

# Prevention of Disabilities

## CHAPTER

# 3

Because this is a book on rehabilitation, it is mostly about children who are already disabled. However, preventing disabilities is also very important. For this reason, in most chapters on specific disabilities, we include suggestions for preventing them.

Notice that we place the discussion of prevention at the end of each chapter, not at the beginning. This is because people are usually not concerned about disability until someone they love becomes disabled. Then their first concern is to help that person. After we have helped a family to do something for their child, we can interest them in ways to prevent disability in other members of the family and community.

We mention this because when health professionals design community programs, often they try to put prevention first—and find that people do not show much interest. However, when a group of parents comes together to help their children, after their immediate needs are being met, they may work hard for disability prevention.

**For a community program to be successful, start with what the people feel is important, and work from there.**

To prevent disabilities, we must understand the causes. In most parts of the world, many causes of disability relate to poverty. For example:

- When mothers do not get enough healthy foods to eat during pregnancy, often their babies are born early or underweight. These babies are much more likely to have cerebral palsy, which is one of the most common severe disabilities. Also, some disabilities present at birth are related to poor nutrition during the first months of pregnancy.
- When babies are not breastfed and young children do not get enough to eat, they get infections more easily and more seriously. Diarrhea in a malnourished baby happens more often, usually lasts longer, and is more likely to lead to serious outcomes such as brain injury or death.
- Poor sanitation and crowded living conditions, together with poor food, make diseases such as tuberculosis—and the severe disabilities it causes—much more common.
- Exposure to toxic chemicals even before birth can cause different kinds of disabilities in children. More dangerous chemicals are used or disposed of in or near poor communities.
- Lack of basic health and rehabilitation services in poor communities makes disabilities more common and more severe. Often secondary disabilities develop that could be prevented with early care.

To prevent the disabilities that result from poverty, big changes are needed in our social order. There needs to be fairer distribution of land, resources, information, and power. Such changes will happen only when the poor find the courage to organize, to work together, and to demand their rights. People with disabilities and their families can become leaders in this process. Only through a more just society can we hope for a long-term, far-reaching answer to the prevention of disabilities caused by poverty.

Although the most complete prevention of disabilities related to poverty depends on social change, this will take time. However, more immediate actions at family, community, and national levels can help prevent some disabilities. For example,

- Polio, in most situations is prevented through vaccination. (However, effective vaccination depends on much more than good vaccine. See the box.) →

In places where vaccination is not available or not fully effective, families and communities can help to lower the chance of paralysis from polio by breastfeeding their children as long as possible (see p. 74).



Why, since a good vaccine exists, is there still so much polio in so many countries?

EFFECTIVE VACCINATION DEPENDS ON MANY FACTORS:

**TECHNICAL** Production and supply of safe, effective, vaccine.

**ECONOMIC** (Cost of vaccine and of getting it to the children.) Leaders in poorer countries must decide that stopping polio is worth the expense.

**MANAGEMENT** Knowledge of needs, planning, transportation, and distribution of the vaccine.

**KEEPING POLIO VACCINE VERY COLD** In many countries, 1/3 of vaccines are spoiled by the time they reach the children.

**EDUCATION** People must understand the value of vaccination and want to cooperate. Health workers must know how important it is to keep polio vaccine cold.

**POLITICAL** Vaccination programs are most successful where the government fairly represents the people and has their full participation in countrywide vaccination campaigns.

**ETHICAL** (honesty and goodwill) Doctors, health workers, and citizens must try to see that vaccine reaches all children. (In some countries, some doctors throw vaccines away and fill out false reports, and health inspectors do not care enough to try to stop what is happening.)



- Brain injury and seizures can become less frequent if mothers and midwives take added precautions during pregnancy and childbirth, and if they vaccinate children against measles (see p. 107).
- Some physical and mental disabilities can be prevented if mothers avoid most medicines and alcohol during pregnancy, and spend the money they save on healthy foods.
- Spinal cord injury could be greatly reduced if fathers would spend on education and community safety what they now spend on alcohol and guns.
- Leprosy could mostly be prevented if people would stop fearing and rejecting persons with leprosy. By being more supportive and encouraging early home treatment, the community could help prevent the spread of leprosy, since persons being treated no longer spread it (see p. 215).
- Vision problems in young children in some countries are caused by not eating enough foods with vitamin A. Again this relates to poverty. However, many people do not know that they can prevent this vision loss by feeding their children dark green leafy vegetables, yellow fruits, or even certain weeds and wild fruit. Also, some kinds of hearing loss and cognitive delay can be prevented by using iodized salt during pregnancy (see pp. 276 and 282). Some disabilities related to bone development, such as rickets, can be prevented when mothers and children get enough foods with vitamin D and calcium (see p. 125).

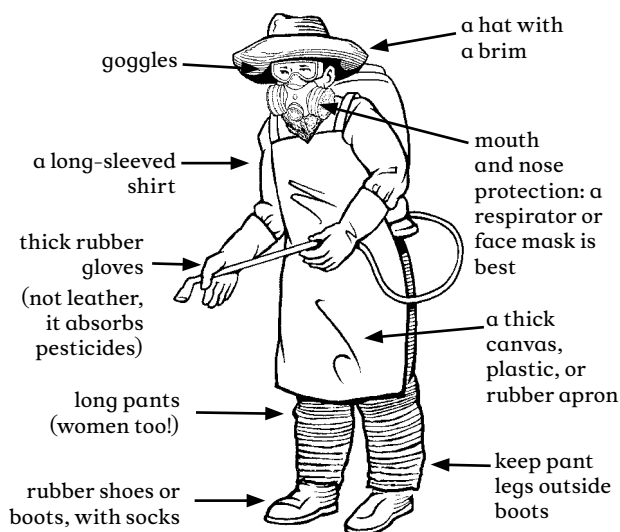
- Disability caused by poisons in food, water, air, or workplace. The recent, common, worldwide use of chemicals to kill insects and weeds has become a major health problem. Often villagers use these pesticides without any knowledge of their risks, or of the precautions they should take. As a result, many develop paralysis, vision loss, or other disabilities.

To prevent these problems, people need to learn about the dangers, not only to themselves and their children but to animals, birds, land, and to the whole "balance of nature." Less dangerous ways to control pests give better results over time. Laws are also needed to prohibit the most dangerous products and to provide clear warnings.

- Hunger and drought force people to eat "poisonous" foods when they have nothing else. "Lathyrism," a paralysis caused by eating a type of peas in India, and "konzo," paralysis from eating bitter cassava in Mozambique, will only be cured by food security: fair wages and access to land.

### TO PROTECT AGAINST PESTICIDE POISONING

- Stand so that wind blows spray away from you.
- Wear protective clothing, covering the whole body.



- Wash whole body and change clothes immediately after spraying.
- Wash clothes after spraying.
- Do not let wash water get into drinking supply.
- Do not use spray containers for food or water.
- Do not let children play with spray containers.

**CAUTION:** Make sure that children, and women who are pregnant or breastfeeding, stay away from all pesticides.

- Fluoride poisoning (fluorosis), mainly from drinking water, is a common cause of bone deformities (knock-knees) in parts of India and other places. Public health measures are needed to provide safe water.\*
- Dangerous work conditions, poisons in the air, and lack of basic safety measures result in many disabilities. These include burns, amputations, vision loss, and back and head injuries. In some countries, the use of asbestos for roofs or walls in schools, work places, and homes causes disabling lung diseases. Strict public health measures and an informed, organized people are needed to bring improvements.
- Certain dangerous medicines, known to sometimes cause disabilities, are now prohibited in the countries that make them, but are still sold in other countries. For example, diarrhea medicines containing cloquinal caused thousands of cases of vision loss and paralysis in Japan.

The high cost, overuse, and misuse of medicines in general adds greatly to the amount of poverty and disability in the world today. Better education of both doctors and people, and more effective international laws are needed to bring about more sensible supply and use of medicines.

\***Note:** Although too much fluoride is harmful, some is necessary for healthy bones and teeth. In some areas fluoride needs to be removed from drinking water; in other areas it needs to be added.

## WHO SHOULD BE RESPONSIBLE FOR DISABILITY PREVENTION?

Notice that many of the specific preventive measures we have discussed, just like the more general social measures, depend on increased awareness, community participation, and new ways of looking at things. These changes do not just happen. They require a process of education, organization, and struggle led by those who are most deeply concerned.

Most people without disabilities are not very concerned about disability or trying to prevent it. Often people think, "Oh, that could never happen to me!"—until it does.

Those who are most concerned about disability are usually people with disabilities themselves and their families. Based on this concern, they can become leaders and community educators for disability prevention.

They can do this in an informal, person-to-person way. For example,



Disability can affect everybody, and sometime in our lives it usually does.

Or children with disabilities and families can join together to form prevention campaigns. In one village, mothers put on short plays to inform the whole community about the importance of breastfeeding and vaccination (see p. 74). In Project PROJIMO, Mexico, rehabilitation workers with disabilities have helped to vaccinate children in remote mountain villages.

In PART 1 of this book, where we discuss different disabilities, we also include basic information on prevention. We hope that those of you who use this book to work with children with disabilities will also work actively to prevent disability.

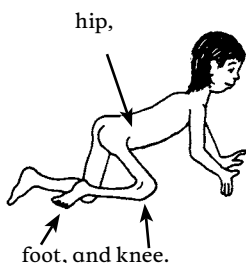
## PREVENTING SECONDARY DISABILITIES

So far we have talked mainly about preventing original or primary disabilities, such as spinal cord injury. But the prevention of secondary disabilities is also very important, and is one of the main concerns of rehabilitation.

By "secondary disabilities" we mean further disabilities or complications that can appear after, and because of, the original disability.

For example, consider a child with polio or cerebral palsy who at first is unable to walk. She gradually loses the full range of motion of joints in her legs. These “contractures” keep her legs from straightening. This secondary disability may limit the child’s ability to function or to walk even more than the original paralysis:

This child, after polio, gradually developed contractures in her

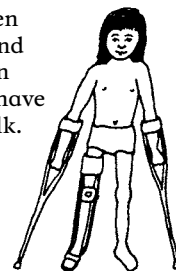


The contractures (not the original paralysis) kept her from being able to stand or walk.



If the contractures had been prevented through early and continued range-of-motion exercises, the child would have been able to stand and walk.

Most contractures can be corrected. But it may take a long time and a lot of expense—perhaps even surgery. It is far better to prevent contractures before they start.



Because contractures develop as a common complication in many disabilities, we discuss them in their own chapter (Chapter 8) and we discuss preventing them due to specific conditions throughout the book. Range-of-motion exercises to help prevent and correct contractures are described in Chapter 42. Use of plaster casts to correct contractures is described in Chapter 59.

Many other secondary disabilities will also develop unless preventive measures are taken. Some examples are pressure sores in children with spinal cord injury (see Chapter 24), spinal curve in a child with a weak back or with one leg shorter than the other (see Chapter 20), and head injuries due to seizures (see p. 235). Preventive measures for many other secondary disabilities are discussed in the chapters on the specific disabilities.

In several places we discuss disabilities that are commonly caused by medical treatment or orthopedic aids. For example,

- Phenytoin, a medicine for seizures, produces serious swelling of the gums in some children. This can partly be prevented by brushing the teeth regularly (see p. 238).
- Crutches that press hard under the armpit can damage nerves and gradually paralyze the hands. Shorter crutches, or lower-arm crutches (like those shown above) prevent this (see p. 393).
- Surgery is sometimes done to remove contractures that actually help a child to move or function better. So worse difficulties result. The benefits or possible harm of surgery should be carefully evaluated before it is done (see p. 530).
- Some braces or aids that help a child at first may later actually hold her back (see pp. 526 to 529).

To prevent these mistakes, it is essential to evaluate the needs of each child carefully, and repeat evaluations periodically. We must take great care to prevent further disability caused by treatment.

**The first responsibility of a rehabilitation worker or parent, like the healer, should be: to do no harm.**

In addition to secondary disabilities that are physical, others may be psychological or social (affecting the child's mind, behavior, or place in the community).

Some children with disabilities develop serious behavior problems. This is often because they find their bad behavior brings them more attention and rewards than their good behavior. Chapter 40 discusses ways that parents can understand their children's behavior to help them improve.

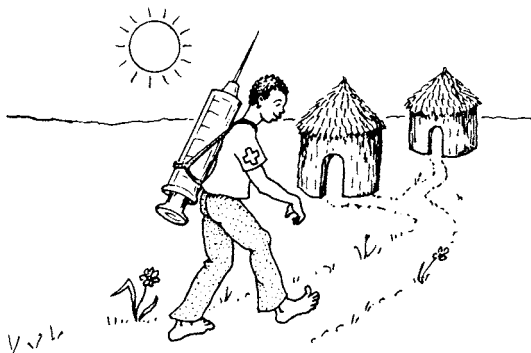
A major challenge many people with disabilities face is lack of understanding and acceptance by other people. PART 2 of this book talks about how the community can be involved in taking a more active, supportive role in relating to people with disabilities and helping them to meet their needs. In PART 2 we also discuss what people with disabilities and their families can do in the community to promote better understanding and prevent disability from becoming a serious impairment.

**Prevention of secondary disability is a basic part of rehabilitation.**

## THE NEED FOR MORE SENSIBLE AND LIMITED USE OF INJECTIONS



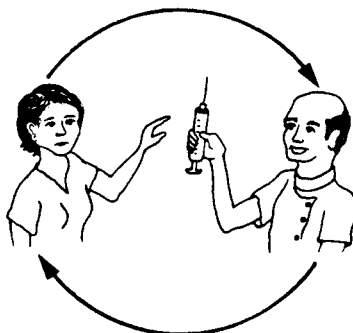
The overuse and misuse of medicines in the world today has become a major cause of health problems and disabilities. This is partly because medicines are so often prescribed or given wrongly (for example, certain medicines taken in pregnancy can cause disabilities, see p. 119). And it is partly because both poor families and poor nations spend a great deal of money on overpriced, unnecessary, or dangerous medicines. The money could be better spent on things that protect their health—such as food, vaccinations, better water, and more appropriate education. Some medicines, of course, when correctly used are of great importance to health. But most are not. Of the 30,000 medicinal products sold in most countries, the World Health Organization says that only about 400 are needed.



In most of the world, doctors, health workers, and the people make giving and getting injections too big a part of health care.

In many countries, injections have become the modern magic. People demand them because doctors and health workers often use them, and doctors and health workers use them too often because people demand them.

I HAVE  
FAITH IN  
INJECTIONS  
BECAUSE  
MY DOCTOR  
USES THEM.



I GIVE  
SO MANY  
INJECTIONS  
BECAUSE  
MY PATIENTS  
HAVE FAITH  
IN THEM.

## HOW INJECTIONS DISABLE CHILDREN



This child was injected with a needle that was not clean enough. The dirty needle caused an infected abscess (pocket of pus) that burst. The child had been injected for a cold. It would have been better to give him no medicine at all.

When used correctly, certain injected medicines, like some vaccinations, are important to protect a child's health and prevent disability. However, giving injections with an unclean needle or syringe is a common cause of infection and can pass the germs that spread HIV and other serious infections like hepatitis (see *Where There Is No Doctor*, pp. 399 to 401, and 172).

Dirty needles and syringes can also cause infections that lead to paralysis or spinal cord injury (see the story on p. 192), or death. A needle or syringe must never be used to inject more than one person without first disinfecting it again.

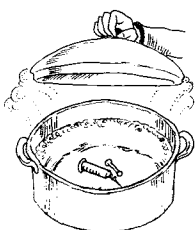
Also, some injected medicines can cause dangerous allergic reactions, poisoning, and hearing loss. And the overuse of injectable hormones to speed up childbirth and "give force" to the mother is a major cause of babies born with brain injury.

### How to clean and disinfect injection needles and syringes

Most syringes and needles are disposable (are used only once) and come in sterile packages. Some of them can be taken apart, boiled, and reused several times before they fall apart. We do not recommend this, but if you must reuse them, follow these instructions first:

1. Put on a pair of heavy gloves to protect your hands.
2. Draw clean water (or even better, mix 1 part bleach with 7 parts water) up through the needle into the syringe barrel. If you use bleach, make a fresh solution each day or it will not be strong enough to kill germs anymore.
3. Squirt out the water or bleach. Do this several times.
4. If you have used bleach, rinse everything several times with clean water.
5. Take apart the syringe and needle and boil them in water for 20 minutes (as long as it takes to cook rice), or steam them for 20 minutes.

**Note:** For both boiling and steaming, start counting the 20 minutes after the water is fully boiling.



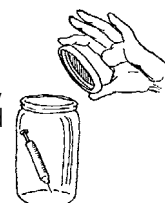
To boil them, make sure water covers everything in the pot the entire time. If possible, put a lid on the pot.



To steam them, you need a steamer pot with a lid (a pot with holes in it that fits inside another pot). Use enough water to keep steam coming out the side of the lid for 20 minutes.

### Storing your needles and syringes

When the needle and syringe have dried, store them carefully in a dry container, like a glass jar with a screw-on lid. Make sure these have also first been cleaned and disinfected. If you are not able to store them this way, boil or steam the needle and syringe again before use.



The worldwide epidemic of unnecessary injections each year sickens, kills, or disables millions of persons, especially children. An international campaign is needed to re-educate doctors, nurses, health workers, traditional healers (many of whom also now overuse injections), and the people themselves.



**AVOID UNNECESSARY INJECTIONS**

Combatting misuse and overuse of medicines is as important to health as vaccination, clean water, or the correct use of latrines. Health workers, school teachers, and community organizers should all work to help people weigh the possible risks and benefits of using any medication. For ideas on teaching about the danger of unnecessary injections, see *Helping Health Workers Learn*, Chapters 18, 19, and 27.

## ARMED CONFLICT AS A CAUSE OF CHILD DISABILITY

Armed conflict takes many forms in the world, including wars, police and gang violence, and conflict related to drug activity. This violence often affects civilians as well as locations, like hospitals or schools, that were once considered “safe havens.” Worldwide, more than 1 in 10 children are affected by armed conflict. In the first decade of the 21st century, most of the deaths from armed conflicts were civilians, and many of these were children.

Combat and weapons are a threat to children, but many of the harms of armed conflict don’t come directly from the fighting, or end when the fighting stops. Violence often creates conditions that lead to injury, disability, and death in children. These include destruction of education and healthcare systems, increased poverty, environmental damage, and unsafe living conditions that force people to leave their homes or separate children from their families. These conditions have long-lasting impacts on children’s physical and mental development.



**Nicaraguan child injured by a Contra bomb. The Contras were rebel troops supported by the US government to overthrow the government of Nicaragua. (Photo by Marc Krizack, *Links*.)**

For children already affected by conflict, encouraging their participation in their care and recovery can help them feel more in control of their situation. Letting these children know what will happen during their care and incorporating play into rehabilitation can support their healing processes. Recognizing the needs of their caregivers and connecting their families to resources also supports their long-term well-being.

We must also work to prevent further harm to children from armed conflict. In areas subject to violence, programs that promote children’s access to education and families’ access to sources of income are vital to this effort. The resources below provide more information.

### Resources

**Emergency Response Tool Kits**, available in more than 20 languages, from Capacitar International, [office@capacitar.org](mailto:office@capacitar.org)  
Available online: <https://capacitar.org/capacitar-emergency-kits-to-download/>

**Refugee and Immigrant Core Stressors Toolkit**, how stress and trauma affects refugees and immigrants and ways to help. Boston Children’s Hospital Trauma and Community Resilience Center, [tcrc@childrens.harvard.edu](mailto:tcrc@childrens.harvard.edu)  
Available online: [https://redcap.tch.harvard.edu/redcap\\_edc/surveys/?s=HRPDCPPA3H](https://redcap.tch.harvard.edu/redcap_edc/surveys/?s=HRPDCPPA3H)

**War Child**: legal, psychosocial, educational and financial support to children and families affected by armed conflict.  
[info@warchild.org.uk](mailto:info@warchild.org.uk), [www.warchild.org/](http://www.warchild.org/)