

Sanitary pads or cloth for women: Women having their monthly bleeding need soap, water, and privacy. A supply of clean cloth, cotton, or pads should be available. Infections are common in women who do not have access to clean material. There should also be a bucket with a lid by each toilet to dispose of used materials.

Clean facilities: Toilets, sinks, and water areas should be clean. Waste buckets should be emptied every day.



In my factory you must ask your supervisor for a pass to go to the toilet. If you go without a pass, you are given a warning. I work in the T-shirt department, where there are only twelve toilets for 1,500 workers. I always have to wait in line.

Take action for water and toilets

Most toilet and water solutions will need cooperation from the boss.

More toilets: Creating more toilet space is an important way to cut the waiting line, keep bathrooms cleaner, and allow more workers to wash their hands. Creating several toilet room areas around a large factory can reduce lines and put toilets closer to work areas.

Clean up: Keeping the toilets clean and buckets empty might require hiring a cleaning worker.

Easy access: Workers should be permitted to drink water and go to the toilet when they need. Workers can change the rules by agreeing with each other to take toilet breaks when they want or on a schedule. If most workers do this, they gain the power to make this change.

Consider workers' needs: Pregnant women, workers with bladder infections, and other workers may need to drink more water and use the toilet more often than others. Can these workers move to a work station closer to the water or toilet room?

Share materials: Women in a factory can create a shared place to keep clean materials for their monthly bleeding. The women add material when they have it and use it when they need it.

Water sources: If there is no water for washing hands, flush toilets, and cleaning, the factory may need storage tanks for water.

Rest, food, and an eating place

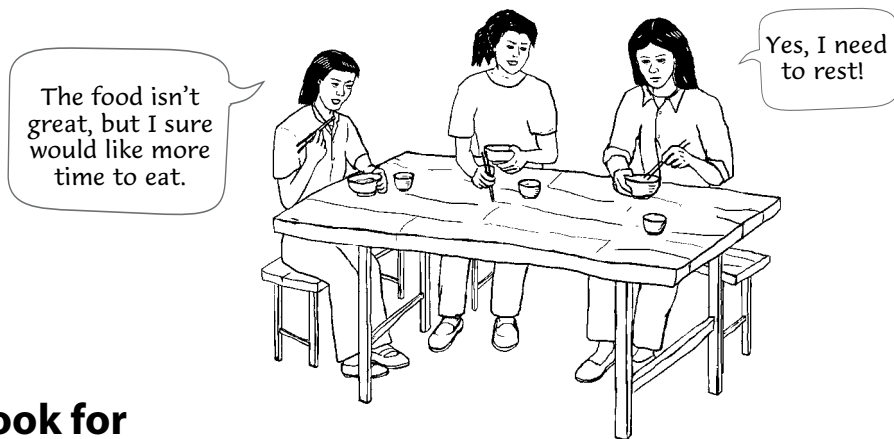


Do workers get regular rest breaks?

Is there a time and a place to eat lunch?

Is there a place to store lunch food or get a healthy lunch?

Getting enough rest and sleep after work hours is important for good health. So is being able to take regular breaks during the work shift, including lunch. A worker's body and mind need time to rest and a meal is the fuel to keep working and healthy.



What to look for

These are some factory conditions needed for workers to eat and rest. There may be different needs at your factory.

Enough time to eat, drink, and rest during the work shift. A short break every 2 hours and a longer mealtime every 4 hours worked is reasonable. Time for another meal should be given before overtime work begins.

A clean eating area separate from the work area and work dangers (such as noise, dust, heat, or cold). Chemicals should never be stored in the eating area.

Soap and water for hand washing before eating, especially for workers who touch chemicals.

A clean place to keep food while working. If there is a work-site cafeteria, it should provide a variety of nutritious, fresh food. The kitchen should be clean and have no pests.

Dormitories with good food storage, cooking, and cleaning facilities, clean water, waste disposal, and with no flies, mice, rats, cockroaches or other pests.



What you can do

Food and rest are basic human needs. The insult of being fed bad food and worked too hard can make this an easy organizing issue. Major changes in a factory's food, eating areas and break times will probably take the cooperation of the boss. It may be possible for workers to make small changes to their eating areas without cooperation. These changes can make eating there safer and more pleasant while you organize for more changes.

Clean the area: Move chemicals and other work supplies in an eating area to a corner of the room, away from food and dining tables. Sweep or mop the floor and clean the tables and chairs.

Go outside: In hot and sunny areas, set up an eating area outside in the shade of nearby trees or buildings, or make a shade of fabric, plastic, bamboo, leaves, or other materials.

Inspection: Local governments often have an agency that inspects restaurants and food vendors to protect the health of people who eat from them. There may also be inspectors for dormitory and factory safety. If you have this kind of local agency, request an inspection.

There are other reasons a worker is unable to eat well, especially if she is paid poverty wages. These issues will be covered more in Chapter 6, "Social Dangers".

Getting pregnant and having babies

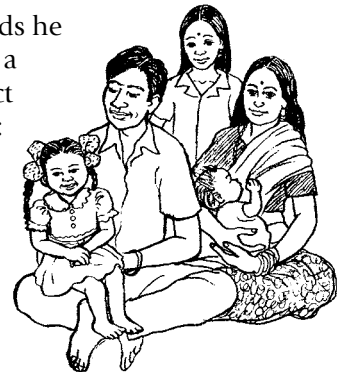


Are workers concerned that chemicals may prevent them from having a baby?
 Do workers fear chemicals can harm a pregnant woman and her baby?
 Have workers miscarried or given birth to babies with health problems?

Dangers to workers and their babies

Dangers at work can affect both men and women who want to have healthy children. How work affects a person depends on what hazards he or she is exposed to and for how long. The harm can happen before a child is conceived, during pregnancy, and after birth. Work can affect both men and women's ability to have a healthy child in three ways:

- It can reduce their desire to have sex.
- It can reduce their ability to conceive or bear a child.
- It can harm the health of the child.



Before a child is conceived

Some dangers at work can cause harm before a child is conceived:

Chemicals and stress can harm any person's hormones, brain, or nerves. One effect of this harm can be loss of desire to have sex or ability to enjoy sex. This can happen to either a man or a woman.

Too much heat can cause a man to produce less sperm, making it difficult for him to conceive a child. Some chemicals and irregular work schedules can cause problems with monthly bleeding and make it difficult for a woman to become pregnant.

Certain chemicals can damage the eggs a woman produces or a man's sperm, making a couple unable to conceive, carry, or give birth to a healthy child.

Certain chemicals can also cause cancer or other diseases of the penis and testicles (balls) in men or the womb and ovaries in women. As a result, either the man or the woman may not be able to conceive a child. A woman may miscarry if she becomes pregnant or have other problems during pregnancy.



During pregnancy

Pregnant women need to drink plenty of water and eat good food. They also need to use the toilet more often than other women. If a pregnant woman is stopped from drinking, eating, resting, or using the toilet, it can harm her health and her baby.

Pregnant women who must stand all day, do heavy lifting, or work in extreme noise may be more likely to miscarry or have problems with pregnancy. Stress and overwork can lead to a baby being born too small and too soon.

Some chemicals can harm a baby before it is born. Pregnant women need to take extra

care not to breathe in or touch dangerous solvents. A woman who thinks she might be pregnant also needs to avoid chemicals because some are more harmful to the baby during the first 2 to 8 weeks of the pregnancy.

A pregnant woman should visit a doctor or midwife she trusts as soon as she knows she is pregnant and several times before she gives birth. All workers need time off for health care visits, but it is especially important for pregnant women and new mothers.

Breastfeeding

Some chemicals can get into breast milk if a woman touches or breathes them at work. These chemicals can harm a nursing child, but breastfeeding is the best way to give a baby the food it needs. Staying away from chemicals is better than giving up breastfeeding. Chemicals brought home on the parent's skin, hair, and clothes can also harm a child.



Dangers to pregnancy and babies from garment work

Chemicals

Workers who use solvents or do spot cleaning may be at risk if the solvents or stain removers contain any of these chemicals:

- Benzene and 2-ethoxyethanol can make men unable to conceive a child.
- Formaldehyde and benzene can interfere with monthly bleeding in women.
- Benzene, toluene, and methylene chloride can cause health problems in the baby.
- 1-Bromopropane can make both men and women unable to conceive a child.

Heat

Pressers usually work in very hot areas of the factory. Men who are trying to have a baby should avoid working in areas that are above 38° to 40° C (100° to 105° F). See page 97 for more information on keeping the body cool.

Stress

Preventing harm

The less a worker is exposed to dangers that affect pregnancy, the more able she or he will be to conceive and bear a healthy child.

- Employer policies and other social dangers can harm the pregnant woman and her baby before and after the birth. See Chapter 6 for information on reducing social dangers.
- Some nations' laws grant new mothers special benefits. These often include maternity leave to care for the new baby at home (paid or unpaid) and a time and place to breastfeed the child during the work day.
- If you work with harmful chemicals, consider transferring to a different job while you are pregnant, planning to have a child, or breastfeeding. See pages 76 to 80 for information on reducing harm from chemicals.
- See 'Strains and overuse injuries' on page 50 for information on reducing uncomfortable body positions and lifting on the job.
- See 'Water and toilets' on page 89 and 'Rest, food, and an eating place' on page 92 for information on water, toilets, rest, and food.

Production quotas, piecework pay, being yelled at by their supervisor, fear of losing their jobs, and other unfair treatment can be very stressful for workers. Too much stress can cause women to give birth too soon.

Standing and lifting

Long hours of standing at work and lifting heavy pieces or equipment is common for some garment workers, especially cutters. This can contribute to miscarriage or problems in the pregnancy.

Noise

Extreme noise can cause miscarriage. See page 112 for information on reducing noise.



Heat and cold



Are people working where it is too hot or too cold?
Is there enough fresh air?
Is there fresh water to drink?

Working in places that are too cold or hot puts extra stress on your body and can harm your health.

Illnesses from heat

When you get hot, your body sweats to cool itself. It also increases the blood supply to your skin and makes it look red. When you sweat, you need to drink more water to replace what you lose as sweat. If you do not drink enough water and cool down, you can become sick. You may feel tired, dizzy, light-headed, confused, nauseous, or thirsty. You may get a headache, a fast heartbeat, or painful cramps in the muscles of your legs, arms, or belly. If you get even hotter you may faint. If you stay in extreme heat too long, your body might stop trying to cool down and you will collapse (heat stroke). If you remain too hot it can cause permanent damage to your brain and other organs

and you can die.

Working in a hot area increases the risk of chest pain, heart attack, and heart disease. Too much heat can cause a man to produce less sperm, making it difficult for him to conceive a child.

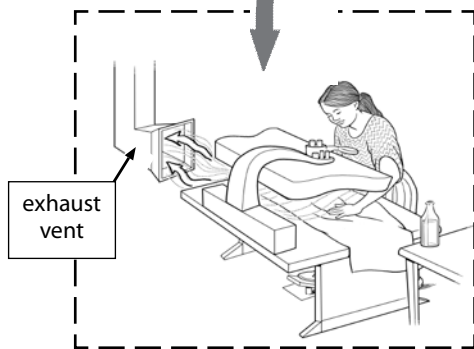
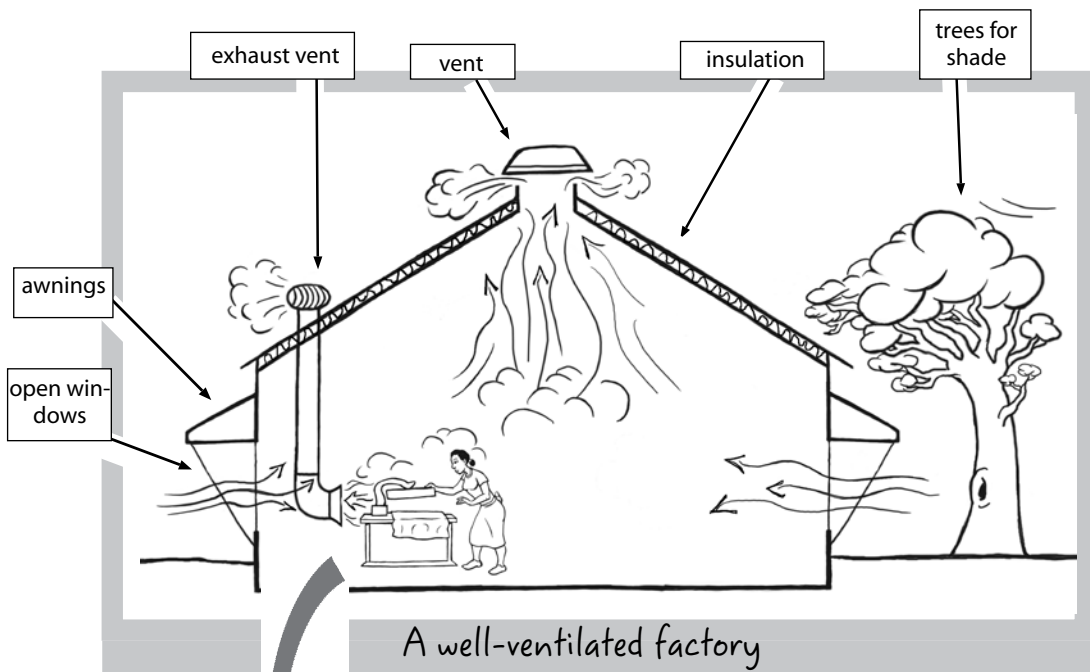
Sometimes factories get very hot. Some workers, like pressers and pleaters, are exposed to a lot of heat and steam. Moist, hot air makes it more difficult for your body to cool itself. Some countries limit factory temperatures to 25°C (77°F) or lower if the work requires hard physical effort.

STAND TOGETHER, FAN TOGETHER



My name is Maria. I have worked in a factory in Reynosa, Mexico for many years. After work I meet with a group of workers from my factory to talk about problems at work. When the air conditioning in our factory broke a few months ago, our manager said that fixing it was too expensive. We started to talk about how hard it was to work in the heat, and how sick we felt. The manager did not listen to us when we asked him to fix the air conditioner, so we decided to find another way to convince him. The next morning, we walked into the factory and refused to start working. We sat down and fanned ourselves. The other workers outside our group saw what we were doing and joined us. Soon all the workers in the factory had stopped working, and we sat fanning ourselves. By the end of the day our manager had fixed the air conditioning!

Cool down the factory



Bring in cool air: Vents on the roof and open windows along the walls can draw hot air out through the roof and bring cooler air in through the windows. Fans circulate air around the room. (If the air temperature is higher than 35°C, it is worse to blow the hot air around.) If the outside air is also very hot, air conditioning may be needed to keep the factory cool.

Loose clothes: Wear loose-fitting, lightweight clothing to make it easier for air to circulate near skin.

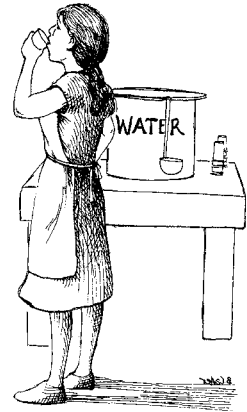
Limit time: Limit the time you spend working in very hot areas.

Send hot air outside: Use vents to send hot air out and keep air inside cooler. Local exhaust vents take hot steam from presses and other hot equipment and blow it outdoors.

Insulate and shade: Insulate the roof to keep the sun's heat outside. Paint the roof with white or reflective paint. Fiberglass insulation is cheap and can reduce heat by 8°C. Cover hot machines and pipes with insulation to keep heat inside. Cover windows with reflective coatings or shade them with awnings. Plant trees to shade the factory.

Rest and drink water to prevent heat illness

- Drink plenty of clean water. You need to drink about 1 cup of water every twenty minutes, even if you are not thirsty.
- Take rest breaks in a cool area.
- Overheated workers should take an additional 15 minute break every hour to cool down.



First aid for heat exhaustion or dehydration

Heat puts a lot of stress on a worker's body. If a worker is overheated, you need to act quickly:

What to look for: A worker is getting overheated if she sweats more than usual and feels weak, tired, headachy, nauseous, flushed, dizzy, or confused. She may look very red and her skin may feel warm and dry to the touch.

Action: Take her to a cool area. Have her lie down. Raise her feet and rub her legs. Give her water to drink if she is awake.



FIRST AID

First aid for muscle cramps

What to look for: People who work hard and sweat a lot sometimes get painful cramps in their legs, arms, belly or other places.

Action: Drink a liter of water. Repeat this every hour until the cramps are gone. Sit or lie down in a cool place and massage the painful areas.

Illness from cold

When you are cold, your body heats itself by shivering and tensing muscles. This makes you tired and your muscles ache. When you are very cold you think and move more slowly. Less warm blood goes to your hands and feet. Your hands and feet cannot grab or feel things as well as usual. You may not notice if they get injured. If they stay cold, they can be permanently injured from lack of blood.

How to warm up

Wear warm clothing to keep heat in. Several layers of thin clothes can be as warm as 1 layer of heavy clothes. Cover your head with a hat or scarf and wear gloves, especially if you touch cold things. Gloves with the finger tips cut off may be helpful for some types of work. Wear warm shoes with thick soles, especially if the floors are cold.

Move, eat, and rest. Move around to keep the blood flowing to all parts of your body. Eat more food to have enough energy to keep warm. Take breaks indoors or in a warm place to rest, drink warm liquids, and eat. Some people, especially women, get cold, numb fingers and toes before everyone else. Keep warm and active to keep the blood flowing to hands and feet.



FIRST
AID

First aid for being too cold

What to look for: A worker who is too cold shivers uncontrollably, cannot think clearly, feels very tired, speaks slowly and unclearly, and stumbles when walking. This is a very dangerous condition. Often the person does not realize what is happening.

Action: Get her to a dry place away from the wind. Cover her, including her head, hands and feet. Do whatever else you can to warm her. It will help if you lie next to her and hold her close to your body. Give her sweet foods to eat and drink such as sugar, candy, honey, sweet fruits, or juice. If you do not have this, give starchy foods like rice, bread, plantain, or potatoes. If she stops shivering but still has some of the signs above, or she is unconscious, get medical help fast.



First aid for frostbite

What to look for: Fingers, toes, nose, or other body parts are numb, but may also have sharp pains. All the feeling then leaves the body part as it gets colder. The part then gets pale in color but is soft (this is mild frostbite).

Action: Wrap the numb part with a dry cloth and warm it against another part of her own body or someone else's. Cover her to warm her whole body.

Machine safety



Do the machines in your factory have guards to prevent blades, needles, or moving parts from catching a workers body or clothes?

Have workers been trained how to use the machines safely?

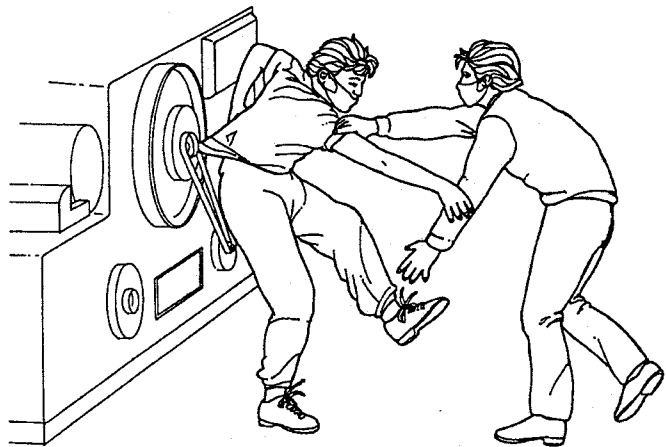
Have workers been badly cut?

Machines can hurt workers very badly. They can cut, crush, tear, or take off parts of the body. Thousands of workers around the world lose fingers, hands, arms, legs, or their lives each year by machines at work. These tragedies can almost always be prevented.

Machines can injure you when their hot areas burn (or cold areas freeze) your skin. Or they can leak hot or cold liquids, chemicals, oil, or water onto workers, materials, or the floor. These leaks can harm workers directly, such as a chemical on your skin, or they can cause you to slip and fall.

The most common machine injuries in the garment industry are:

- fingers cut by cutting blades
- fingers punched by sewing machine needles
- burns from irons.



Source: ILO

How to prevent machine injuries

When looking at the machines where you work, begin with the machines that have already caused serious injuries. You can make some changes that make equipment safer without your boss' cooperation. But you will need the support of your boss for many changes. When your boss buys equipment in the future, pressure him to choose machines that are safe and comfortable to use.

Guard moving parts

Guards are parts of a machine that prevent injuries. Guards keep sharp, hot, or moving parts away from your body or clothes. There are four types of guards.

(1) Guards that surround the danger area so your hands, fingers, hair, and clothes cannot get inside the machine.

(2) Guards that shut off the machine when it is opened.

(3) Guards that sense when something enters the machine and shut it off.

(4) Controls that the worker operates with both hands away from the danger area of the machine.

It is your boss' responsibility to make the machines in the factory safe. Guards should be replaced when they are damaged or not working. Machines brought into the factory should have guards when they arrive to prevent problems in the future.

Workers are the ones who know their machines best. You can show your boss areas on the machines that need to be guarded. Guards are sometimes disabled

during repairs or removed when supervisors or pieceworkers think they can work faster without them. Many workers refuse to remove guards from their machines or refuse to use machines if guards are missing or broken.

Training

For safety, each worker should be trained to use or repair any machine she uses. This training can come from your employer or other workers. If you do not know how to use a machine, ask an experienced worker to show you how and then watch you use it. Printed instructions on how to set up, use, and maintain the machine may be helpful, but they are not as effective as good training.

Safer machines

The drawings below show a few machines commonly found in garment factories, the dangers of each machine, and how to change them to prevent injuries. The same kinds of changes can be made to most machines to make them safer to use. Many newer machines have protections built in.

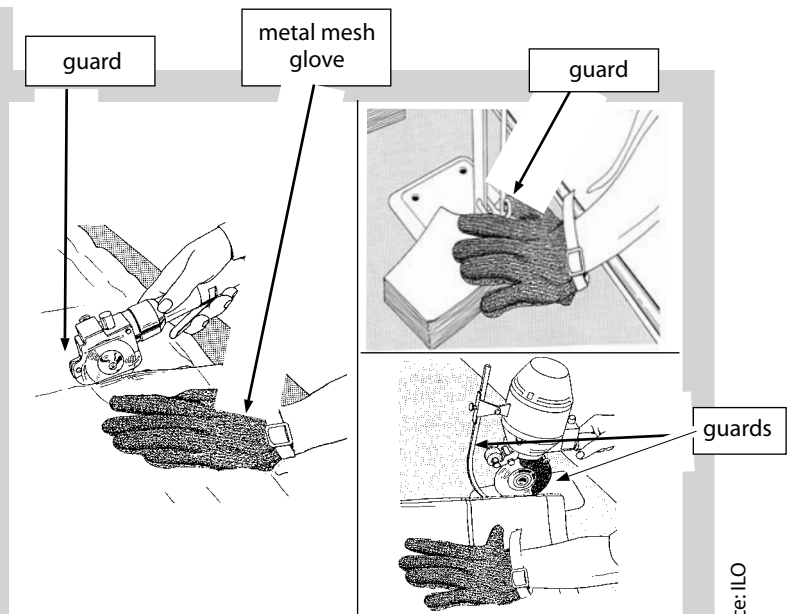
Straight and round knife cutting tools

Danger:

Knife blades can cut hands and arms.

Prevention:

To keep blades away from fingers, use guards in front of the blades. As back-up protection, wear gloves made of metal mesh.



Ways to prevent injuries

source: ILO

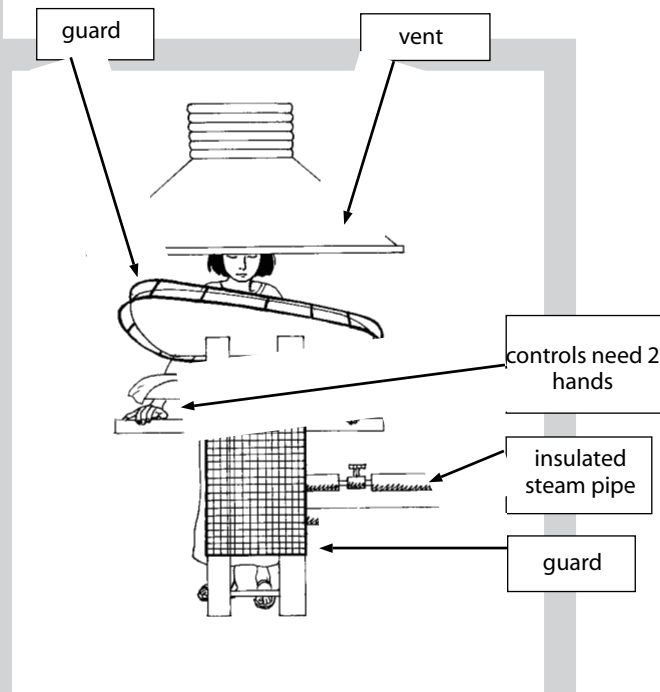
Presses

Danger:

Steam and hot metal can burn hands or arms. Moving parts can crush hands and fingers

Prevention:

Guarding keeps hands from touching hot machine parts and steam. Controls that must be pressed with both hands keep the press from closing with one hand still inside. Covered steam pipes prevent burns.



Ways to prevent injuries

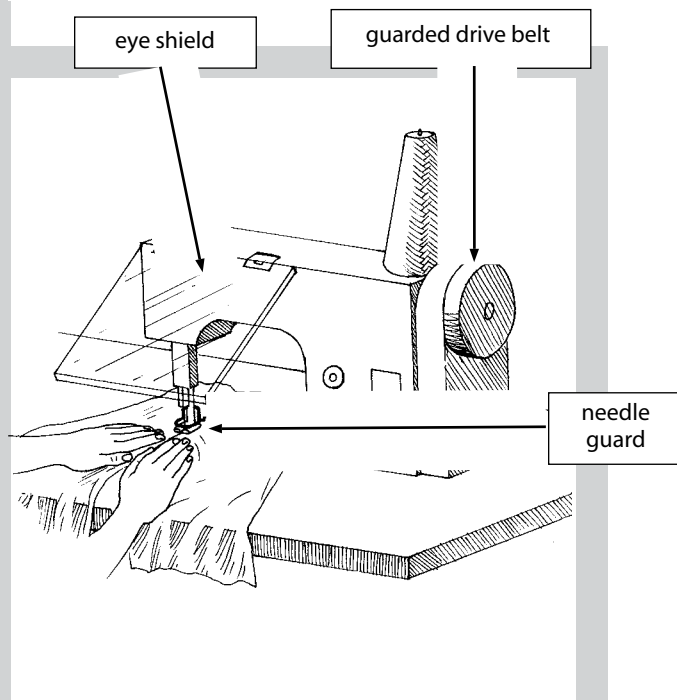
Sewing Machines

Danger:

Needles can puncture fingers and hands. Moving parts can crush hands or pull out hair. A broken needle can fly into the eye.

Prevention:

A needle guard keeps fingers out of the danger area. Eye shields keep broken needles from flying into eyes. This is especially important for high-force and high-speed machines. Moving belts or drive shafts are enclosed to keep workers' clothing, hair, and hands out of the danger area.



Ways to prevent injuries

Clear and repair machines

Before you clear or fix inside, or touch any sharp, hot, or moving parts, disconnect and 'lock out' the power to a machine (see page 110 for more information). Use a broom, brush, or cleaning tool to remove waste from a machine, not your fingers or hands. Do not open a machine to repair it, clear a jam, or clean it if you have not been trained to do it safely. Regular cleaning and repair of machines keeps them safer to work with.

Stop leaks

Leaks from machines should be stopped and cleaned up quickly. Workers can slip on a puddle of oil, water, or chemicals. If the leak is a harmful chemical, it could poison workers and the environment. Leaking liquids can get on tools, parts or supplies workers use, causing problems

for many workers. Keep clean-up materials near by and train workers to clean up spills safely and repair leaking machines.

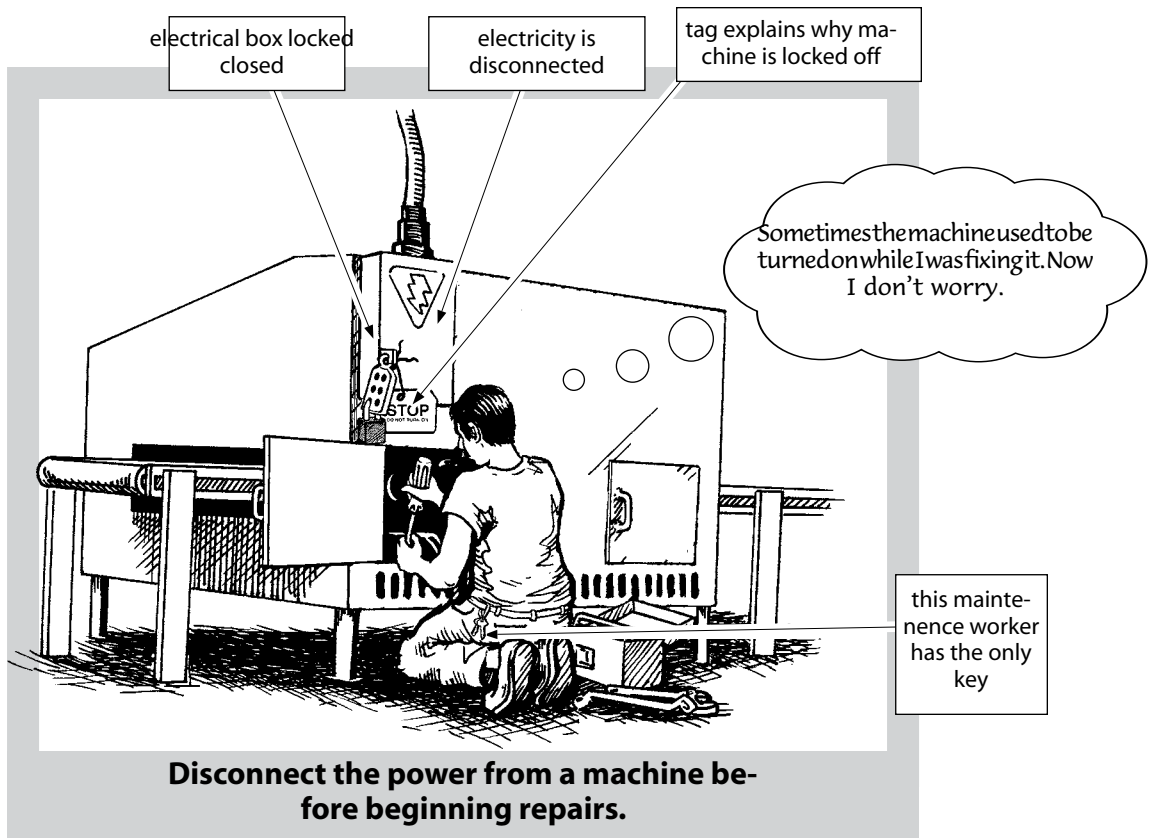
Safety clothing

You should not have to pay for safety gear. It is the boss' responsibility. Wear the safety gear your boss provides and use it properly.

Gloves made with wire mesh can keep hands from being cut by blades. Eye or face shields protect you from things flying from the machine. Hats, hair ties, and hair nets keep your hair from getting caught in the machine. Coveralls, aprons, or uniforms can keep loose clothes from being caught.

Light

Make sure you have enough light to see clearly when you are using or repairing a machine.



ZHOU LITAI HELPS INJURED WORKERS



Zhou Litai, a Chinese Army veteran and brick maker, studied law to improve his life and help people in his community. He is now a lawyer in the Shenzhen Special Economic Zone, a large Export Processing Zone in China. Foreign companies own most of the 10,000 factories there. Most factory workers came there from other parts of China.

The factories are dangerous. Each year, more than 80 workers die and 10,000 workers lose an arm, leg, or fingers. Seriously injured workers are fired and many cannot find other work because of their injury. The companies in the Zone usually refuse to pay the workers and their families the compensation required by law.

The All-China Federation of Trade Unions (ACFTU) is the only legal union in China, and it has few members in foreign-owned and private companies. The ACFTU says it will organize in these factories and prevent injuries. But the factory workers cannot wait for the ACFTU, and are trying to win compensation and organize unions in other ways.

Zhou has opened his home to maimed workers with no place to stay. He helps them sue for social security compensation and payment for medical care. He does not ask for a down payment. Sometimes more than 30 workers live with Zhou, helping in the house and supporting each other while they wait to go to court. A few have begun to study law so they can help other injured workers.

During his first seven years, Zhou has filed more than 2,000 cases for workers injured in factories all over China. He has won compensation for hundreds of workers. Shenzhen officials admit there are serious safety problems in the factories, but they are afraid the foreign factories will close if workers insist on compensation for their injuries. Corrupt officials have jailed workers who organize to defend themselves, and have told Zhou to stop his work. In spite of this, he continues helping more workers each year and more people have joined his efforts.



FIRST
AID

First aid for machine injuries

Most machine injuries are very serious and should be treated by a health worker right away. If no health worker can come or will take too long, transport the injured worker to the nearest clinic or hospital right away. Try to keep him lying down on the way. **In the meantime, there are some things you can do for the injured worker:**

Rubber gloves for your hands – If a worker is bleeding and you will give first aid, do not touch blood with your bare hands. Fresh blood can carry dangerous germs, including Hepatitis and HIV/AIDS. Rubber gloves, gloves for handling chemicals, or plastic bags will keep the blood off your skin if they have no holes. Try to use clean gloves to keep dirt, germs, or chemicals out of the wound.

Watch for shock – A person who is bleeding heavily from any type of injury can go into shock and die. Bleeding inside the body — although you cannot see it — can also cause shock.

Signs of shock are a weak, rapid heartbeat; pale, cold, damp skin; weakness, confusion, and fainting.

To prevent or treat shock, have the person lie down on his side with his feet a little higher than his head. Stop any bleeding. If he vomits, clear his mouth immediately. If he is cold, cover him with a blanket. If he is awake, give him water.

Objects stabbed into the body – If part of a machine or another object stabs deep into a worker, do not take the object out of his body. It could be stopping bleeding inside his body that will get worse if you take the object out. Lay the worker down and leave the object in his body while you wait for a health worker or transport him to a clinic. If the object in his body is connected to something large or heavy, try to detach the object from the large thing it is part of. Be careful not to move the object that is stabbing the worker. If he is bleeding, press a clean, thick cloth on the area with your gloved hand. Keep pressing until the bleeding stops. Do not move the object or push it farther into his body.



First call a health care worker. Stop the bleeding while you wait.



FIRST
AID

Big or deep cuts – Lay the person down. Raise the injured part of the body. Press a clean, thick cloth directly on the wound with your gloved hand. Keep pressing until the bleeding stops. This may take 15 minutes or more than an hour. Never use dirt, kerosene, lime, or coffee to stop bleeding.

Part of the body cut off – Lay the person down and raise the injured part of the body. Press a clean, thick cloth directly on the wound with a gloved hand to slow down the bleeding until a health care worker arrives.

Deep wound in the stomach – Lay the person down and cover the wound with a clean cloth. Do not give any food or drink, even water.

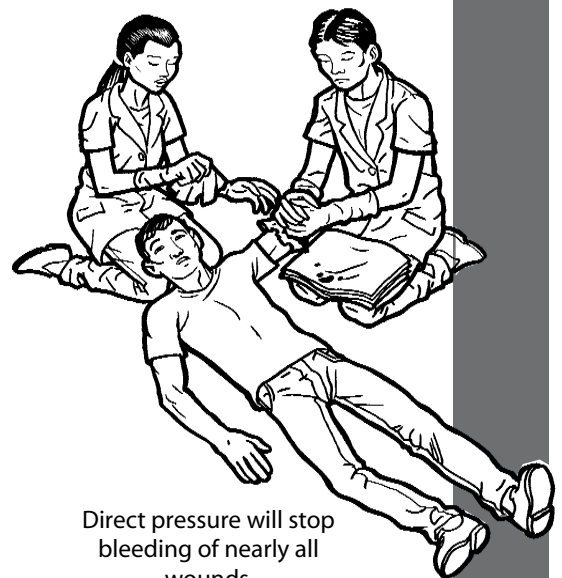
Eye injury – Lay the person down and cover the wound with a clean cloth. If you think there is something in the eye such as a piece of fabric, thread, plastic, or metal, rinse the eye with water for 5 minutes. If something is stabbed into the eye, do not take it out. Leave it in the eye while you wait for a health worker or take the injured worker to a clinic.

Head injury – Have the injured person lie down with his chest and head raised half-way to a sitting position. Support his head and chest with a pile of cloth, blankets, pillows or clothing. Cover the wound with a clean cloth.

Part of body crushed – Lay the person down and watch him for shock.

Cuts and scrapes – Wash the wound with clean water. Dirt in the wound may cause an infection. Cover the cut with a clean cloth or bandage. Change the bandage each day and look at the wound to see if it is healing or if it is infected. If the skin around a wound is red, swollen and tender to the touch, it is infected. If it is not healing or is infected, see a health worker.

Cleaning up after and injury – Once the injured person is taken care of, clean up any blood in the work area using rubber gloves and a germ-killing cleaner. (Water with some bleach in it will work.) To keep other people from touching the blood, put rags and bandages with blood on them in a plastic bag, tie it closed, and put it in the trash.



Direct pressure will stop
bleeding of nearly all
wounds.

Electrical safety



Are electrical cords hanging from the ceiling or lying on the floor?
 Are electrical wires frayed or broken?
 Are machines connected to electricity while maintenance work is done?

Electricity powers the lights and machines that make factory production possible. But if electricity is not handled the right way, it can injure and kill people. Unsafe electrical cords and exposed wiring can cause fires and dangerous shocks. Cords running along the floor can trip workers.

Common electrical problems

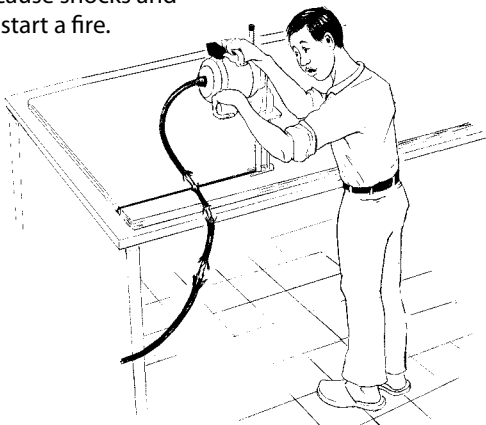
Many injuries caused by electricity can be prevented by repairing or replacing frayed wires. Workers who know more about electrical safety and equipment can train others how to prevent problems. But some problems, like having the right kind of wiring and electrical equipment, can only be solved by the boss.

Damaged equipment

The best way to keep electrical equipment safe is to handle it carefully and protect it from damage. Stretching and pulling electrical cords can break their coverings and expose the live wires inside. The wires inside the cord can give you a shock if you touch them, and they can also start fires if they touch each other.

Inspect electrical cords and wiring regularly for cuts or frayed covering. If cords are cut, frayed they should be repaired or replaced.

Frayed electrical wires can cause shocks and start a fire.

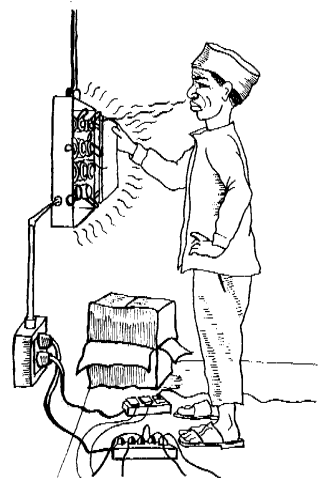


Unprotected parts

Covering the openings to parts inside the electrical wiring of a building or equipment protects the equipment and the workers. You can also prevent shocks by keeping electrical equipment dry. Water on or near the equipment can carry the electricity to anything it touches.

Overloaded circuits

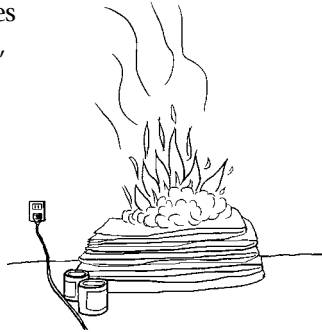
Electrical wiring in a factory can safely operate only a certain number of machines or lights. If too many machines are using one circuit, the wiring can become very hot. Overloaded wires or machines can cause fires. If a circuit box, machine or wiring feels or smells hot, it is probably overloaded.



An overloaded electric circuit can cause a fire.

Extension cords

Extension cords are designed to temporarily connect a machine or light to electricity. They are not designed to use in place of permanent wiring because they can become overheated and cause fires. People can also trip over them. It is dangerous to run extension cords through walls, doors, or ceilings. Extension cords are often used in places where they can be damaged, so it is very important to inspect them often and replace them if they are damaged.



Do not store anything that can catch fire near electrical cords and equipment.

Loose cords

Like extension cords, loose cords can be damaged easily and can trip workers. You can fasten loose cords to the wall or floor with tape or cover them with pieces of carpet or rubber mats. Do not cover or tape cords when the metal inside is showing. You could get an electric shock if you touch the metal wires. If the wires touch each other or other metal things, they can start a fire.

Material that catches fire easily should not be stored near electrical cords or equipment. This includes chemicals, fabric, paper, cardboard, and foam padding. See page 70-86, "Chemicals" for more information on chemicals that catch fire.

LIANG'S STORY

Liang grew up in a small farming village in China. When he was fifteen, he went to the city and got a job in a clothing factory. He worked long hours every day, trying to save money.

Liang became a cutter in the factory. There were exposed wires on the cord of his machine, and they had shocked him many times. The manager said it was his fault for touching the wires. While he cut fabric for shirts one day, the fabric touched the exposed wires and caught on fire. A worker near the wall grabbed the fire extinguisher and ran to Liang's table. They put



out the fire

before it spread to the piles of fabric nearby. The manager yelled at Liang for letting the fabric catch on fire and for using so much of the fire extinguisher. But everyone knew that Liang had stopped the fire from spreading to the rest of the factory. The cutting room workers saw that the fire had scared the manager, so they demanded he fix exposed wires like the one that started the fire. Before the fire, the boss had said it was too expensive to repair Liang's knife and that he should just be more careful. This time he hired an electrician to fix all the wires and equipment cords by the end of the week.

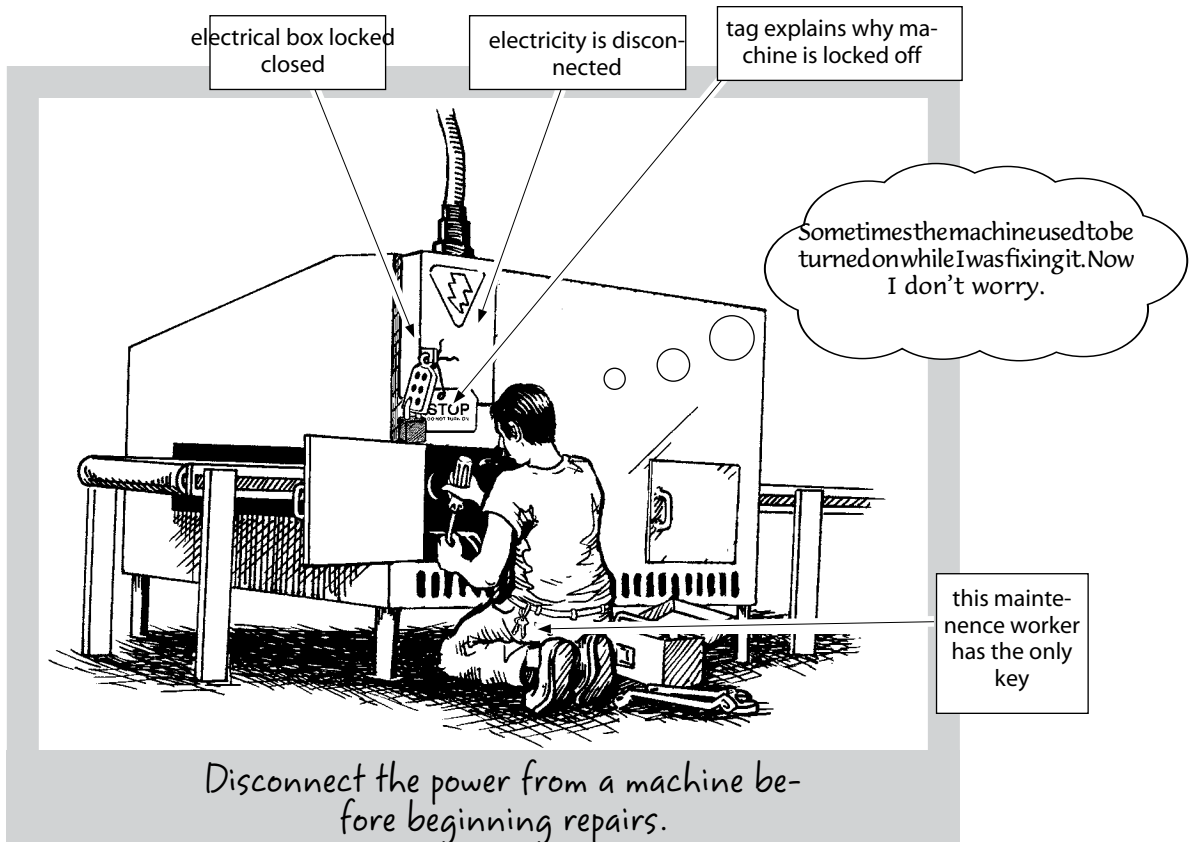
Encouraged by this success, Liang and his co-workers met to discuss other problems, like locked exit doors. They used the fire to make their factory safer. Liang hoped they could win more changes before any other accidents happened.

Earthing (Grounding)

Electrical outlets, tools, and machines should be wired correctly and earthed (grounded). Earthing is a way of connecting machines and electrical wiring so they do not shock people. To know for sure whether an electrical outlet or machine is earthed it must be tested using equipment designed for this purpose. Even if there are 3-point outlets on the electrical system, not 2-point outlets, it does not mean the electrical system and outlet are earthed. If the metal parts of a machine cause tingling or give shocks when touched, it is not earthed and can be very dangerous. Your employer should have a qualified electrical inspector check every outlet and machine to be sure they are earthed.

Maintenance of equipment

Keeping machines clean and in good repair is important, but it must be done safely. When a worker is repairing, adjusting, or cleaning machines, electrical equipment, or tools, the equipment should not be connected to electricity. Thousands of workers have been killed and injured when equipment is accidentally turned on or re-connected to electrical power while it is being repaired. Workers adjusting or repairing this equipment need clear procedures and training to disconnect or unplug the machine, and tests to be sure there is no power in the machine. Workers should use a lock to stop anyone from turning on a machine while they are working on it.



Working for change with your boss

You will need your boss's cooperation to fix most electrical safety problems. Organizing a group of coworkers to talk with your boss about electrical problems is an effective way to begin. Keep a list of the problems you report to your boss, when you report them, and what your boss does to respond to the problems. If your boss does not make changes quickly, consider other ways to pressure him. Some groups of workers have refused to work with unsafe electrical equipment or cables.



If your boss does not fix the problem, keep pressuring him.

First aid for electric shock

Always have a shock victim examined by a health worker. If a shock victim has stopped breathing or his heart has stopped beating, he needs medical treatment right away or he will die.

When a worker is shocked by electricity, the harm it does depends on how big the shock is. A small shock may cause only a mild burn to the skin, but a big shock can cause deep burns and stop your heartbeat and breathing.

If a worker is being shocked: Do not touch the person. The electricity can pass through his body and shock anyone who touches him. First, unplug or turn off the machine or tool causing the shock. If you cannot turn off the power, use a piece of wood, like a broom handle, or dry clothing or rope to separate the victim from the power source. Do not use anything that is wet or made of metal.

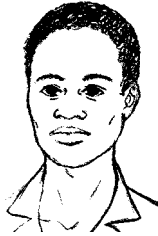
After a worker has been shocked: Keep the worker lying down. If he is unconscious, lay him on his side and cover him with a blanket until a health worker arrives. Carefully examine the victim for burns on the skin. Sometimes burns from electric shock look minor on the skin but are much worse inside the body. Cover burns loosely with a clean, dry cloth until a health worker arrives.

For more information on burn care, see page 69 of this book.



FIRST
AID

Noise



Do workers need to shout to be heard at work?

Do workers' ears ring when they leave the factory?

The worst effect of working in too much noise is that you can lose your hearing. The damage to your hearing depends on how loud the noise is and how long you are there. If you have to shout to talk with another person who is 2-arms-lengths away from you, the area is too loud.

Dangers of loud noise

Loud noise causes many problems related to hearing. Some of these problems last only a few days, but others are permanent.

Temporary hearing loss: You may temporarily lose some of your hearing while you are in a noisy place. Your hearing may be fuzzy for few hours or a day after you leave the noisy area. Then your hearing will recover. You may also hear a ringing or buzzing noise in your ears after being in a noisy place. You may notice it more when you are in a very quiet place. If you stay away from loud noises, the ringing should go away. If you stay around loud noises, the ringing may continue for many years.

Permanent hearing loss: As we grow old, our hearing naturally grows weaker. You may lose your hearing more quickly if you work in loud noise every day. Over time, your ears may change how you hear noise. Sounds may become unpleasant or seem louder than they really are. You can also lose some of your hearing permanently after an extremely loud noise such as an explosion.

Other health problems: Loud noise can cause other health problems, including headache, difficulty concentrating, stress, miscarriage, high blood pressure, heart disease, muscle tension, stomach problems, and tense, dizzy, and disoriented feelings.



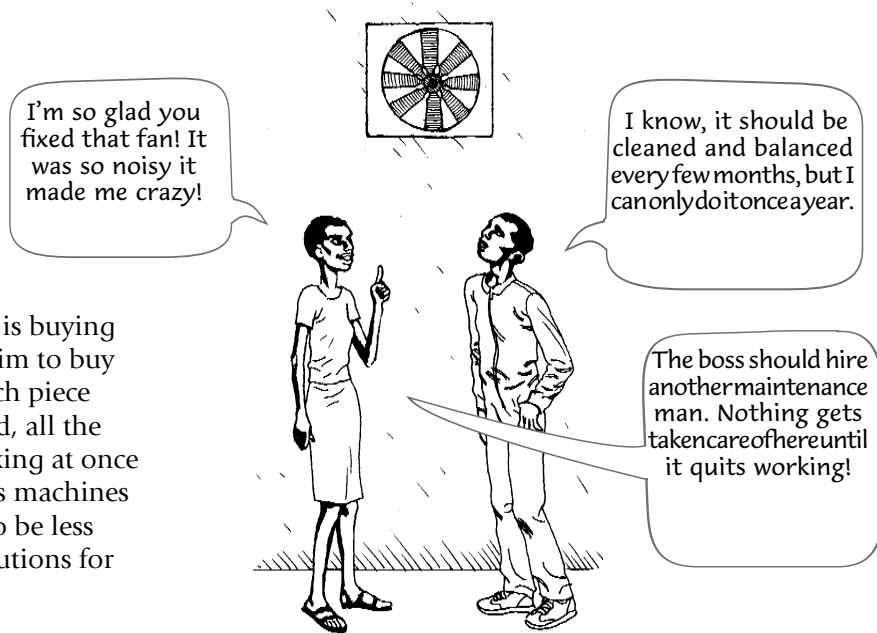
Do workers need to shout to be heard at work?

Ways to make work more quiet

The common sources of noise in garment factories are buttonhole machines, riveting machines, embroidery machines, cutting machines and zip fasteners. Sometimes cutters have to work with their ears at the level of the cutting machine, so they are exposed to a lot of direct noise. There are several ways to make a factory less noisy.

Fix the equipment

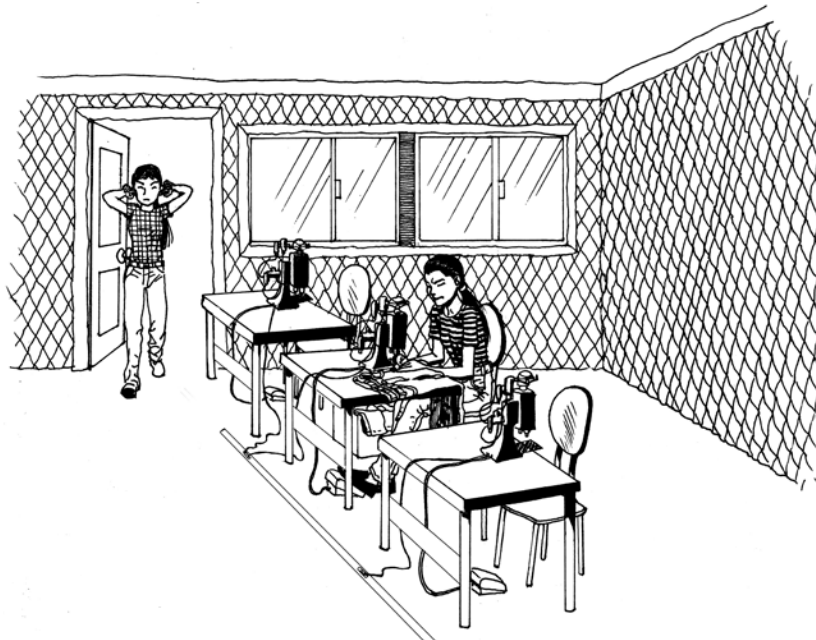
Sometimes a machine is noisy because it needs oil or adjustment, or a part is wearing out. Good maintenance can keep machines from becoming noisy or can make equipment less noisy. When your employer is buying new machines, encourage him to buy quiet equipment. Even if each piece of equipment is not too loud, all the equipment and people working at once can be very loud. Sometimes machines can be designed or rebuilt to be less noisy. These are the best solutions for noisy equipment.



Good maintenance keeps machines quiet.

A separate room

The next best solution is to put noisy machines in a separate soundproof room. This way only a few workers are exposed to the noise and they can leave the room sometimes. This room should be made of materials that absorb sound. This will keep the noise from building up inside. Sound-absorbing materials are usually 5 centimeters (2 inches) or more thick and are made into walls or thick curtains that are hooked together on a metal frame.



An insulated room keeps sound inside.

Put it in a box

Another partial solution is to build a wall or a closed box around noisy machines to keep the noise inside. Sometimes the box or curtains are only put around the noisiest part of a machine. The curtains or short walls should be made of material that absorbs sound.

Cover the ears

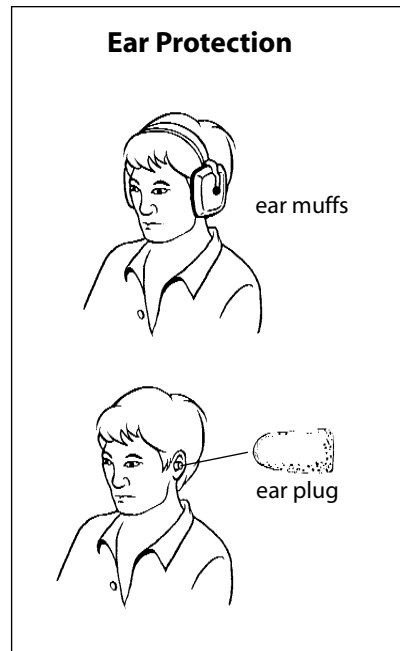
Workers near noisy machines or in noisy areas should wear earplugs or earmuffs. Many workers feel earmuffs are more comfortable than earplugs. Ear muffs need to be cleaned occasionally. They should gently but firmly cover your ears and touch your head (but not be tight or painful). If earmuffs fit well, they protect your hearing well. Disposable foam earplugs can protect your hearing well if they are the right size (small enough to fit into your ears comfortably). Most foam earplugs are inexpensive and meant to be used once. If you re-use them, make sure they still return to their original shape after you pinch them. If they do not, they no longer protect you. Cotton or cloth earplugs will not protect you very much. Using ear muffs or plugs can be a short-term way to protect workers' hearing while you organize to make the machines and work area quieter.

Share the burden

If you cannot make the machines less noisy, workers can rotate jobs so that a person does not work in the noisy area all day. This is not a good, long-term solution to noise problems. If noise is not reduced, workers' hearing will still be damaged. Rotating workers among noisy and quiet jobs or areas spreads the problem over more workers. Many workers will bear some injury to their hearing instead of a few workers bearing all of the injury.

Absorb noise

Put materials that absorb sound on the ceiling, floor, walls, and work-area dividers to make the whole factory quieter.



Light

Do workers squint and bend over to see their work?



Garment workers do detailed work. The work room needs to be lit evenly and brightly to see the work easily. Workers can get headaches and eye strain if there is too much or too little light. They can get body aches from working in uncomfortable positions to see their work better or avoid bad light.

How to tell if light is wrong

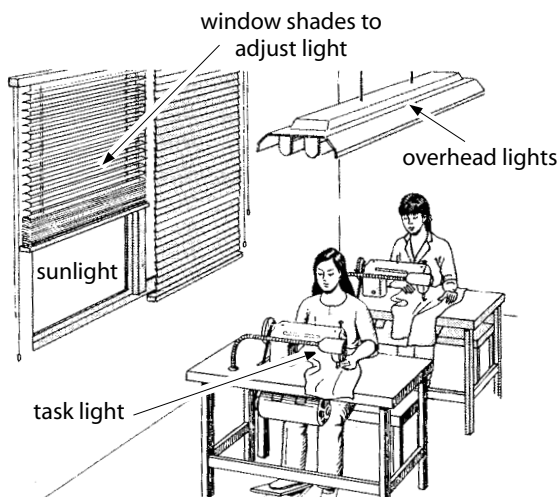
Ask workers how their eyes feel and if they have the right amount of light to work well. Look for bright light shining in workers eyes from lights, the sun, windows, or reflections from shiny floors, tables, or equipment. If workers stretch, lean, or hunch over their work to see it better, light or shadows may be a problem. Workers may get headaches or tired eyes (eyes that are hard to focus, aching, dry, irritated) by the end of the day because of poor light.



What you can do for better light

Light: Your factory may need more or different kinds of lights for different tasks. Lights that hang high above the workstation provide a soft and even light. Many workers need lamps that they can adjust to point directly at their machine or their work. Position the light so there are no shadows where you cut, stitch, press, finish, or prepare work. Older workers may need brighter lights than younger people need to see their work.

Move: If you cannot change or move the lights at your workstation, you might be able to turn or move your workstation, or where you sit or stand as you work.



Adjust the lighting to see better.

Cover: Cover shiny surfaces with fabric, paint, or other coating that does not reflect light into workers' eyes. Wear a hat with a brim or put a shade on a light to keep bright light out of your eyes.

Windows: Cover windows with curtains or blinds when the sun is too bright or causes shadows. If these blinds are opened when the sun is not so bright, everyone gets more light.

Eye glasses: A person's eyes may feel strained if she needs glasses but is not wearing them. If you think a worker needs glasses, help her get an eye exam.

TB (Tuberculosis)



Is TB common in your community?
Is your factory or dormitory
crowded and the air stale?

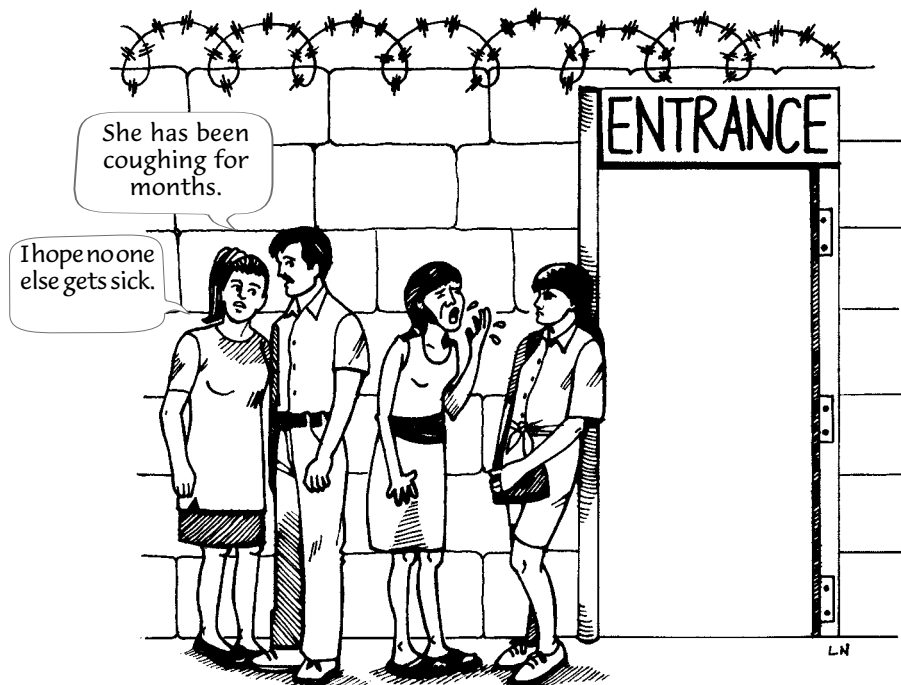
Tuberculosis (TB) kills millions of people around the world each year. TB is caused by germs too small to see. It spreads from person to person through the air. When someone who has TB coughs, sneezes, or speaks, the TB germs they put into the air can stay for hours. They can infect other people who breathe in this air.

People who get sick from TB have a bad cough, have a fever, cough up blood, feel weak, lose weight, and sweat a lot at night. Without TB medicines, people usually die within a few years.

TB affects poor people the most. Poor people are more likely to live or work in crowded, enclosed spaces such as factories, dormitories, and shanties where TB germs spread easily.

Workers who are sick or do not get enough food or enough rest are more likely to get sick with TB because their bodies are already weak. This is especially true for workers with HIV/AIDS.

Workers who breathe in a lot of dust have more TB than workers who breathe cleaner air. This is true for farmers, miners, or factory workers. Dust makes a person's lungs less able to resist getting TB.



Preventing TB at work

The best way to prevent the spread of TB is to make sure everyone who is sick with TB gets medicine. A person sick with TB can still spread TB for about 2 weeks after they begin taking the medicine. To cure TB, a person must take medicines for many months, but they will begin feeling better after a few weeks. It is very important that the drugs are taken regularly for the full time recommended. **If not, you might infect other people or get sick again with a kind of TB that is very hard to cure.** Everyone benefits if workers with TB are encouraged to get tested and take medicine. Punishing or rejecting sick workers makes it harder for them to get the medical care they need.

There are international programs that allow governments to provide TB drugs for free. Having a local public health worker come to the factory to examine workers for TB and give out TB medicine would help workers with TB stay on the medicine until they are cured. People who share a dormitory room or work area with a person sick with TB should be examined by a public health worker to be sure they have not caught TB.

Good ventilation will reduce the chance of TB spreading through a factory or dormitory.

People sick with TB should always cover their mouth and nose with a cloth

when they cough or sneeze to keep TB germs out of the air.

Improving the health of all workers will make TB less of a problem. More pay, shorter work hours, safer work, clean water, better food, and medical care will help workers be healthier.

Visit a health worker to learn about the signs of TB and medicines used to treat TB in your area, which are often provided free by the government. For more information on TB see the books *Where There Is No Doctor*, page 179-180, and *Where Women Have No Doctor* page 386-391. See *HIV, Health & Your Community* for more information on TB and HIV/AIDS.



When you work at home



Do women in your community do factory work at home?
Do home workers get the same pay as factory workers?

Sometimes garment workers work at home. They may always work at home, or they may take work home for extra pay. Some workers do not want to work at home, but the employer will not let them work in a factory. Some women prefer to work at home rather than at a factory. The problems of working at home are both similar and different to the problems workers face in a factory. Home workers can adapt many of the same strategies to learn from each other and join together to improve their working conditions.

Home work has many burdens

Costs shift to home worker: The factory owner is shifting costs of the work when he sends work to be done at home. A home worker pays for the light and electricity needed to work. Tables and chairs at home become work furniture. Any waste created by the work adds to the home worker's burden in a poor community with no waste hauling system. If the work uses chemicals, they are usually more difficult to handle and dispose of safely at home. The home worker may have to store parts, supplies, and finished goods in her home. Transporting the parts and finished goods between the home and factory may also be the home worker's task. If the work is done in a factory, all of these are clearly the boss' responsibility. If the work is sent to homes, the boss should compensate the worker for these additional costs and duties. Instead, home workers are often paid less than factory workers doing the same job.

No services: The worker at home may not get to use services provided at the factory. Some factories have a free cafeteria for workers, but the home worker makes her own

food. Some factories have health clinics during work hours, but the worker at home may not be able to use it.

The whole family works: One person may bring the work home, but often the whole family works, including the children. The family works because every extra piece made means more money is earned. Or it may take the whole family to meet a production quota that is impossible for a worker to meet alone. Work may go late into the night, with no extra pay for the long hours worked by the family.



Working alone: The worker at home may work alone all day, with no one to share problems and skills with. It is difficult for home workers to know which other women are doing factory work at home. Things that are easy to do at a factory, such as sharing information from person to person, takes much more time for home workers.

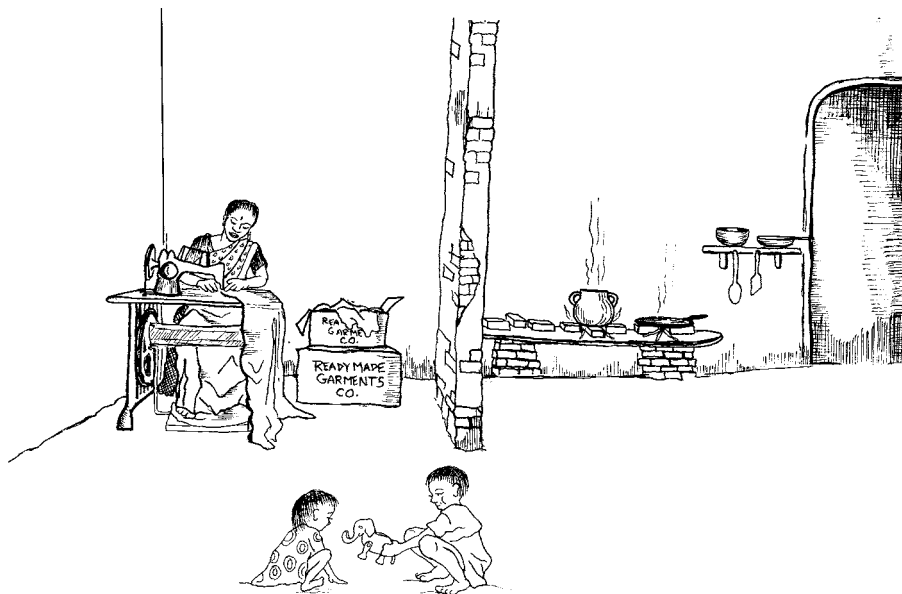
Doing two jobs at once: Some women work at home so they can watch their children while earning money. This means she is doing two jobs at once. One is to take care of children. The second is to sew. Whether or not she has children or other family to care for, she does many tasks just to maintain a home. These include cooking, carrying water, cleaning, washing and repairing clothes, buying or finding food and fuel, and keeping the home together.

Safety problems come home: People working at home face the same health and safety problems they would in a factory. Many sections of this book relate to these kinds of dangers and ways fix them.

Family health in danger: When the home becomes a workplace, all people living in the home face the dangers of that work.

The worker and her family are exposed to these dangers day and night, even after the workday is over. For example, anyone living at home may breathe or touch chemicals used in home work. Where water is scarce, it can be hard to wash the chemicals and dust off of children, dishes, furniture, and bedding. When work is done where food is prepared, stored, or eaten, work chemicals or dust can get into the food and water and be unintentionally eaten.

Fire dangers: Fire is as much a danger at home as it is at a factory. When fabrics or cleaning chemicals are in a small room near a cooking stove or lamp, they can catch fire. Fabric cleaning chemicals can catch fire. Fires from home chores, like cooking, can catch work materials on fire, injure people, and burn down the home.

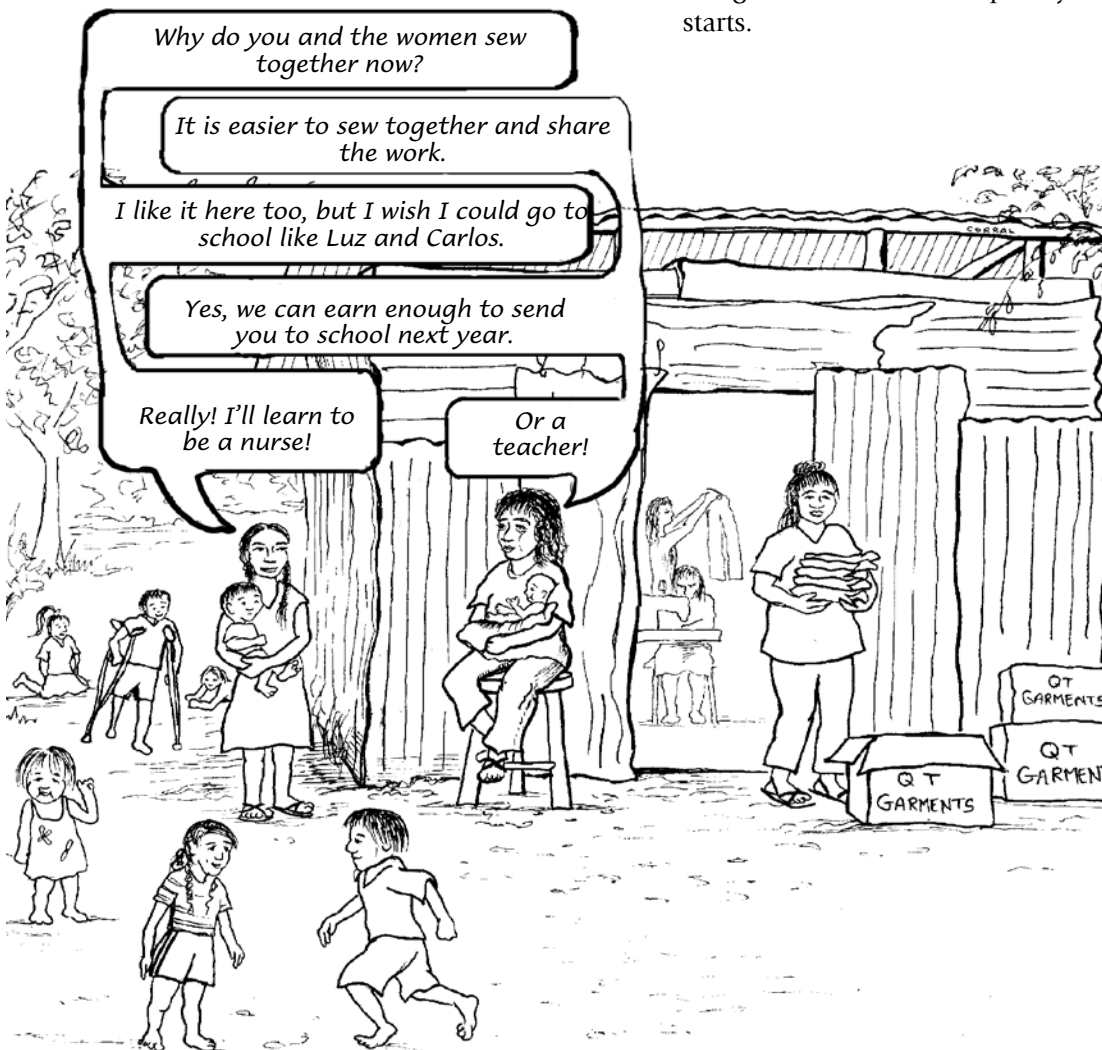


Doing two jobs at once.

Making changes

Women doing factory work at home rarely have the money to buy safer equipment or space to make a safer work area. It will help to know your rights to compensation and protection when you do factory work at home. The law may be helpful to you if you request better conditions from your boss. However, in many countries, workers in the home have no legal rights and are not recognized as employees at all. Like workers in factories, home workers can achieve more if they work together as a group and share ideas.

- Get to know other women doing the same kind of work at home. Some women have found a place to work together outside of their home. They share the space, the paid work, and caring for their children.
- Ask experienced workers to help make the work area at home safer for you and the family.
- Organize a union of home workers to push for changes in the law to recognize you as workers with rights to fair pay, maternity leave, limits on work hours, and other protections. It will be easier to win higher pay from factory managers after a campaign has been organized to change the law.
- Think about what you would do if a fire started in your home. Teach children about preventing fires and how to get away from a fire. Make sure everyone can get out of the home quickly if a fire starts.



LUZ'S HOME-WORKER GROUP

I started sewing at home to earn money for my two children, so they would not live in poverty like I have. Since I stayed at home all day, I did not think of myself as a worker. Then I began meeting with the other women in my neighborhood who sewed at home. We had many of the same problems. We worked all day and all night, and felt alone because we had no one to talk to. We were paid less than sewers in the factories but we would lose the work if we asked for more money by ourselves.



We formed our own workshop in my house, and now six of us work together. We share our problems and can talk and laugh while we sew. One of us takes care of our children while the rest sew. We share the profits equally, so we all get paid for our work sewing or caring for the children.

When there is a lot of work, some of us stay up all night sewing together. The work is still very hard, but we support each other. Soon we will be able to sell clothes directly to the company instead of the middle-man, and we will earn more money. My hope is that the organization of home-workers grows, so we support each other and move forward, recognizing ourselves for who we are—women workers.

Beyond the factory walls



Do health dangers in your factory also harm your community?

Does your factory help create a healthy community for the workers?

Just as the products of the factory are sent out when they are completed, the problems created in a factory are also sent into the community. Workers bring illnesses and injuries home, and pollution is released into the environment. In these ways, the health of people who never go inside the factory can be harmed.

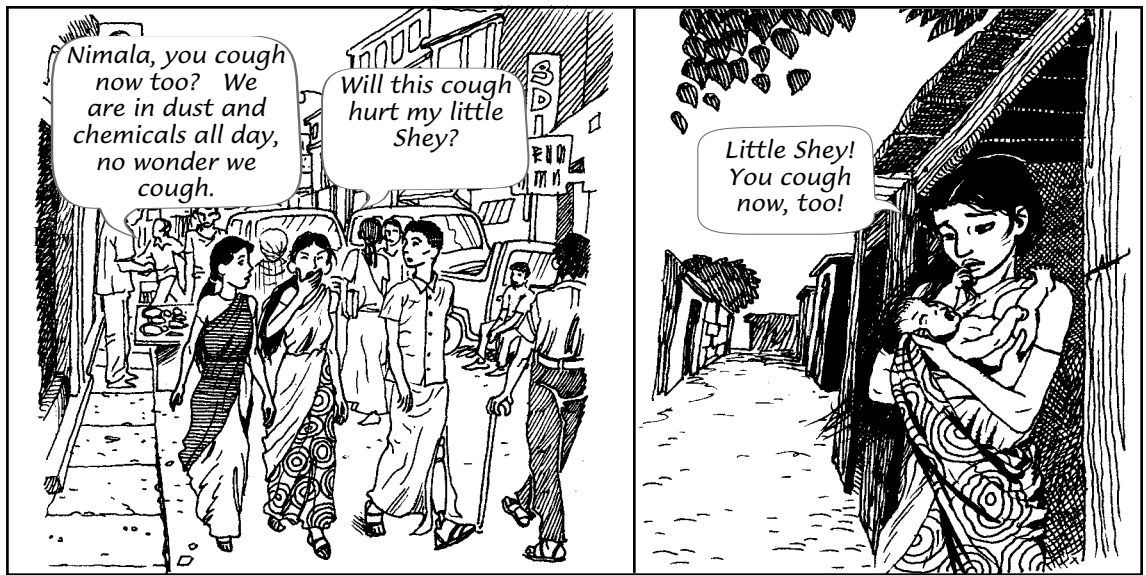
Taking injury and illness home

When a worker is injured or made ill at the factory, she brings that injury or illness home with her. The injury or illness might prevent her from taking care of herself or her family, and her friends and family may have to nurse her through the injury or illness. The stress and pressures of work and injuries can cause depression and other emotional illnesses that can lead to

problems in the family. If the illness she brings home can be spread, like TB, then other people living with her can catch it.

When illness or injury prevents you or other family members from working, the loss of income can make life difficult. Having to spend scarce money on medicines leaves even less money for food and other needs.





Taking chemicals home

Workers using chemicals at their jobs can bring chemicals or harmful dust home on their clothes, hair, hands, and shoes. Other family members can get sick from touching or breathing the chemicals or dust.

Pollution

Factories often pollute the community by putting dangerous chemicals or other waste into the air, water, or ground outside the factory. Pollution can travel a long distance from the factory site. When a factory poisons the air, people breathe it, and the poisons fall onto pastures and farms. When a factory pollutes the water, people drink the poisoned water, eat the fish swimming in it, or use it to grow crops. When a factory pollutes the land, people in the community live with poisons all around and eat food grown in it. The health effects may be different from person to person and community to community, so it can be hard to prove pollution is causing these problems. Still, many communities have concluded pollution from a local factory or garbage dump is hurting them.

Poor planning

A common sight at EPZs around the world are poor communities and shantytowns outside the factory gates. Because employers in EPZs are exempt from paying local taxes, the town or city near the EPZ has no money to build housing for the factory workers migrating to the jobs. The workers are paid so little that building housing for themselves is impossible (even getting enough food is difficult).

Without taxes from the factories, the towns have no money to expand water and sewer systems to serve the workers' neighborhoods. There is no money to expand public services such as schools, clinics, hospitals, and public buses. Even when utilities and public services are available, workers often cannot afford them. Communities can improve these conditions if they can find money, either from the factories, donations, or from the national or regional government.



Looking for pollution

Everyday pollution

Factories put out waste each day in many ways. There are chemicals and dust from the work blown outside through vents or open windows. There may be smoke from a power generator, burning waste, or diesel trucks and busses. There are waste liquids such as human waste, kitchen waste, used chemicals and oils, and water used in work processes. These may be dumped into a sewer system, if there is one, or they may be dumped onto the ground or into a stream. There is also solid waste such as spoiled parts and final products, empty chemical containers, used cardboard boxes, wood pallets, plastic, and wire. This waste may be piled on-site, sent to a local dump, or dumped somewhere outside the factory.

A good way to begin learning if the factory is polluting your community is to use your eyes, nose, and ears. Look for smoke, dust, or dirty air around the factory. Look for pollution down-wind from the factory such as a layer of dust or spots of chemicals on the ground, building, or

plants. Look at the creeks and ponds near the factory to see if they are healthy. The water should look like water from clean creeks and ponds nearby. The plants, fish, insects, and animals should look like those in nearby healthy creeks and ponds. Look for trucks leaving the factory with waste. Look for burning of waste outside the factory.

Smell the air for odors different than should be there. There may be odors only certain times, such as when busses bring workers to and from the factory, when a certain machine inside the factory is being used, when trash is burned, or when delivery trucks idle their engines.

Listen to workers to find out what they know about pollution from their factory. Ask them what kind of waste the plant puts out and where the waste goes. Listen to people in the community to find out if they are ill what illnesses they have. These illnesses may be related to pollution.

Chemical dumping

Look for signs of chemicals being dumped on the ground such as a trench where barrels of chemicals are emptied onto the ground. Notice if there are strange smells and colors in the water or air that may tell you chemicals are being dumped nearby. Listen to workers to find out if chemicals from the factory are dumped onto the ground or into water. Look for trucks leaving the factory with barrels or tanks of chemical waste. If no trucks take chemical waste away, it either goes into the air or is being dumped onto the ground or into a sewer or stream.

If you must handle or clean up chemical waste, you can take precautions to protect yourself such as wearing protective clothing to keep the chemicals off of your clothes and skin. For more information on protecting yourself from chemicals and cleaning up chemical spills, see the 'Chemicals' section on pages 78 to 81.



Fire and chemical emergencies

Fires are common in factories and can put the whole community in danger. Fires often spread beyond the factory to burn nearby buildings. Factories contain many chemicals, supplies, and equipment that can explode or make poisonous smoke. The water used to fight a fire can carry chemicals from the factory into the sewer, into nearby creeks or ground water, and into the community. Factories should prevent fires and have a good system to detect when a fire starts, sound an alarm to let workers know there is a fire, and automatic systems to put out fires (such as overhead sprinklers with water or other chemicals to put out fires).

A factory should test their alarm and evacuation plans several times a year. Look and listen for alarms being tested and workers practicing leaving the building as if it were on fire. Ask the local fire department what plans they have to handle a fire in the factory. Ask workers how the factory

prevents fires and trains workers about fire safety. For more information on preventing fires in a factory, see 'Fire' on page 66.

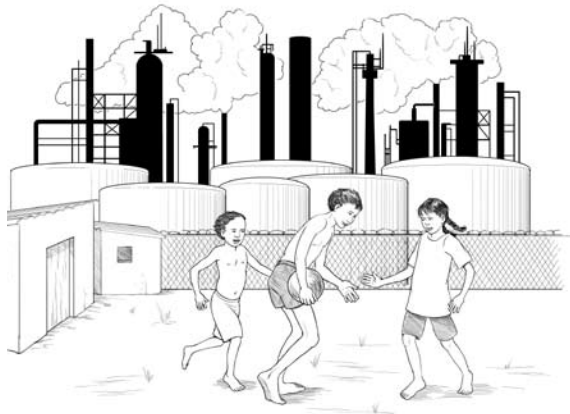
Some chemical leaks can put the whole community at risk. The story of Bhopal, India on page 126 is an example of this. Factories that use a lot of chemicals, or use chemicals that are very dangerous, should take extra care to prevent, detect, and stop leaks. Also, they should have an alarm system to alert the community and local officials of a leak as soon as one happens. The factory and community should make plans for what they will do if a major leak happens. This includes stopping the leak, protecting workers, the community, and the environment from harm, healing the damage and pollution from the leak, and compensating the injured.

For more information about chemicals at work, see 'Chemicals' beginning on page 70.

TRAGEDY IN BHOPAL

On December 3, 1984, 24 million kilograms (54 thousand pounds) of deadly chemical vapors spread across the northern part of Bhopal, India, a city of about 1 million people. While the city slept, a leak began inside a pesticide factory owned by Union Carbide. The company knew about the leak, but no alarm was sounded. Within an hour the deadly gas passed the factory fence and entered the small homes only 100 meters away. Some people died in their beds and many people collapsed as they tried to run away. More people died a little later as the gas poisoned their bodies or their lungs stopped working.

About 8,000 people died within minutes of the leak. After 20 years, 20,000 people have died and over 150,000 people live with serious health effects from the leak. Women who were poisoned later gave birth to children who also have many health problems. Today, people who escaped the leak must still eat poisoned food, drink poisoned water, and breath poisoned air. Many people who survived the leak are very poor now because they are sick and disabled.



There were warning signs of serious problems with this factory, but the factory workers and neighbors did not have the power to change Union Carbide's behavior. This disaster shows how dangerous it is to assume a factory can or will control extremely dangerous chemicals. It shows what can happen when basic safety precautions are disregarded. If the workers and community at the factory had had a voice in the decisions about their community, this disaster might not have happened. Companies that put communities at such risk are not a benefit to the people that live there.

Stacks of reports and legal decisions show the arrogance and carelessness of Union Carbide that led to the disaster. Neither the company nor the Indian government has brought enough medical care and other relief to the victims. The reports show the company lied and their doctors prevented proper treatment of the victims. The Bhopal community continues to organize to bring the company to justice and win fair compensation for the victims.

People all over the world live with factories in their communities. These factories often use dangerous chemicals, dump poisonous waste, use scarce fresh water and energy, and abuse workers. Workers and communities must work together to get companies to make their jobs and the environment safe and healthy for everyone.

Solving problems outside the factory walls

Communities that want to clean up the problems created by factories need to organize themselves to be successful. Many communities have done this, and here are some of the ideas they have used.

Form a support group

People who were injured or made ill at work sometimes gather together to share ideas and support each other. Community members can do the same. These groups usually start with the injured or ill members sharing emotional support, advice for healing, and how to adapt to illness and injury. Support groups can organize services to help each other recover, such as home visits, referrals to sympathetic doctors, and help finding jobs.

People from poor communities often do not get fair compensation from a company or local government. Support groups sometimes decide they must change the compensation system for their members to get the help they deserve. The groups organize public campaigns to improve compensation payments, medical care, rehabilitation, job training, and to clean up the pollution in their community.

Organize a meeting

To find out if other people in your community are concerned about how a local factory affects them, gather your neighbors for a meeting to talk about it. Neighbors usually have strong feelings about the good things a factory brings and the harm it causes. The group may want to gather more information to understand the situation better, or it may decide that changes need to be made immediately. This first step needs to be followed by other steps towards creating a safer place to live.

Survey the community

An effective way to gather people's opinions is to go to their homes and ask specific questions. This is often the best way to find out what women know about health in the community, because they are often too busy to join a group or attend a meetings. You can also talk to people in markets, at bus stops, and other places people go every day. Create a short list of questions and ask everyone the same questions. You can use the same list for workers in the factory and people in the community.

If you want to know about people's health, you could ask what sicknesses are common, who is sick, and who has died. You could ask how often they see a doctor or health worker, where they go if they need health care, how much it costs, and how they pay for it. You can ask if they have concerns about the factory or other things in that affects workers such as transportation, water, housing, or violence in the community.

Doing a survey educates people in the community about these issues while you learn more about their concerns. For more information on doing a survey, see 'Organize with a survey' on page 55 and the 'Talk with your coworkers' section of Chapter 3 on page 21 to 27.



Surveying the community.

Educate the community

As a neighbors' group learns more about an issue, they can share it with the rest of the community to keep them informed and build support for the group's work. For example, you might want to get more information about what chemicals are used in a factory, the health effects of a chemical, or how to measure if a chemical is in your drinking water. When you have the information you can share it with the community in many ways: call a meeting, visit families at home, talk to the local newspaper, or speak at a religious meeting or other gathering.



Share information with a guided walk through your community.

Inspect the factory

The best way to learn what is going on in a factory is from the inside. If your community has concerns about a factory, ask the manager to allow a community delegation to inspect the factory and discuss these concerns. The delegation should look at every part of the factory while work is going on and review how the factory manager prevents pollution, fires, and worker illness and injury.

The best way to understand a process is to follow it from start to finish. For example, follow a chemical from when it arrives at the factory to when it leaves. See where the chemical is stored, how it is used, how spills are prevented and cleaned up, and how the chemical goes out of the factory. The chemical can go out in the air, in the product being made, on worker's skin and clothes, in barrels, into a drain, or other ways.

Follow the product being made from start to finish to see what materials come into the factory, how they are used, what product is made, and what wastes go out. You can also follow a prevention plan from start to finish, such as how fires are prevented, how workers know a fire has started, how people are alerted to evacuate the building, and how a fire is put out. You should also ask for a list of chemicals the factory uses and for information sheets on each one.

If workers in the factory have organized a union, it is very important to talk with the union leaders about the inspection. The union members may have many concerns about conditions in the factory. When an employer treats workers badly and the worksite is dirty and disorganized, that employer probably also disregards the health of the community and environment. When workers and the community share concerns, such as preventing fires and chemical spills and improving wages, they can build a powerful alliance to win changes. The community delegation should talk with workers before the inspection. Explain the purpose of the inspection and get suggestions of things to look at closely.

You might want an advisor in the community delegation to help you interpret what you see and hear. This may be a person familiar with factory safety and environmental protection, or someone who knows the factory, such as an experienced worker from this factory or a similar one. The union may bring in a person experienced in safety and environment issues to offer advice.

Have several members of the delegation take notes during the inspection. Each person brings her own knowledge and views with her. Different people will take different notes. Combine all the notes to report back to the community about what you learned from the inspection.

Test for pollution

You can test the air, soil, and water outside of the factory to see if it is polluted. You may need an advisor to help you take samples of air, water, and soil, to find a laboratory that can analyze the samples, and to interpret the results from the laboratory. This is not difficult to do, but most people are not familiar with how to do it. You may want to ask a government health or environment agency to do testing also.



Workers and community activists talk about dangers of the factory.

Be a watchdog

Just as a watchdog guards a store at night, the community can watch a factory. A community watchdog's role is to notice what happens at the factory, make a record of it, and alert the community or local officials when a fire, chemical leak or other serious problem happens. Once the community has decided what the major problems are, a group of people near the factory can take turns watching out for just those things. For example, if the problem is too much diesel exhaust and heavy traffic, they can count the number of trucks, buses, and cars going to the factory and notice if the engines are left running. Or, if the concern is waste dumping, they can look for waste going out of the factory in trucks or being dumped on the factory grounds. If a watchdog group is to alert the community of a fire or other disaster, they must set up an alarm system such as a bell or siren to notify the community immediately. The community should plan what they will do when they hear the alarm. When people do not know what to do when an alarm sounds, they may run towards the factory instead of away from it, or they might do nothing instead of fleeing.

Work for change

When people start discussing problems caused by a factory, it is natural to also talk about what you can do to fix these problems. Whether it is how to prevent injuries to workers or how to stop the factory from dumping chemicals in the local stream, there are ways for a community and workers to make changes. Some solutions are easy to put in place. Other solutions may take years of education, organizing, and pressure to win. Community members and factory workers are most powerful if they can set shared goals and plan how they will work together.

See Chapter 3 "Where do you begin?" on page 20 for more ideas on ways to look at a factory to identify problems and solutions. For information about organizing people in the community, see Chapter 4 "Organizing for Change" on page 34.

LIFE IN NOGALES

When new factories came to the border towns of Nogales in Mexico and the US, the communities on both sides of the border welcomed them because they brought jobs. The factories did not have smoke stacks, so the community thought they would be clean.

After a while, many people started getting sick with lupus and cancers. A small group of sick people got together to support each other. They named their group LIFE, Living is for Everyone. They made a plan to find out why so many people were sick.

LIFE surveyed their neighborhoods and made a map of Nogales showing where people with different sicknesses lived on the US side of the border. The map showed that people living near certain wells were sick much more than in other parts of the community. They saw a connection between the illnesses and their water. They also noticed how dangerous the air had become in recent years. A cloud of toxic smoke often floated through the communities on both sides of the border, from a dump that burned chemical waste from the factories.

LIFE took pictures of the dump and the pollution and contacted the local and national media. They asked that the dump be closed, and for studies of the pollution from the dump and nearby factories.

The government studied the water, ground, and air and found high levels of chemicals that cause cancer. These studies attracted a lot of attention from the media and politicians. Groups from the government and the community on both sides of the border joined together in education campaigns about health and the environment. Mexican officials closed the dump that burned the factory waste, and opened another dump 8 miles away that does not burn any waste.

The Nogales communities on both sides of the border celebrated the closing of the dump, and the education campaigns raised awareness about the link between health and the environment. The communities see much more work to be done. People need clean containers to transport water, instead of old chemical barrels from the factories. They are still working for a healthier community.

