



**HEALTH EDUCATION PROGRAM  
FOR  
DEVELOPING COUNTRIES  
HANDBOOK**

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**HEALTH EDUCATION PROGRAM FOR DEVELOPING COUNTRIES  
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## PREFACE

The *Health Education Program for Developing Countries* was created to provide the **most important** health care information to the people who need it most. The program:

- is based on the most critical global health care needs as specified in the latest World Health Organization (WHO) World Health Reports.

- emphasizes the top 10 leading risk factors globally that cause the most deaths and suffering.

- describes WHO guidelines for the prevention of these as well as other common diseases through “reducing risk and promoting healthy life.”

- includes mental health and other recommendations for recovering from disasters, physical or sexual assault, or other serious accidental or war-inflicted injury.

- supports WHO’s holistic approach to care of the whole person: body, mind and spirit.

- incorporates WHO guidelines such as “Integrated Management of Childhood Illness,” and provides additional **evidence-based** guidelines for prevention and treatment from Centers for Disease Control and Prevention (CDC) and other WHO collaborating partners

- addresses the most important health problems in "developed" as well as "developing" countries.

- empowers patients, families and the local community to save lives and relieve suffering by preventing and managing their most common and serious medical conditions.

- includes the written **Handbook** as well as realistic full color **Illustrations** (58 posters-available in two sizes 8.5 x 11 inch Notebook or 11 x 17 inch laminated, as well as in PDF format for large screen projection.

Most of the patients we see in developing countries are suffering from diseases that are preventable. **Of all their medical needs, the greatest by far is for reliable health care information.** Although evidence-based life-saving information is available from the WHO, CDC and other sources, it seldom reaches our patients or even their health care providers. This program was created to help meet that need

### **HOW TO USE THE PROGRAM (HANDBOOK AND ILLUSTRATIONS):**

This program **enables the integration of Primary Care and Community Health, at all three levels of the WHO "Ideal Health Pyramid"** levels of care: 1.Hospital 2.Clinic/Health Center and 3. Family/Community. Most of the content is also relevant to urban, as well as, rural communities; and to developed, as well as, developing countries.

- At the Hospital and Clinic/Health Center level it is used primarily by **physicians** for **individual** patient counseling and by **nurses** for both individual and group counseling (Teaching at the time of patient need is often the most effective method for behavior change).

- At the Family/Community level it is used primarily by **community health workers, teachers** and **church/faith-based or other local community health programs**. The program at the community level is based on the following principles (From the WHO):

- “a. Communities can and should determine their own priorities in dealing with the

problems that they face.

b. The enormous depth and breadth of collective experience and knowledge in a community can be built on to bring about change and improvements.

c. When people understand a problem, they will more readily act to solve it.

d. People solve their own problems best in a participatory group process.”

The numbered information sections of the **Handbook** are organized to be used with the numbered **Illustrations**. The Handbook format was developed in response to requests by health care providers, teachers, pastors and other community leaders in developing countries to enable them to provide ongoing community health care education. The program was developed for use by **non-medical as well as medical** people, and can be easily individualized to meet the most important needs of your community.

The **large posters** and **PDF format with large screen projection** are used by health educators to provide the **most critical community-specific information to larger groups of patients**.

**The removable notebook size illustrations are used by physicians and other educators** for smaller groups and for patient-specific teaching.

We also attempt to present the information in a **culturally acceptable** manner demonstrating a **participatory** approach that will be most likely to cause a beneficial change in behavior. However, because of space limitations, only a few of the numerous cross-cultural approaches to teaching could be included. The primary function of this program is to provide the most important and very best evidence-based health care information. Local leaders should utilize the participatory method and cultural approach that is most effective for their particular community.

In addition, **optional italicized sections are included:**

-to address **area-specific diseases** such as schistosomiasis

-and to **assist short term medical teams**.

Additional information is available on the website [www.hepfdc.info](http://www.hepfdc.info) under “How to Use the Program”

These guidelines were developed to help families and communities save the most lives and relieve the most suffering by preventing and managing their most common and serious medical conditions. However, there are times when compliance with the best evidence-based guidelines may not be possible and treatment may need to be modified (Lack of means to boil water, or lack of availability of Oral Rehydration Solution packets, for example). Even our very best evidence-based sources include a disclaimer for liability purposes, and we are also required to state the following: All reasonable precautions have been taken to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either express or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall the authors or their reference sources be liable for damages arising from its use.

The goal of this program is to provide the best available life saving information to as many people as possible. For this reason the program must remain available **free or at cost** and we have granted permission to copy the program for non-profit educational purposes. The program is protected by copyright and copying or distributing for commercial use or profit is prohibited.

## **ORDERING INFORMATION AND UPDATES:**

The program is currently available in English, French, Mandarin and Spanish. It will continue to be revised to incorporate new evidence-based information and **will remain available at no cost** (for noncommercial use) **for downloading at [www.hepfdc.info](http://www.hepfdc.info)** **As the program will continue to be updated to include the latest evidence-based guidelines, you will need to check this website occasionally to ensure your copy is current.** (The revision date is found at the top of the Handbook “Table of Contents” page.) Evidence-based recommendations for improvements to the program are much appreciated and may be sent to [edit@hepfdc.info](mailto:edit@hepfdc.info)

The **Illustrations** should not require much future revision. However they are relatively large files and may be difficult to download for those without high speed internet access. Our website file size has been reduced as much as possible to enable downloading for those in developing countries. However this may result in some decrease in quality of the illustrations under some circumstances, and the file size may still be too large for many to download.

We have therefore made available a **CD** which includes the entire program in all languages. The CD Illustration PDF file size is about 32 MB versus about 7 MB for the free downloaded version. You do not need the CD unless:

- 1) You are unable to download the above 7MB PDF version of the illustrations.
- 2) You are not satisfied with the quality of the downloaded 7MB PDF version for printing the 11 x 17 inch poster-size illustrations.
- 3) You are not satisfied with the quality of the downloaded 7MB PDF version for large screen projection.

For those who are unable to download the Illustrations, or wish to order the CD with higher resolution illustrations (Also those who do not wish to make their own copies of the Notebooks), the CDs, as well as the Notebooks, may be purchased at cost from Foundation for His Ministry (FFHM) as part of their services for the poor. A link to the FFHM website is provided at [www.hepfdc.info](http://www.hepfdc.info)

For those able to download the free illustrations, the Notebook can be produced for less than \$25 in materials. (See “Producing Your Own Notebooks and Posters” below.)

**Disclosure/Conflict of Interest Validation:** The author (editor), illustrator and HEPFDC receive no royalties or compensation of any kind related to the "Health Education Program for Developing Countries" or its website.

## **PRODUCING YOUR OWN NOTEBOOKS AND POSTERS:**

**NOTEBOOK:** 8.5 x 11 inch Notebook-size Illustrations: Download (Free) at [www.hepfdc.info](http://www.hepfdc.info) These can be reproduced on your home printer.

One inch round Ring View Binders with clear overlay front pocket for cover insertion and interior pockets. (Cost is \$2-3.)

Sheet Protectors. 29 protectors for the 58 back to back illustrations are needed for each Notebook (We Currently use Sparco Top loading, Heavy weight, Non glare, Clear # SPR74102 available for about \$6-\$7/100 = About \$2 per Notebook).

Report Covers for the written Handbook. (Storex Quick Bind Report Covers are available from suppliers for About \$2.)

The remaining costs are for paper, printer ink and labor for printing and assembling.

**POSTERS:** 11x17 inch poster-size illustrations: Download (Free) and copy to a CD, or order the high resolution CD at [www.hepfdc.info](http://www.hepfdc.info) The 8.5x11 inch (letter size) format can be easily enlarged (129 %) to the 11x17 inch (tabloid size) format by computer printer programs. However, most home printers are unable to print documents 11 inches wide.

The 58 illustrations (29 double sided laminated posters) may be easily made from a CD by your local copy or office supply shop usually for \$5-\$6 per double sided 5 mil laminated poster or about \$150 per set. (However, you need not reproduce all 58 Illustrations. You may choose only those that are most important to the community you will be working with.)

Additional suggestions concerning Notebook and Poster production are included in the CD and on the website [www.hepfdc.info](http://www.hepfdc.info)

### **ACKNOWLEDGEMENTS**

Our goal, from the beginning, has been to provide the very best and most important evidence-based guidelines. The sources for the best available evidence-based information have changed over the years. The program content is now based almost entirely on information and guidelines available through the World Health Organization and its numerous (over 900) collaborating partners. It represents the work of literally thousands of statisticians, epidemiologists and clinical experts throughout the world. Additional information and references are available at [www.who.int](http://www.who.int)

We also need to especially thank Vicki Hesterman, Ph.D., for her editorial assistance, and Daniel E. Fountain, M.D., for recommendations concerning cross-cultural teaching.

We are also deeply indebted to Foundation for His Ministry, Global Health Outreach, and our many patients, friends, family and colleagues for their unfailing inspiration, advice and assistance.

Arnold Gorske, M.D., F.A.A.P  
Virginia Mashburn Baron

## 1. INTRODUCTION (COVER PAGE)

*Give appropriate greeting in native language.* We are very thankful to be invited to your community and we thank you for your wonderful hospitality. *Show Illustration number 1. INTRODUCTION (COVER PAGE).*

These happy, healthy children represent holistic health care. Holistic means care of the whole person, body, mind and spirit, as each of these is very important to your health. This is the kind of health care that is recommended by the World Health Organization (WHO). The painting also represents our goal to provide the very best health care to as many people as possible. So how can we accomplish this?

## 2A. THE MOST IMPORTANT KNOWLEDGE

You have probably often heard that **“Knowledge is more important than Medicine.”** We also believe this is true. **Most diseases, even the very serious ones, are entirely preventable.** So the most important way our health care providers can try to help you is with knowledge, to enable you to better care for yourself and your families.

*(Note regarding Cross-Cultural, Participatory Teaching): People solve their own problems best in a participatory group process. It is important to know as much as possible about the beliefs of the people we are working with. Asking questions such as the following will also promote group discussion:*

First, we would like to know more about you and the people of your community. For example, when a child in your community becomes ill with diarrhea or pneumonia, what will the parents think about the cause of the child’s illness?....

Much of the most important knowledge we will talk about was known by our ancestors (yours and mine) thousands of years ago, but over the years much of that knowledge was forgotten. For example, many of our ancestors believed that invisible things caused illness, things they could not see. How many here believe that?.... Well, if you believe that you are absolutely correct. So our ancestors, yours and mine, were certainly as intelligent and as observant as you and I.

However, there was one very important thing they did not have, and that one thing was critical to our understanding of what makes us sick. Does anyone know what that one thing was? The microscope. With powerful microscopes we can actually see worm eggs and bacteria and even viruses. And thousands of studies have shown that they are the true causes of most diseases we see, especially in children.

Of course without a microscope there is no way you could know this. And so some people have guessed that maybe these diseases were caused by someone cursing us or perhaps because God was angry with us. But if they would have had microscopes they would have seen that the true causes of those diseases were the viruses, bacteria and parasites.

## 2B. THE MOST IMPORTANT KNOWLEDGE

### **What is the most important knowledge?**

Most patients we see believe very strongly in spiritual causes of illness. WHO reports emphasize the importance of the holistic (spiritual as well as mental and physical) approach to healing. Although there is no evidence that other people cursing us can affect our health (unless we believe it will); there is much evidence that our spiritual beliefs, feelings and lifestyles can be very important.

Many of our patients believe that the most important knowledge they have is that God loves each one of us and we need to love each other. Most of our atheist patients agree

that if we were all able to respect and treat each other in a truly compassionate manner, we could eliminate nearly all the unnecessary deaths and suffering in the developing, as well as, developed world. Numerous World Health Organization reports confirm the disastrous effects of war, poverty and malnutrition in areas such as child mortality.

World Health Organization reports also emphasize the importance of loving relationships in the prevention and treatment of illness in areas such as mental health. Other respected medical organizations, such as the Academy of Pediatrics, confirm the critical importance of demonstrating love in raising our families. Loving care is especially important for children.--One of the earliest pediatric scientific studies showed that simply holding children when they were ill could reduce their mortality over 25%.

Here we are again relearning what our ancestors, yours and mine, knew thousands of years ago. They knew the importance of caring for each other, and also the harmful effects of hate and anger. Most of us have noticed ourselves that when we are angry we often get headaches or stomach or chest pains. Forgiving people who hurt or offend us is often very difficult. However, this is much more important to our own health and to our family's wellbeing than any revenge might be against those who may have harmed us.

This can affect all areas of our lives, physical as well as mental. Numerous scientific studies in psychosomatic medicine have demonstrated the powerful effects of our beliefs, on our nervous, immune (disease fighting), cardiovascular (heart and blood vessel) and other body systems.

For example, if we believe that a pill will help us, it will help us even if the pill has nothing in it but sugar. So, although pills and potions can occasionally be helpful, pills and potions get a lot of unearned credit for the healing that is actually due to the powerful self-healing effects of our beliefs. So from a scientific standpoint, we know without question, that our beliefs are very important for healing. This is not at all controversial, and is proven scientific fact.

So, regardless of the cause, there is much each of you can do to prevent illnesses and suffering and to promote health and well being in yourselves, your families and your communities. The remainder of this program will address the following:

- Knowledge that will help you save the most lives and relieve the most suffering.
- Knowledge that is accurate and the best available in the world.

### *Flip back to 2A. **THE MOST IMPORTANT KNOWLEDGE***

**Why is knowledge more important than medicine?** The importance of knowledge can easily be shown in the treatment of the most common illnesses we get, virus colds. Nearly all of us get these infections two or three times a year and children often get them 5 or 6 times a year. Many of you here today have virus colds. These infections are usually not very serious and after a few days you would get better without any treatment at all. However, virus cold symptoms can make us feel miserable, so people often buy medicines thinking they will help. There are hundreds of different kinds of cold medicines for sale in the States and in most countries we go to. Unfortunately, none of these medicines, even those in the States, have been shown to be effective in curing colds or even reducing complications. And many of the medicines have actually been shown to be harmful and can make people sicker. Yet families we see often go hungry so they can afford to purchase cold medicines. So for virus colds you are better off not taking these medicines at all. There are other treatments that help and are safe and we will talk about those later (*Sections 30 & 31*).

The importance of knowledge is also shown with the world's most serious diseases. Tobacco related diseases are now the world's leading preventable cause of death. Smoking prevention is clearly much more important than all of our medicines and all of our treatments (*Section 41*).

Another example is AIDS. The entire world is suffering from the AIDS epidemic and over 45 million people are now infected. Although there are medicines that can help you live longer with AIDS, there is no cure and all of these people will die from the disease. Yet with knowledge, all this death and suffering could have been prevented.

There are, of course, conditions such as bacterial and worm infections where medicines are effective and are very important. However, even here it is knowledge that is most important, for knowledge could very often prevent us from getting the infection in the first place. Time after time, for nearly every kind of illness, evidence-based studies clearly show that knowledge and information are much more important to our health than medicines.

The information we will give you is the **very best information we could find in the world.** It comes directly from the World Health Organization (WHO) and other very highly respected sources such as the Centers for Disease Control and Prevention (CDC). These organizations include thousands of the very best physicians and other health experts from all over the world. Also, as we stated earlier, much of this knowledge was known by our ancestors (yours and mine) but has been forgotten or neglected over the years.

Our hope is that you will have community meetings to further discuss the WHO guidelines we review. And that you will identify and begin to find solutions to the problems that are most important to you and your community.

*(Optional-For Short Term Medical Teams): Unfortunately, I only have a very short time with you. So I can discuss only a small part of the information that is important to you and your families. However, all the information we have is contained in this handbook which we will leave with \_\_\_\_\_, who will be setting up free **Health Education meetings** after we leave. We know that the knowledge contained in this book will save many more lives and relieve much more suffering than all of our doctors and nurses and all of our medicines.*

*(Optional-For Short Term Medical Teams): Because there are so many people, and we have only a few providers, our doctors and nurses are able to care for only your most serious health problem. So perhaps you will not want to wait for so many hours just to be seen for a minute or two. If you do decide to wait and you have more than one health problem, be thinking about which one it is that you want the doctor to try to care for. So, if your friends or your family could not be seen today, tell them not to worry. Just tell them to be certain not to miss \_\_\_\_\_'s **Health Education meetings.** The knowledge they will receive will save many more lives and relieve much more suffering than all of our health care providers and all of our medicines.*

If at any time you have **any questions or you disagree** with any of the information I will be passing on to you, please let me know. We recognize that there may be much value in local and traditional medicine (There are many treatments that have not yet been adequately studied and so there is much about traditional medicine that we still don't know). And it is only by talking about our disagreements that we can provide the best possible care for everyone.

### 3. PREVENTION OF DEATHS AND SUFFERING

So, **what information do we need that is most critical to the health of our children and us?** The WHO states that the information we need that will save the most lives is not about how to treat our illnesses, but how to prevent them from occurring in the first place. And we have always found this to be true in every place we have worked. We know that most of the serious illnesses that we will treat today are entirely preventable. And that they can be prevented by you and your neighbors.

Some people believe they get sick from what other people have done to them. Does anyone here believe that? You are absolutely correct. Of course, now that we have microscopes we know that it is not other people cursing us that makes us sick. However, other people, even our friends and relatives, can definitely make us sick and kill us in many other ways:

**What are the three greatest killers in the developing world?** (*Note: When **developed** countries are also included, tobacco related diseases are the world's leading preventable cause of death. Tobacco related deaths are also rapidly increasing in developing countries. See Section 41*) The WHO states that: Every eight seconds a child dies ... and every year more than five million people die from illnesses linked to:

- 1) Unsafe drinking water,
- 2) Unclean homes and neighborhoods and
- 3) Improper disposal of excrement. (We apologize if some of our topics are embarrassing to talk about, however they cause so many deaths that we must talk about them.)

**What causes the most suffering?** The answer, all over the world, is exactly the same: At any given time nearly one-half of all peoples in the developing world are suffering from one or more of the six main diseases (diarrhea, ascariis, dracunculiasis, hookworm, schistosomiasis and trachoma...) associated with unsafe water supply and sanitation.

So you are correct. Other people can definitely make us sick and kill us with deadly diseases:

- 1) By contaminating our water supplies.
- 2) By not keeping their neighborhoods clean and free from garbage that attracts disease spreading insects and rodents.
- 3) By not always using properly built latrines.

Those are the "curses" that can make us sick and kill us. (Please also note from the picture that even if your water looks absolutely clean and clear and pure, it can still contain deadly organisms that can be seen only under a powerful microscope.)

### 4. HIV/AIDS

And to make matters worse, now we also have the devastating worldwide epidemic of AIDS. AIDS may soon surpass all other diseases as the greatest killer. So we will talk about AIDS first and then go back and talk more about the other causes.

AIDS is nearly always caused by unsafe sex. Because AIDS is a sexually transmitted disease, it is often embarrassing for us to talk about. However, over 3 million people died from AIDS in 2001 and over 45 million others are now infected, and all of this death and suffering is preventable. So, we must talk about it.

AIDS is a non-curable, lethal disease. AIDS is caused by the HIV virus. Essentially all people infected with HIV virus will eventually die from AIDS, though it takes several years. That is why it has spread to so many people. There is a "silent" period of several

years where infected people don't know they're infected and seem completely well, yet they still spread the AIDS virus through sex. AIDS eventually affects the immune system, so people with AIDS usually die from wasting and chronic infections such as tuberculosis. There are medicines that can help us live longer with AIDS, however none of the medicines will cure AIDS.

*(Optional-For Short Term Medical Teams): We and most other organizations are not able to provide these medicines, as once they are started they must be taken for the rest of your life. They require close, long-term monitoring and can result in resistant (more dangerous) strains if discontinued or not used properly.*

14 million children are now orphaned because of AIDS. Even worse, the 45 million people who are now infected continue to spread the virus, so the numbers of deaths and numbers of orphans will soon become much, much higher.

Nearly all people get AIDS by having sex with someone who looks and feels completely healthy--it takes several years after a person gets HIV to look or feel sick with AIDS. So we know that many of you here today are infected, but the only way you could tell is if you went to the hospital for a blood test. And even the blood test may not become positive until 6 months after you are infected.

So we know that you or the person sitting next to you may have AIDS. Why aren't we afraid to examine you or shake your hand or hug you? Because we also know that AIDS is NOT spread through shaking hands, hugging, living, playing or eating with an infected person...

## 5. PREVENTION OF HIV/AIDS

### **AIDS is spread by:**

- Having sex with a person who is carrying the HIV virus.
- Drug users who share needles.
- Practitioners who use any instrument that cuts or breaks the skin without sterilizing it first. (Tattoos, body piercing, tooth extraction, circumcision, injections of medicines, blood transfusions, etc can spread HIV if the instruments are not properly sterilized.)
- Blood transfusions from infected donors. (Blood products must always be properly tested for HIV virus before use.)
- Sharing the use of other instruments that may cut or break the skin or gums such as razor blades and toothbrushes.
- An infected mother to her unborn child (About 3 in 10 babies of infected mothers will get the HIV virus by the time they are born.). An additional 1 in 10 babies who are breast-fed by infected women will also get AIDS.

**Prevention of AIDS:** AIDS is completely preventable and can be prevented by you. By far the most common cause of AIDS is through unsafe sex. The ABC program (Abstinence until marriage, Being faithful to one partner, and using Condoms if A and B are not practiced) has been very successful in reducing AIDS in countries such as Uganda.

-High-quality latex condoms when carefully used can help prevent AIDS and other sexually transmitted diseases. However, they are not always effective and the only sure way to keep from getting AIDS is to abstain, or to have a strictly monogamous sexual relationship with someone who is not infected. Condoms are also used for birth control. If you use condoms: Buy high-quality latex ones. If you are allergic to latex, buy condoms made from a synthetic material such as polyurethane (Lambskin condoms are not recommended for disease prevention). Follow package directions. If used with

lubricants, use only glycerine or water-based lubricating jellies available at pharmacies. (Oil-based lubricants such as petroleum jelly, cold cream, hand or body lotion, or vegetable, mineral or baby oil, can weaken the condom. In addition, condoms can be weakened by exposure to heat or sunlight or by age, or they can be torn.) Never reuse condoms.

-Do not have sex with anyone who has had other partners. From an AIDS standpoint, you are not just having sex with that person. You are also having sex with all of his partners and with all of his partner's partners and with all of their partners and on and on (Could easily be hundreds of people).

-Do not have sex with prostitutes or with anyone who has injected illegal drugs.

-Although newer tests are more sensitive, many blood tests for the HIV virus may not become positive until 6 months after a person has been infected. So, if you wish to have sex with someone who may have had other partners or injected illegal drugs, wait until you are certain they have had no sex and no drugs for 6 months, and then have them get the blood test for the HIV virus.

-Do not use needles that have been previously used.

-Do not get tattoos or body piercing from practitioners who may not properly sterilize their equipment. All instruments used for tattoos, body piercing, tooth extraction, circumcision, blood donation and transfusion, etc should be cleaned and then sterilized, preferably in a pressurized steam sterilizer such as the one we use for our dental instruments. If a steam sterilizer is not available, the instruments should be thoroughly cleaned and then placed in boiling water for at least 30 minutes.

-Do not share razors or toothbrushes.

-If you must receive a blood transfusion be certain the blood has been tested for HIV.

There is also much **false information about AIDS**: Many studies have shown that you can not get AIDS by shaking hands, hugging, living, playing or eating with an infected person. AIDS is NOT cured by having sex with a virgin. All this does is give AIDS to the virgin. So if you have any questions please ask, as it is very important that you know as much as possible about this deadly but preventable disease.

Again, by far the most common cause of AIDS is through unsafe sex. Nearly all people who get AIDS get it from having sex with someone who looks healthy and doesn't know they carry the virus. Sexual diseases have been around for thousands of years. And here again we see that our ancestors, yours and mine, going back to the time of Moses thousands of years ago, knew what was most important in preventing even this most recent sexual disease. And when they told us not to have sex with anyone except our spouse, it was not to lessen our enjoyment of life, but to protect us from the painful and devastating diseases that would destroy our lives.

***(Optional, Depending on the Area):***

*-In some countries medicines are available to pregnant women that will help prevent their babies from getting AIDS. In those countries, all pregnant women should be tested for the AIDS virus.*

*-Do not have your baby wet nurse from a woman who has not had a blood test for the HIV virus.*

*-Should a mother with AIDS breast-feed her baby? Other than untreated tuberculosis, AIDS may sometimes be the only exception to the rule that mothers should always breast-feed their babies. Three out of ten babies whose mothers have AIDS will be infected by the time they are born. The AIDS virus can also be transmitted to about 1 out of 10 babies who are breast-fed from mothers or wet nurses who have AIDS.*

*However, babies who are not breast-fed have a greater chance of dying from diarrhea, pneumonia or other infections. So it is very difficult to be certain which is best, especially in those areas where the drinking water is not safe and the infant death rate is very high. However, all mothers who breast-feed their babies should give ONLY BREAST MILK AND NO OTHER FOODS for the first 6 months of life. This is especially important for a mother with AIDS who decides to breast-feed her baby. Foods other than breast milk apparently irritate the baby's stomach and make it easier for the AIDS virus to get into the baby's blood.*

## **6. SAFE DRINKING WATER**

Now we will discuss the next most important causes of death and suffering in developing countries. The WHO states that "No single type of intervention has greater overall impact upon the national development and public health than does the provision of safe drinking water and the proper disposal of human excretions."

Sometimes just protecting a spring or well from contamination by people or animals may be all that is necessary.

However, unsafe drinking water has been a problem in every country we have gone to. It is one of the main causes of unnecessary deaths, especially children under age five. Even if your water looks absolutely clean and clear and pure, it can contain deadly organisms that can be seen only under a powerful microscope. If your water may not be safe, you should heat it till it comes to a rolling boil for at least 1 minute to make it pure (If you live above 2000 meters you should boil it for at least 3 minutes). (Note: Instruments used for skin piercing, tattoos, tooth extraction, circumcision, etc need to be boiled for at least 30 minutes.)

*(Optional, Depending on the Area): Boiling is the simplest and most effective point of use method for ensuring safe drinking water. The WHO reports that it is also by far the most commonly used method at the household level worldwide, and for this reason we use this as our symbol for safe water in this manual.*

*However, fuel is not readily available in many parts of the world. Other low cost options for household water treatment continue to be developed and include chemical disinfection with chlorine or bleach solution, as well as filtration systems using low cost ceramic filters. Solar disinfection is another increasingly used option. Much research continues to be done and inexpensive systems such as SODIS (utilizing solar energy and simple plastic bottles) are increasingly utilized (Bottles made from polyethylene terephthalate [PET] are the safest).*

*The WHO website [www.who.int](http://www.who.int) "Water Sanitation and Health (WSH)" section contains the latest research information on water purification systems and current specific guidelines on how to use them. You should also consult your local public health authority concerning the best system to use for your area.*

**Safe storage** is also very important. Be certain to keep the safe-water container covered. It is also important to wash your hands and use clean, safe-water rinsed containers when transferring the water.

**Use the safe water for** (If boiled, be certain to let the water cool):

- Drinking
- Preparing Oral Rehydration Solution (ORS)
- Brushing teeth
- Rinsing fruits and vegetables (that are eaten raw) after they have been cleaned

Some people complain about the "lack of taste" of the boiled water. Often just letting the water sit in a covered container will resolve the problem. Or you can add a pinch or two of salt or a drop or two of lemon or some other substance to suit your taste. Experiment until you find a combination that is acceptable. However, even without adding anything, after awhile you will become used to the "new" taste.

Bottled drinking water that you purchase is often safer than from other sources. However it is not very reliable and studies have shown that it, also, can be contaminated. So if you are still getting sick with diarrhea and other diseases, it may be from the bottled water.

## **7. HANDWASHING**

Most of us know the rules for sanitation, however not everyone, not even doctors, always follow those rules. And that is why so many people continue to get infected and die from infectious diseases. So it is important that we review the rules frequently, even though they seem so simple.

It is important to clean under our fingernails as germs grow there as well.

Do not wash in water that someone else has used. That can transfer their germs to us.

The washing area should have good drainage so that the water does not sit and become contaminated with bacteria or become a breeding area for mosquitoes and other insects.

The drying towels should be washed regularly and hung out in the sun to dry.

## **8. WHEN IS HANDWASHING NECESSARY?**

It is important that we always wash our hands with soap after using the latrine or WC.

Also remember to wash our hands if we have helped our child go to the latrine or changed a diaper.

If we do not wash our hands before we prepare food, we put the germs and worm eggs, which are too tiny to see, on the food. This can lead to diarrhea, worm infections and other serious diseases.

We should wash our hands after petting a dog or cat for the same reasons.

Always wash before eating or bringing our hands to our mouth.

When we are ill with a respiratory infection, or have an eye infection such as trachoma, we need to remember to wash our hands before touching or shaking hands with anyone else.

## **9. IMPROPER DISPOSAL OF EXCREMENT**

Children should not defecate close to where other children play.

If an animal defecates close to where children play, it must be cleaned up promptly. (The feces of children and animals can be just as dangerous as feces from adults.)

The feces will eventually dissolve in the dirt and you won't see it, but the germs and worm eggs will still be there.

Children often put their toys and fingers in their mouth and get diarrhea and worms this way.

## **10. PROPER DISPOSAL OF EXCREMENT**

The use of properly built latrines is one of the most important ways you and your neighbors can immediately begin to prevent deaths from worm and bacterial infections. It is very important to build the latrine in a way that keeps flies away from excrement.

There are many different types of latrines and sanitation systems. The example in the picture is a simple pit latrine. (A permanent ventilated (VIP) latrine should be built if large diameter PVC pipe, fly screening and other materials are available.)

For simple pit latrines, the minimum requirement is digging a hole and placing a fly-proof slab over it (A portable reinforced concrete slab is often used). The hole in the center of the slab must always be covered with a tight fitting lid when not in use. This is necessary to keep out flies and prevent serious diseases such as Typhoid. So the most important requirements are the fly-proof slab and cover (the grey areas in the picture).

Specific instructions for various types of latrines and septic systems can be found in the “Water and Sanitation” section of WHO website [www.who.int](http://www.who.int). You and your neighbors should consult your local public health authority for the best system to use for your area.

Medicines for treatment of bacteria and worm infections are effective and will help you. However, unless you can get everyone in your community to use properly built sanitation facilities, you will soon be infected again.

Here again, we know that Moses and our ancestors knew about the importance of latrines thousands of years ago.

When you are away from home and there is no latrine, children must be taught to go far away from where people bathe or get drinking water or grow their vegetables. They should dig a hole and cover the excrement with dirt.

Remember to teach your children to always carefully wash their hands after using the latrine.

## **11. FLIES AS DISEASE CARRIERS**

It is important to not let flies or other bugs land or crawl on us or our food. They often feed on human and animal excrement and carry germs and spread serious diseases such as diarrhea and typhoid fever.

People who live in areas where latrines aren't properly covered often get infected when flies from the latrine land on their food.

If a child or some animal has a bowel movement near the house, it must be cleaned up at once.

Food scraps and dirty dishes should not be left lying around as this attracts flies and other insects.

Food should be covered until it is served.

Flies also spread diseases from person to person, such as trachoma, the eye disease that causes most blindness in the world.

## **12. INSECT AND RODENT CONTROL**

Garbage, trash and other insect breeding areas in our neighborhoods must be cleaned up and burned.

What cannot be burned should be buried in a special pit far from the house or water supply. This is also important for mosquito control.

## **13. MOSQUITO CONTROL**

Malaria, Yellow Fever and Dengue are some of the illnesses that are spread by mosquitoes.

Mosquitoes breed in water that is not free flowing. To reduce the risk of getting these serious illnesses, mosquito-breeding areas must be destroyed. This includes anything that

contains water such as old tires, cans and other trash. Tires are especially a problem as no matter which way they lay, they retain water. They should be immediately recycled or buried.

All containers that are used for storing water should be covered.

**Prevention of mosquito bites:**

Contact with mosquitoes should be avoided as much as possible. (This is often not possible as the mosquito that causes malaria usually bites at night and the mosquito that causes Dengue usually bites during the day.)

The use of bed netting that has been soaked in an insecticide, such as permethrin, is very important for prevention of malaria and has saved many lives. Women who are pregnant and children are especially at risk and should always use treated bed nets.

Wearing long-sleeved shirts and long trousers and dresses may also help.

#### **14. WORM INFECTIONS**

Worm infections cause much serious illness, misery and death in the world. They cause stomach and muscle pain, headaches, fever, cough and wheezing, swelling of the hands and feet, weakness, anemia and malnutrition. Some migrate to every area of the body including the brain. They are present wherever people do not always use latrines.

Worm eggs are found in soil that has been contaminated by excrement. People usually get infected by touching soil (or vegetables in contact with soil) and bringing their hands to their mouth without first washing. Some types of worm infections are transmitted by contaminated water.

Children get worm infections more often than adults because they often put their hands to their mouths without first washing them.

People can also get worm infections from dogs and cats and other animals. If we pet the animal and put our hands to our mouth without first washing, we may become infected.

Hookworms burrow into the skin of people who go barefoot.

Some worms cause anal itching at night and people (especially children) keep reinfesting themselves by scratching the anal area and then bringing their hands to their mouth.

*(Optional, Depending on the Area): Guinea Worm (Dracunculiasis) is gotten from unsafe drinking water.*

**How to prevent worm infections:**

Latrines should be properly built and they should always be used. Hands should always be washed after using the latrine.

If there are doubts about the safety of the drinking water, it should be boiled or otherwise purified.

#### **15. PREVENTION OF WORM INFECTIONS**

Our hands should always be washed before putting them to our mouth or eating.

Dogs, cats and other animals should be kept out of the house. Hands should always be washed after touching them.

If there is hookworm in the area, always wear shoes or sandals.

Children should wear underpants or pajama bottoms to bed, especially if they have anal itching.

## **16. SCHISTOSOMIASIS (*Optional, Depending on the Area*)**

Schistosomiasis is another serious worm disease that could be completely eliminated if all people always used latrines. Schistosomiasis is contracted by wading or bathing in freshwater streams and lakes that have been contaminated by human urine or feces. The worms enter through the skin, migrate through the blood vessels and cause tissue destruction in the urinary bladder, intestine, liver, lungs and brain.

To prevent schistosomiasis: Avoid all contact with freshwater streams and lakes that are infested. Vigorous towel drying after accidental exposure to water may help to remove cercariae in the process of skin penetration, although this is not very reliable. Heat any water used for bathing or washing (50 degrees C [122degrees F] for 5 minutes) or use approved water filters or disinfectant tablets. Or if these measures are not feasible, just allow water used for bathing to stand for 3 days (Cercariae, the infective stage of the worm, rarely survive longer than 48 hours).

## **17A. SAFE FOOD PREPARATION**

People can get worm and other serious infections when food is not prepared or cooked properly:

Tapeworms are gotten from eating pork, beef and fish when they are not adequately cooked. Worm infections can also be gotten from the utensils or containers used to prepare the meats if the utensils are used for other foods before they are washed in very hot water.

The following are from The World Health Organization: **Five keys to safer food.**  
[www.who.int](http://www.who.int)

### **1. Keep clean**

- Wash your hands before handling food and often during food preparation
- Wash your hands after going to the toilet
- Wash and sanitize all surfaces and equipment used for food preparation
- Protect kitchen areas and food from insects, pests and other animals
- Cloths and sponges used for cleaning dishes should be replaced daily. (Many organisms can grow in the wet cloth.) They should be cleaned in hot water and hung out in the sun to dry.

**Why?** Dangerous microorganisms (viruses, bacteria, worm eggs, etc) are widely found in soil, water, animals and people. These microorganisms are carried on hands, wiping cloths and utensils, especially cutting boards and the slightest contact can transfer them to food and cause diseases.

## **17B. SAFE FOOD PREPARATION (CONTINUED)**

### **2. Separate raw and cooked**

- Separate raw meat, poultry and seafood from other foods
- Use separate equipment and utensils such as knives and cutting boards for handling raw foods Do not use the same cutting boards for fruits, vegetables and breads as you do for raw meats poultry and seafood. Even with careful cleaning the organisms remain in the nicks in the wood.

-Store food in containers to avoid contact between raw and prepared foods

**Why?** Raw food, especially meat, poultry and seafood, and their juices, can contain dangerous microorganisms which may be transferred onto other foods during food

preparation and storage. (The organisms in the meat will be destroyed by proper cooking but the fruits and vegetables can become contaminated by the knives or cutting board.)

### **3. Cook thoroughly**

- Cook food thoroughly, especially meat, poultry, eggs and seafood
- Bring foods like soups and stews to boiling to make sure that they have reached 70°C . For meat and poultry, make sure that juices are clear, not pink (Ideally, use a thermometer if one is available).
- Reheat cooked food thoroughly

**Why?** Proper cooking kills almost all dangerous microorganisms. Studies have shown that cooking food to a temperature of 70°C can help ensure it is safe for consumption.

Foods that require special attention include minced meats, rolled roasts, large joints of meat and whole poultry. Inadequately cooked pork is especially dangerous. This is the most common cause of convulsions in many developing countries. (The worm from inadequately cooked pork migrates to muscles and to the brain and there is no good treatment.)

### **4. Keep food at safe temperatures**

- Do not leave cooked food at room temperature for more than 2 hours
- Refrigerate promptly all cooked and perishable food (preferably below 5°C)
- Keep cooked food piping hot (more than 60°C) prior to serving
- Do not store food too long even in the refrigerator
- Do not thaw frozen food at room temperature

**Why?** Microorganisms can multiply very quickly if food is stored at room temperature. By holding at temperatures below 5°C or above 60°C, the growth of microorganisms is slowed down or stopped. Some dangerous microorganisms still grow below 5°C.

### **5. Use safe water and raw materials**

- Use safe water or treat it to make it safe
- Select fresh and wholesome foods
- Choose foods processed for safety, such as pasteurized and powdered milk
- Wash fruits and vegetables, especially if eaten raw
- Do not use food beyond its expiry date. Do not eat food from cans that are swollen or that squirt when opened.

**Why?** Raw materials, including water and ice, may be contaminated with dangerous microorganisms and chemicals. Toxic chemicals may be formed in damaged and mouldy foods. Care in selection of raw materials and simple measures such as washing and peeling may reduce the risk.

Additional information in all languages is available in the WHO “Five Keys to Safer Food Manual” at [www.who.int](http://www.who.int)

## **18. BREAST-FEEDING**

Breast-feeding is the most important thing you can do to protect your baby from serious illnesses and death. The WHO and UNICEF recommend:

-Exclusive breast-feeding (NO other foods or liquids) from birth for the first 6 months of life. Human milk provides all the fluids and nutrients a baby needs to be healthy. If

your baby has a fever or has diarrhea and you feel your baby may need extra water or ORS (Oral Rehydration Solution), you may offer safe water or ORS with a spoon.

-Other foods may be gradually started after 6 months of age, however, breast-feeding should be continued until at least two to three years.

-As you are also eating for your baby, it is very important that you get more than your usual share of healthy food such as eggs, meat and milk.

-Being underweight is one of the most common killers of children, especially those under the age of five. The younger the child the greater the risk. The additional food started after six months should therefore be as nutritious as possible (Rice cereal fortified with iron is often recommended).

So this is a good picture as the child this mother is feeding is almost 3 years old.

## **19. BOTTLE FEEDING**

It is estimated that over one million children die each year because they are not adequately breast-fed.

Breast milk contains antibodies that are not present in any other kind of milk or food. When babies don't get the antibodies that are present in breast milk they often die from diarrhea, pneumonia and other infections.

Babies also often get sick when their mothers do not properly sterilize the bottles and nipples and formula before feeding the baby. This is a great deal of work and is very difficult to do properly even under ideal conditions with safe water and modern stoves and refrigerators. So never use baby bottles for feeding anything, even water. Use a cup and spoon instead. They are much easier to keep clean.

Babies also often get sick when they are fed milk that has been left standing at room temperature for several hours after being prepared.

Breast-feeding also has many benefits for the mother. It reduces the risk of cancer of the ovaries and breast and builds bone strength to protect against osteoporosis (thin, weak bones) and bone fractures in older age. So the mother is making the baby and herself healthier by breast feeding.

The most important benefit for babies from human breast milk is probably the antibodies that protect babies from becoming ill, however there are numerous other benefits. Recent studies have even shown that breast-fed babies grow up to be smarter than formula fed babies. We still don't know the reasons for this. Perhaps it's because formulas are usually made from cows' milk and cows don't need to be very smart when they grow up.

## **20. IMPORTANT FACTS ABOUT BREAST-FEEDING**

Sometimes mothers stop breast-feeding because they receive bad advice. Sometimes that bad advice comes from doctors who are not specialists in the care of mothers and babies.

**If You Feel You are not Producing Enough Milk for Your Baby:** This is a common problem, especially right after the baby is born and your milk supply is first coming in.

1) NEVER give "supplemental" bottle feedings to your baby. This is by far the most common cause of decreased milk supply. (The less your baby breast-feeds, the less milk your body will produce.) If your baby is sick with diarrhea and you feel your baby may need extra water or ORS, you may offer this with a spoon. (Bottles and nipples are frequent causes of infection and diarrhea unless they are always properly sterilized.)

2) Breast-feed MORE frequently. The more often you breast-feed the more milk you will produce.

3) Drink more liquids.

4) Get more rest. Lack of rest also can lead to post-partum depression. Your husband and other relatives need to take over your other duties until the baby is breast-feeding without any difficulty. Because breast-feeding is so important for your baby's life, it is necessary that all of your other responsibilities be of secondary importance.

5) As you are also eating for your baby, it is important that you get more than your usual share of healthy food such as eggs, meat and milk. This is necessary to prevent your baby from becoming underweight. Additional vitamins, if available, may also help.

6) If you must leave your baby to go to work, breast-feed before and after and as often as possible when you are at home.

7) There are also a couple of natural reflexes that are there to help you and it is important that you work with them and not against them. Routing Reflex and Latching On (See lower Picture):

-Touching your breast to the center of your baby's lips stimulates your baby to open his mouth widely. This is called the "rooting reflex." As this occurs, pull your baby straight forward onto the nipple and areola. (The areola is the area of darker colored skin surrounding the nipple.) When a baby is correctly positioned, or "latched on," your nipple and much of the areola are pulled well into the baby's mouth. Your baby's lips and gums should be around the areola and not on the nipple.

-You can help your baby latch on by holding the breast with your free hand as shown in the picture. Place your fingers under the breast and rest your thumb lightly on top (back behind the areola). Make sure your baby is properly lined up at your breast. Also be sure your fingers are well back from the areola so they do not get in the way.

-Babies use their lips, gums, and tongues to get the milk to flow from the breast. Simply sucking on the nipple will not draw milk and may hurt the nipple. When the baby first nurses there will be a tugging sensation. If it hurts while you breast-feed, then your baby may not be latched on correctly and may need to be repositioned.

-Break the latch on by slipping your finger into the corner of your baby's mouth, reposition, and try again. It can take several tries.

8) The mother's letdown reflex causes the release of milk from the breast. If the mother is worried, tense or upset it can interfere with the release of milk. So if your household is not very peaceful, set aside a quiet place ahead of time where you can relax and not be disturbed during feedings.

**Cracked Nipples:** If your baby is not positioned properly or does not latch on well when you start breast-feeding, you might end up with cracked or sore nipples.

-To prevent cracked nipples, position the baby better and be sure the baby's lips and gums are on the areola and not on the nipple. Also, try to vary your baby's position at each feeding. And alternate between which breast you offer first.

-While some infants nurse for only 10 minutes on one breast, it is common for others to want to nurse much longer. However, if your nipples are sore you may want to limit the length of feeding to 10 minutes on each side and to increase the frequency of feeding until the soreness resolves.

-If your baby has fallen asleep at your breast, or if you need to stop a feeding before your baby is finished, gently break the suction with your finger. Never pull the baby off the breast without releasing the suction.

-The best treatments for cracked nipples are dryness and warmth. Do not wear plastic breast shields or plastic-lined nursing pads that hold in moisture. Wash your breasts only with water, not soap. Creams and lotions rarely help and may actually make the problem worse. Instead, gently pat your nipples dry, then apply some of your milk.

**Mother's Illness:** Many parents are concerned that breast-feeding has to stop if the mother gets ill. During most illnesses, including colds, flu, bacterial infections, and even surgical conditions, breast-feeding should continue. Both the mother and baby benefit if it does. (Sometimes doctors who aren't specialists don't know this and tell mothers to stop when they should actually continue.) By the time you show symptoms of an illness, your baby has already been exposed to it. The best thing for the baby is to continue breast-feeding. This is because you have already started to produce antibodies that through your milk protect your baby from getting infected. If you stop breast-feeding when cold or flu symptoms appear, you actually reduce your baby's protection and increase the chance of the baby getting sick.

-If for some reason you are unable to breast-feed your infant while you are ill, keep up your milk supply by expressing milk for your baby either by hand or using a pump. Even with more serious illnesses, such as breast abscess, surgery requiring anesthesia, or severe infections, you usually only need to stop breast-feeding for a very short period.

-However, there are two diseases that mothers can transmit to their babies. One is untreated tuberculosis. Mothers with active tuberculosis should not breast-feed until appropriate treatment has been started. The other is AIDS. Whether mothers with AIDS in developing countries should breast-feed remains controversial (*See Section 5*). So other than active TB that has not yet been treated, and perhaps AIDS, breast-feeding should be continued, even if there is mastitis.

**Mastitis:** Mastitis is an infection of the breast. It occurs when a milk duct gets blocked and bacteria infect a portion of the breast. It causes swelling, burning, redness, and pain. This usually occurs in just one breast and may also cause the nursing mother to feel feverish and ill. If you have any of these symptoms, let your health provider know at once so that you can start antibiotics. Lots of rest, warm compresses, antibiotics, breast support, and continued breast-feeding are all that are usually needed. Do NOT stop breast-feeding. This condition will not hurt the baby and frequent nursing will help prevent the infection from spreading.

## 21. DIARRHEA

Diarrhea kills more than 4 million children every year (More than 10,000 per day). Most of these deaths could be prevented by breast-feeding, boiling or otherwise treating water to make it safe, and proper use of ORS (Oral Rehydration Solution) or "Suerro". The ORS is used to prevent and treat dehydration by replacing the fluid and minerals that are lost in the diarrhea and vomiting.

It is very important to remember that it is **not** the diarrhea, but the dehydration that kills people with diarrhea. The diarrhea itself is often necessary so that the body can get rid of toxins. And medicines that just stop the diarrhea have been shown to increase mortality in children. So it is replacing the fluids that are lost through diarrhea that is life-saving. Dehydration can also kill teenagers and adults, however, the younger the child, the greater the risk.

**ORS Packets:** Management of acute diarrhea should begin at home. Families with infants and small children should keep a supply of ORS packets at home at all times and use the solution when diarrhea first occurs in the child.

## 22. HOW TO MIX ORS

Always use safe drinking water. If you are not certain that your water is safe, bring it to a rolling boil for at least 1 minute, cover it and let it cool. (Or use the public health method recommended to make the water safe in your community.)

Add one packet of ORS to one liter (1000cc) of safe water.

Make certain to use a container that holds at least one liter. It must be at least this size (*Show water bottle*) otherwise the solution will be too concentrated and can make you sick. (*For those countries that use ounces point out the similarity between one liter [1000cc] and one quart [32 oz.]*)

**(Optional-For Short Term Medical Teams):** *This is the water bottle we use it to prepare our ORS when we get sick with diarrhea. We will leave a water bottle like this with \_\_\_\_\_so you can compare your container to be certain it is the correct size.*

## 23. HOW TO TREAT DIARRHEA AT HOME--INCREASED FLUIDS & FOODS

These rules are from the WHO. They were originally written for children as they are at much greater risk of dying from dehydration due to diarrhea than adults, however the same treatment principles apply to adults. Following the guidelines is very important and is often life saving. **There are now four rules for treating diarrhea at home (A new rule “Give supplemental zinc” has recently been added):**

**RULE #1: Give the Child More Fluids than Usual to Prevent Dehydration:**

1) Use recommended home fluids:

-Next to Breast Milk, ORS solution is the best for all ages. Purified plain water is also good and may be used for all ages, however plain water does not replace the salts that are lost in the stool. You see that the ORS is being given with a cup and spoon. Never use baby bottles. Baby bottles are very difficult to keep clean and can contain deadly germs.

-For Children over 6 months old, you may, in addition, use food-based fluids that the child has had before. What fluids to give: Many countries have designated recommended home fluids. Wherever possible, these should include at least one fluid that normally contains salt (see below). Plain clean water should also be given.

Unsuitable fluids: A few fluids are potentially dangerous and should be avoided during diarrhea. Some examples are: Commercial soda and other carbonated beverages, Commercial fruit juices, Sweetened tea, Coffee, Some medicinal teas or infusions.

Suitable fluids: Most fluids that a child normally takes can be used. It is helpful to divide suitable fluids into two groups:

*A. Fluids that normally contain salt, such as:* ORS solution, salted drinks (e.g. salted rice water or a salted yoghurt drink), vegetable or chicken soup with salt.

*B. Fluids that do not contain salt, such as:* Plain safe water, Water in which a cereal has been cooked (e.g. unsalted rice water), Unsalted soup, Yoghurt drinks without salt, Green coconut water. Weak tea (unsweetened), Unsweetened fresh fruit juice.

2) Give as much of these fluids as the child will take.

3) Continue giving more of these fluids until the diarrhea stops.

**RULE #2: Give supplemental zinc (Up to 6 months of age: 10mg every day for 14 days. Six months or more: 20mg every day for 14 days.)** Zinc can be given as a syrup or as dispersible tablets, whichever formulation is available and affordable. By giving zinc as soon as diarrhoea starts, the duration and severity of the episode as well as the risk of dehydration will be reduced. By continuing zinc supplementation for 10 to 14

days, the zinc lost during diarrhoea is fully replaced and the risk of the child having new episodes of diarrhoea in the following 2 to 3 months is reduced.

**RULE #3: Give the Child Plenty of Food to Prevent Undernutrition.**

1) Increase the frequency of breast-feeding. Breast feeding is always what is most important both for prevention and treatment of diarrhea. If the child is not breast-fed, give the usual milk in a cup. However, if the cows milk seems to make the diarrhea worse, you may have to temporarily change to a lactose free formula such as soy.

2) If the child is six months or older you may continue to give the following foods, if the child has had them before:

-cereal or another starchy food mixed, with milk or pulses (peas, beans, lentils, and similar plants having pods), vegetables, meat, fish or egg.

-give fresh fruit or mashed banana or green coconut water to provide potassium.

-give freshly prepared foods; cook and mash or grind food well to help digestion.

3) Encourage the child to eat: offer food at least 6 times a day. ). Frequent, small feedings are tolerated better than less frequent, large ones.

4) Give the same food after diarrhea stops, and give an extra meal each day for two weeks.

5) While the person is having diarrhea: Your body needs some sugar and ORS contains exactly the right amount. However, do not give foods high in sugars (Sodas and sweetened drinks such as tea, coffee which also contain stimulants or other drinks or to which sugar has been added)--These draw water into the intestine and make the diarrhea worse. (With diarrhea, you also have to be careful with commercial fruit juices. For nearly all other illnesses fruit juices are excellent. However, commercial fruit juices also contain added sugars which can make the diarrhea worse.)

**RULE #4:** See next section and illustration (#24).

## **24. WHEN TO TAKE THE PERSON WITH DIARRHEA TO THE HEALTH CARE PROVIDER**

**RULE #4: Take the person with diarrhea to the health provider if she/he develops any of the following** (The younger the child, the sooner you should take her/him):

-does not get better in three days

-many watery stools

-develops a fever or looks sicker

-repeated vomiting

-blood in the stool

-eating or drinking poorly

-becomes very thirsty

-seems to be getting dehydrated. We will talk about dehydration next.

## **25. SIGNS OF DEHYDRATION**

**Signs that you or your child may be becoming dehydrated include the following:**

-decreased frequency and amount of urination. Urine may be dark colored.

-mucous membranes of the mouth may be slightly dry.

-increased thirst--this may cause them to be restless or irritable. They usually want to breast feed more often. However, children who are severely dehydrated may be too lethargic to drink.

**Signs of severe dehydration include:**

- increased heart rate
- tenting of the skin (Skin pinch goes back slowly)
- listless
- sunken eyes and fontanel (soft spot).

If your child has any of these signs you need to take him to your health care provider IMMEDIATELY. You should continue trying to give ORS on the way. (The child in lower picture is severely dehydrated and is an example of what we are trying to prevent. When a child looks this bad it is nearly always too late for ORS as he is too lethargic to take enough by mouth and needs immediate stomach tube or IV treatment for survival. The child should be taken to the health provider before he gets this sick.)

## 26. ORS FOR PREVENTION OF DEHYDRATION

There are two reasons to give ORS, prevention and treatment:

### **Reason #1: For diarrhea, to prevent dehydration (WHO Plan A):**

ORS is used to replace fluid from ongoing stool losses in children with mild diarrhea and no dehydration. Offer ORS after each loose stool. (At least 10 ml/kg after each loose stool is recommended. Example: For 1 year old @ 10 kilograms, this equals 100 cc after each loose stool). Offer as much as they will take as long as they are not vomiting. However, children who are not dehydrated often don't want to take ORS, in part because of the salty taste.

### **If your child refuses to take the ORS:**

-First try giving small amounts of ORS frequently by spoon so that the child gets used to the taste.

-You can also try adding a few drops of lemon or some other juice to make it taste better. (Do not add sugar as sugar can make diarrhea worse)

-Recent studies have shown that a more dilute form of ORS is better tolerated in some children. So if your child refuses to take the full strength ORS, you may wish to add 1/4 cup of safe water to 3/4 cup of ORS. (Note: ORS packets have been recently reformulated to be less concentrated, so this dilution with 1/4 cup of safe water should rarely be required. Also, adults with Cholera should use full strength ORS)

If the diarrhea is very mild, ORS may not be required if age-appropriate feeding is continued and other fluid consumption is encouraged. Continued age-appropriate feeding, with increased fluid intake as described in Rules #1to3, may be the only therapy required if there is no dehydration.

## 27. ORS FOR TREATMENT OF DEHYDRATION

**ORS For treatment of dehydration (WHO Plans B&C):** This is **Reason #2** for giving ORS and here the use of ORS is extremely important.

Only ORS and breast milk should be given until the child is rehydrated, or if the child is vomiting.

If the child is not breast-fed and full strength ORS is used, additional safe drinking water should also be offered.

### **How To Give ORS:**

- Begin with a tablespoon every 1–2 minutes for a child under 2 years.
- Give frequent sips from a cup for older children.
- The amount can be gradually increased as long as there is no vomiting.
- If the child vomits, wait 5-10 minutes. Then give the solution more slowly (for example, a spoonful every 2–3 minutes and gradually increase as tolerated).

-If diarrhea continues after the ORS packets are used up, give other fluids as described in Rule # 1 above and return for more ORS.

**How Much ORS to Give:** As long as there is no vomiting, you should give as much as the child will take. In general, after each loose stool, give:

-Children under 2 years of age: 50-100 ml (a quarter to half a large cup) of fluid;

-Children aged 2 up to 10 years: 100-200 ml (a half to one large cup);

-Older children and adults: as much fluid as they want.

-If the child's eyelids become puffy, stop the ORS and give only breast milk (or plain water if the child is not breast-feeding). Re-start the ORS after the puffiness is gone.

For additional information see [www.who.int](http://www.who.int)

## 28. TAKING MEDICATION

### All medicines can be dangerous.

-It is very important that you take medicine only as directed by your health care provider. Many people die from inappropriate use of medicines. And all medicines can cause harm if not used correctly. So always be sure to ask your health care provider or the pharmacist if you have any questions.

-A common mistake is to take more medicine than directed. Some people think that if a little bit is good, more should be better. This is not true. Medicines cause very toxic effects and death if taken in too high a dosage.

-Sometimes it is less expensive to buy tablets with twice the dosage you need and cut the tablets in half. If you do this, be certain to cut just one tablet at a time and take the second half for your next dose (Prevents major changes in dosage). Do not do this with capsules or extended release medicines.

-Always be certain to tell our providers if you are currently taking any medicine. Otherwise the medicine we give you might interact with the ones you are taking and cause you serious harm.

-Keep all medicines out of reach of children. This is VERY, VERY important. Many children die from ingesting too much medicine. So be certain to keep ALL medicines, including the ones we give you, locked up in a safe place.

### **-Developing babies are especially susceptible to the harmful effects of medicine:**

1) That is why pregnant women should take no medicine at all except for vitamins. When medicines must be given, a health care provider knowledgeable in the care of pregnant women should specifically approve them.

2) Nausea and vomiting are common during pregnancy, especially during the first part of pregnancy. This is often called "morning sickness," although it can occur at any time of the day. It usually goes away by the middle of pregnancy. Vitamins B6 and B12 have been shown to be beneficial and are provided in most Multivitamins. Ginger has also been shown to be helpful. Additional things you can do to help you feel better include (Modified from American College of Obstetrics and Gynecology): Get up slowly in the morning and sit on the side of the bed for a few minutes. Eat dry toast or crackers before you get out of bed in the morning. Get plenty of fresh air. Take a short walk or try sleeping with a window open. Drink fluids often during the day. Cold drinks that are bubbly or sweet may help. Eat five or six small meals each day. Try not to let your stomach get empty, and sit upright after meals. Avoid smells that bother you. Eat foods that are low fat and easy to digest.

3) Pregnant women should never drink alcohol or use tobacco- even small amounts of these chemicals can cause harm to the developing baby.

4) However, taking vitamins is important for women who are pregnant. This ensures they are receiving enough folic acid to prevent spine and nerve defects and possibly cleft lip/palate in their babies. Women who may become pregnant should also avoid alcohol and tobacco and should take vitamins as some of these defects can occur by the 4<sup>th</sup> week, before she realizes she is pregnant.

-Choking is a very common cause of death in children less than five years of age. So if your child is less than 5 years and must take pills or "chewable" vitamins, grind them into a powder between two spoons. You can then mix them with a small amount of liquid or food.

-Antibiotics are overused in all countries we go to. Antibiotics are only good for infections caused by certain harmful bacteria. Different kinds of antibiotics work for different kinds of bacteria. However most respiratory infections and diarrhea are caused by viruses, and antibiotics can cause people with virus infections to become worse. Using antibiotics can be harmful by destroying the good bacteria in your system. Destroying the good bacteria can allow fungus and other infections to take over. Unnecessary use of antibiotics also causes resistant bacteria that cause very serious illness that will not respond to any treatment.

-All medicines, even when used correctly can have harmful side effects and cause deaths. This is true for even the most commonly used over-the-counter medicines. For example, Ibuprofen and other commonly used NSAID pain medicines can cause heart attack, stroke, kidney failure, and severe intestinal bleeding without warning symptoms.-- Even when taken in recommended dosages. Tens of thousands of people have died from these NSAID pain medicines. Older people are especially at risk.

-Even natural medicines and some kinds of teas have caused serious illness and deaths.

-So if any medicine is making you feel worse, stop it and immediately talk to your health care provider. However, if it is a medicine for high blood pressure you must talk to your provider before you stop the medicine, as stopping blood pressure medicine can be very dangerous (causes rebound high blood pressure, which can cause strokes).

## **29. PREVENTION OF RESPIRATORY INFECTIONS**

The most important thing we can do to prevent and reduce the severity of respiratory and other infections in our babies is to breast-feed them (up to 3 years if possible).

Washing your hands after touching others who may be ill will help keep you from becoming ill.

A diet rich in vitamin C (fruits) may also help prevent as well as treat these infections.

Respiratory infections are spread through coughing and sneezing and failure to wash our hands before touching others. To avoid spreading our illnesses to others we must:

-Cover our mouth or nose when we cough or sneeze.

-We must not pick up our children or shake hands with others until after we wash our hands. So again, hand washing is one of the most important things we can do to prevent disease in both ourselves and others.

## **30A. CARING FOR RESPIRATORY INFECTIONS**

Most are caused by viruses. Virus colds are the most common illnesses we get.

Nearly all of us get these infections two or three times a year and children often get them 5 or 6 times a year. These infections often make us feel miserable. Occasionally a person

with a virus cold will go on to develop pneumonia or ear or other infections. This happens most often in infants who are not breast-fed and those who are malnourished.

**Signs that you or your child needs to be evaluated by a health care provider are included in Section 32.**

There are hundreds of different kinds of cold medicines for sale in all countries we go to. However none of the medicines, even those from the States, have been shown to be effective. And many of the medicines are actually harmful and make people sicker. You should also avoid using alcohol and tobacco.

**So what can you do if you or your child is sick with a respiratory infection?**

1) Drink lots of liquids. This has been shown to be effective for all ages. This helps to keep the secretions loose so that they can be coughed up or swallowed and may also help prevent pneumonia and sinus infections.

2) Vitamin C may be helpful for some patients. This is found in fruits and fruit juices.

3) For breast-fed infants, increase the number of breast-feedings. Breast milk has antibodies that can help fight infections. This is especially true if the mother is already sick with the virus.

4) For infants who cannot yet "blow their nose": If the secretions interfere with breast-feeding, clear the nose with a bulb suction syringe. If the secretions are thick, placing a few drops of saline solution in the nose and then suctioning may also help. This may also help adults with sinus infection. You can make saline solution by adding a pinch of salt to 30cc (1 ounce) of safe water. Be certain to keep the bulb syringe clean and to wash it with clean water between uses.

### **30B. CARING FOR RESPIRATORY INFECTIONS (CONTINUED)**

5) Chicken soup broth and hot tea may also be helpful.

6) Also be sure to get enough rest.

7) TLC. Tender Loving Care. This is very important not just for respiratory infections, but for all illnesses. Sick people especially need to be shown that they are loved. We can show our love for them by:

- touching or holding them
- reading to them
- massaging aching muscles or "back rubs"
- praying with them and for them.

Probably you are doing many of these things already, but perhaps you did not realize how important they were. Scientific studies have shown that "loving care" treatments are effective in helping people get better, and have reduced the death rates in children by greater than 25%.

Numerous WHO reports and WHO "Quality of Life Assessments" also recognize the importance of the spiritual aspects of health. And reports from the US National Institutes of Health document how our "beliefs and values" initiate a neurohormonal cascade that results in the healing response. This is proven medical science and is not at all controversial. Your spiritual beliefs, lifestyle and prayer can be very important for your family's healing.

### 31. TREATMENT OF PAIN AND HIGH FEVER

It is important not to overdress children when they are sick. Overdressing can cause the fever to become very high. Babies and children should have the same amount of clothes and blankets on as you need yourself to feel comfortable.

If the fever is very high, sponging the child with lukewarm water may also be helpful. However this should be stopped if the child starts to shiver, as shivering increases the body temperature. Massaging the child's skin while applying the water will also help bring down the temperature.

Again, remember to drink lots of liquids. Fluids are very important for bringing down high fever.

Also, most of the headaches in patients we see are caused by not drinking enough fluids (dehydration).

**Paracetamol** (APAP, Acetaminophen, Tylenol, and Tempra are the same). Paracetamol may occasionally be helpful in the treatment of some infections when there is pain or very high fever:

If there is **Headache or Other Pain**--This may be treated with paracetamol. Be certain to use the correct dose as too high a dose can cause liver damage. Do not use alcohol when you take paracetamol (Can also cause liver damage). Aspirin should never be used in the treatment of any infection (Can cause Reye's Syndrome, brain and liver toxicity).

If there is **High Fever**. Mild fever can be a good thing and should not be treated. Fever may actually help our bodies fight infection. However if the fever is high (>39C or 102-103F) and you or your child are uncomfortable, you may use paracetamol.

### 32. WHEN TO TAKE THE PERSON WHO IS ILL TO THE HEALTH CARE PROVIDER

Occasionally a person with a virus cold will go on to develop pneumonia or ear or other infections. This happens most often in infants who are not breast-fed and those who are malnourished.

**Signs that you or your child needs to be evaluated as soon as possible by a health care provider include:**

-Breathing becomes difficult. Indrawing (rather than normal expansion) of the lower chest when the child breaths (May be pneumonia). Or stridor, a harsh noise made when the child breathes in.

-Breathing becomes fast when child is at rest: 2-12 months: >50 breaths per minute. 12 months to 5 years: >40 breaths per minute.

-There is a chronic cough or problem with breathing that has been present for more than 30 days (May be TB or asthma)

-Not able to drink or breast-feed

-Becomes sicker instead of gradually better after the 3<sup>rd</sup> day.

-Seems to be having pain.

-Persistent vomiting

-Has convulsions

-Is lethargic (difficult to arouse).

-Becomes more irritable when you pick him up or move his neck (may be meningitis).

-If the fever lasts for more than 3 days

-If the fever is accompanied by shaking chills or you suspect malaria (Other signs of malaria include headache, back and muscle pain, sweats, nausea and vomiting).

-Your child just "looks very sick" to you or another experienced parent.

### **33. TUBERCULOSIS**

Tuberculosis or TB is one of the most common life-threatening infections that anyone can get. TB is spread through the air when an ill adult coughs. (Children easily get infected with TB, however only adults spread it by coughing.) It can very easily be spread to others who live in the same house.

The most common presenting sign of TB is a cough that lasts for more than a month. If you have had a cough for more than a month, it is very important that you go to a local health clinic for testing. Coughing up bloody sputum may also sometimes occur.

Other than the persistent cough, adults often don't feel sick with TB and therefore delay seeking testing. This is very dangerous, especially to the children and adolescents they are in contact with. Children and adolescents are especially susceptible to TB and often become gravely ill with fever, chills and night sweats, weight loss, infection of the bones and joints, or meningitis (infection of the brain and spinal cord.) Even when the diagnosis is made early in these children, they often die, even with appropriate treatment.

So what is most important is prevention--getting all adults with coughs for more than one month tested and, if positive, treated to prevent the disease in children and adolescents.

It is also very important that people with TB take their medicine until their health provider says they are completely cured. TB is very difficult to cure and you must take the medicine for 6 months to a year or more. Otherwise it can come back as a resistant form of TB and be difficult or impossible to treat.

### **34. SCABIES**

Scabies is caused by a tiny mite that burrows under the skin and causes a very itchy rash with bumps. Adults most often get the rash between the fingers; children can have it anywhere. The itching is worse at night and is due to a sensitivity reaction. Scratching the bumps may cause sores with pus.

You should see your health care provider, as this rash should be treated with medication.

Bedding and clothing worn next to the skin during the 5 days before beginning therapy should be laundered in very hot water, or stored out of contact with anyone for 5 days. The mites do not survive more than 4 days without skin contact. As the itching is caused by a sensitivity reaction, it may persist for several weeks despite successful treatment. If the itching interferes with sleep you can ask your provider for a medicine to decrease the itching.

### **35. HYGIENE**

So, in addition to washing our hands, bathing and washing our clothes is also important. The baby being bathed in the river makes a beautiful picture, unfortunately, this is a very dangerous practice. Unless all your neighbors upstream always use good latrines and have not contaminated the water, you should not bathe or wash clothes in rivers or lakes. Unfortunately, nearly every place we have been, the water has been contaminated with bacteria such as Typhoid, or worms such as Schistosomiasis, and those who use the water very often become infected and sick. If you are not certain of

the purity of your water supply, it should be boiled or otherwise purified (Be certain to always let the water cool to prevent burns).

Brushing our teeth at least twice a day and flossing at least once a day are also very important parts of hygiene. We will now talk more about oral health.

### **36. ORAL HEALTH FOR ADULTS**

Tooth decay is the most common cause of pain of the mouth or face reported by adults, and most adults show signs of Gum Disease that results in a loss of teeth.

#### **What You Can Do to Maintain Good Oral Health:**

-Avoid tobacco. In addition to heart disease, stroke, lung cancer and other diseases caused by tobacco, smokers have 7 times the risk of developing gum disease compared to non-smokers. Tobacco use in any form--cigarette, pipes, and smokeless (spit) tobacco--also increases the risk for cancers of the mouth and throat, and fungal infection of the mouth (Candidiasis). (Advertising and movies often give teenagers the impression that smoking is "cool" or "sexy". No one tells them about the stained teeth, stinky breath, gum disease and cavities. But by then it is often too late and they are addicted to the nicotine.)

-Limit alcohol. Heavy use of alcohol is also a risk factor for oral and throat cancers. When used alone, alcohol and tobacco are risk factors for oral cancers, but when used in combination the effects of alcohol and tobacco are even greater.

-Eat wisely(See SECTION 37). Avoiding sugars and starches when snacking applies to adults as well as children. Limit the number of snacks eaten throughout the day. Increased amounts of fiber-rich fruits and vegetables are also very important.--They stimulate salivary flow to aid remineralization of tooth surfaces with early stages of tooth decay.

-Drink lots of safe water. If possible, drink fluoridated water and use a fluoride toothpaste. Fluoride's protection against dental decay works at all ages.

-Thorough tooth **Brushing and Flossing** to reduce dental plaque can prevent tooth decay and gum disease. Brushing should be done at least twice a day (Usually after breakfast and always before bed) and flossing at least once (before bed).

-How to Brush: Place your toothbrush at a 45-degree angle against the gums. Move the brush back and forth gently in short strokes. Brush the outer tooth surfaces, the inner tooth surfaces, and the chewing surfaces of the teeth. Brush your tongue to remove bacteria and freshen your breath.

-How to Floss: Wind about 18 inches of floss around middle fingers of each hand. Pinch floss between thumbs and index fingers, leaving a 1"- 2" length in between. Keep this taut between your fingers. Use thumbs to direct floss between upper teeth. Use index fingers to guide floss between the lower teeth. Gently guide floss between the teeth by using a back and forth motion. Do not snap the floss into the gums. Curve it into a C shape against one tooth. Slide floss up and down against the tooth surface and under the gum line.

-Always Rinse your mouth and "Swish" between the teeth with safe water after brushing or flossing, and also after eating snacks or whenever you are unable to brush and floss.

*See SECTION 37 for additional information on diet, toothbrushes and fluoride.*

### **37. ORAL HEALTH FOR CHILDREN**

Tooth decay remains one of the most common diseases of childhood. Untreated tooth decay causes daily suffering due to: persistent pain, inability to eat comfortably or chew

well, embarrassment at damaged teeth, and distraction from learning.

### **What Can Parents Do For Their Children?**

-Breast-feed your baby and don't use bottles. If you do not breast-feed and your baby must use a bottle, do not use it at bedtime. (Always clean bottles in boiling water before use.) Milk, formula, juices, and other drinks contain sugar. Prolonged exposure to sugary drinks while a baby sleeps – when saliva flow is reduced – increases the risk of tooth decay.

-Encourage your children to eat regular nutritious meals and to avoid frequent between meal snacking. Soda and other sweetened drinks, candy and sugar cane are especially harmful.

*See SECTION 36 for detailed instructions for **Brushing and Flossing**.*

-For children, use a small, soft toothbrush. Even for adults, soft brushes are best. (Sometimes brushes are too hard and may cause the gums to bleed. To soften the brush you may carefully insert the lower part of the bristles in very hot water. Do not insert the plastic part of the brush in the hot water as this may loosen the bristles.)

-Homemade toothbrushes are also effective. These can be made with a twig that is sharpened on one end to clean debris between the teeth and chewed on the other to make a brush. If dental floss is not available, sewing thread or fishing line may be used. Then “swish” between the teeth with safe water.

-Begin using toothpaste with fluoride when your child is about 2 years old. You may use toothpaste with fluoride before 2 years if there is no fluoride in your water supply. If you cannot afford to buy toothpaste with fluoride, just brush with safe water, or safe water with a pinch of baking soda. Brushing alone will help to prevent cavities and gum disease.

-Use only a small amount of the toothpaste (about the size of a pea). (Fluoride is important for fighting cavities. But if children younger than 6 years old swallow too much fluoride, their permanent teeth may develop white spots.)

-Teach your children to spit out the toothpaste and to “swish” between the teeth with safe water after brushing or flossing, and also to rinse and “swish” after eating snacks or whenever they are unable to brush and floss.

-Brush your child's teeth twice a day until your child has the skill to handle the toothbrush alone. Often this is done after breakfast, and they should always brush their teeth at bedtime. Continue to closely watch brushing to make sure the child is doing a good job and using only a small amount of toothpaste.

-After brushing, rinse the toothbrush thoroughly with safe water to ensure the removal of toothpaste and debris, allow it to air-dry, and store it in an upright position.

## **38A. NUTRITION-EATING THE RIGHT FOODS**

Nutrition has become one of the most critical factors in determining the health and wellbeing of people throughout the world. Both **under-nutrition** and **over-nutrition** cause millions of unnecessary deaths each year.

Millions of the world's poor, especially children, continue to suffer and die from diseases related to under-nutrition. Under-nutrition affects the immune system and many of these children die from infections. More than one third of child deaths worldwide are due to undernutrition

However, there is now also a world-wide epidemic of obesity due to over-consumption of the wrong kinds of foods. Obesity and the related diseases of diabetes, high blood pressure, heart attacks, strokes and cancer are now among the greatest killers

of adults throughout the world. Obesity often begins in childhood, and has become a serious problem in developing as well as developed countries. This often leads to serious health problems and early death as an adult.

We will review **under-nutrition** first.

In developing countries, being **underweight** is one of the most common killers of children, especially those under the age of five.--The younger the child the greater the risk. In addition to breast feeding your children until three years of age, you must be certain your children under five get their share of the family's nutritious food. (Help toddlers to eat instead of leaving them to serve themselves from the family dish.)

For children who are no longer breast feeding and adults, cow's **milk** is a very good source of **protein and calcium** (prevents osteoporosis-weak bones). However you must be certain that the milk has been **pasteurized** (For example, heated to 60 degrees C for 30 minutes--The heating is important to prevent diseases such as Brucellosis and TB) or use powdered milk with safe (boiled) water. Also, for adolescents and adults who are overweight, low or non fat milk should be used.

**Iron, Vitamin A, and Zinc deficiencies** are especially common and contribute to many deaths.

Foods high in **Iron** include: liver, clams, iron fortified cereals, oysters, brewers yeast, spinach, baked potato with skin, beans, peas and raisins.

Foods high in **Vitamin A** include: milk (including breast milk), egg, liver and fish liver oils, green vegetables, yellow fruits and vegetables.

Foods high in **Zinc** include: Oysters (very high), crab, liver, beef, pork, poultry, bran flakes, dried beans and lentils, milk and cheese.

**Eat a variety of foods** to get the energy, protein, vitamins, minerals, and fiber you need for good health. It may sometimes be difficult to eat from each food group each day. But by doing such things as buying your children milk instead of soda, you will help them to be as healthy as possible. Also, children should not eat a lot of sweets or drink coffee as this will decrease their appetite for healthier foods. Sweets are also the most common cause tooth decay with its pain and suffering.

**If you drink alcoholic beverages, do so in moderation.** Alcohol is a very dangerous and addictive drug. You may have heard that drinking in moderation may lower risk for coronary heart disease, mainly among men over age 45 and women over age 55. However, there are other factors that reduce the risk of heart disease that are much more important, including a healthy diet, physical activity, avoidance of smoking, and maintenance of a healthy weight. Also, moderate consumption provides little, if any, health benefit for younger people. Risk of alcohol abuse increases when drinking starts at an early age. Alcoholic beverages supply calories but few nutrients. Alcoholic beverages are harmful when consumed in excess, and **many people should not drink at all**. Excess alcohol alters judgment and can lead to dependency and a great many other serious health problems.

**If you choose to drink alcoholic beverages:**

-limit intake to no more than **one** drink per day for women or **two** per day for men, and take with meals to slow alcohol absorption. (One Drink=12 ounces of regular beer or 5 ounces of wine or 1.5 ounces of 80-proof distilled spirits)

-Avoid drinking before or when driving, or whenever it puts you or others at risk.

**Alcohol increases the risk for motor vehicle crashes, other injuries, high blood pressure, stroke, violence, suicide, and various types of cancer, including breast cancer. Alcohol consumption during pregnancy increases risk of birth defects.**

**Alcohol often causes social and psychological problems, cirrhosis of the liver, inflammation of the pancreas, and damage to the brain and heart.**

### **38B. NUTRITION-EATING THE RIGHT FOODS (CONTINUED)**

Various “**Food Pyramids**” have been developed to show the relative amounts and types of foods that are recommended. These vary depending on the culture and the availability of specific foods, however, the basic principles are the same. In general, a **healthy diet** is one that:

- emphasizes vegetables, fruits and whole grains
- includes milk and milk products (fat-free or low-fat are recommended for people over 2 years of age who are not malnourished or underweight)
- includes beans, nuts, eggs, fish, poultry or lean meats and
- is low in saturated fats, trans fats, cholesterol, salt (sodium) and sugars.

The food pyramid in the illustration is from the WHO Countrywide Integrated Non-communicable Disease Intervention (CINDI) program.

**Choose a diet with plenty of vegetables, whole grain products and fruits** which provide needed vitamins, minerals, fiber, and complex carbohydrates, and can help you lower your intake of fat.

If you and your family are not malnourished or underweight, **choose a diet low in saturated fat and cholesterol** to reduce your risk of heart attack and certain types of cancer. This is especially important if you are overweight. To reduce your intake of saturated fat and cholesterol:

1) Limit use of solid (meat and dairy) fats such as butter, hard margarines, lard, and partially hydrogenated shortenings. Coconut and palm kernel oil are also high in saturated fats. Instead, use vegetable oils such as canola, olive, soybean, corn or sunflower oil.

2) Limit your intake of hydrogenated and partially hydrogenated foods. These contain trans fats and are found in commercially prepared baked goods, snack foods, “fast” foods and other processed foods. There is no safe level of trans fats and it is best try to eliminate them completely from your diet.

3) Limit your intake of high-fat processed meats such as bacon, sausages, salami and bologna.

4) Limit your intake of liver and other organ meats. Use egg yolks and whole eggs in moderation (Egg whites and egg substitutes can be used freely when cooking since they contain no cholesterol and little or no fat).

5) Choose fat-free or low-fat dairy products (for people over 2 years of age). Choose dry beans (cooked), peas, and lentils often. Choose nuts, fish and shellfish. Choose lean poultry or other lean meats, not fried.--Trim fat from meat and take skin off poultry.

6) Get most of your calories from plant foods (whole grains, fruits, vegetables).

**Choose a diet low or moderate in sugars.** A diet with lots of sugars has too many calories and too few nutrients and also contributes to tooth decay. Between meals, eat few foods or beverages containing sugars or starches. If you do eat them, brush your teeth afterward to reduce risk of tooth decay.

-Get most of your calories from grains (especially whole grains), vegetables and whole fruits (Whole fruits have more fiber and less sugar than fruit juices).

-Take care not to let soft drinks or other sweets crowd out other foods you and your children need to maintain health, such as milk or other good sources of calcium.

-Drink water often.

**Choose a diet low or moderate in salt (sodium).** This is especially important if you have high blood pressure. Choose fruits and vegetables often. Instead of table salt use herbs, spices, and fruits to flavor food.

**Additional health benefits.** There are numerous additional health benefits to following the above diet recommendations. For example, they are also the very best treatment we have for **Constipation**. Constipation is firm stools that are difficult to pass (It is normal not to have a bowel movement every day.--Many people think they have constipation when in fact they are normal). Eat a high-fiber diet that includes beans, bran, whole grains, fresh fruits, and vegetables. Drink at least 8, eight ounce glasses of water or fruit juices per day (Caffeine and alcohol can have a dehydrating effect and can make constipation worse). Exercise regularly. Set aside time after breakfast or dinner for undisturbed visits to the toilet. Do not ignore the urge to have a bowel movement. Understand that normal bowel habits vary.

The WHO has summarized the above guidelines in **“Five Keys to a Healthy Diet”**:

**1. Give your baby only breast milk for the first 6 months of life**

-From birth to 6 months of age your baby should receive only breast milk, day and night

-Breast feed your baby whenever the baby feels hungry

**2. Eat a variety of foods**

-Eat a combination of different foods: staple foods, legumes, vegetables, fruits and foods from animals

**3. Eat plenty of vegetables and fruits**

-Consume a wide variety of vegetables and fruits (more than 400 g per day)

-Eat raw vegetables and fruits as snacks instead of snacks that are high in sugars or fat

-When cooking vegetables and fruits, avoid overcooking as this can lead to loss of important vitamins

-Canned or dried vegetables and fruits may be used, but choose varieties without added salt or sugars

**4. Eat moderate amounts of fats and oils**

-Choose unsaturated vegetable oils (e.g. olive, soy, sunflower, corn) rather than animal fats or oils high in saturated fats (e.g. coconut and palm oil)

-Choose white meat (e.g. poultry) and fish that are generally low in fats rather than red meat

-Limit consumption of processed meats and luncheon meats that are high in fat and salts

-Use low- or reduced-fat milk and dairy products, where possible

-Avoid processed, baked, and fried foods that contain industrial trans fatty acids

**5. Eat less salt and sugars**

-Cook and prepare foods with as little salt as possible

-Avoid foods with high salt contents

-Limit the intake of soft drinks and fruit drinks sweetened with sugars

### **38C. PHYSICAL ACTIVITY**

**Balance the food you eat with physical activity**--This is especially important if you are overweight. Adequate exercise will reduce your chances of having high blood pressure, heart disease, a stroke, certain cancers, and the most common kind of diabetes.

**Sedentary (Little Exercise) Life Style (See also Section 41B):** Most people in rural areas of developing countries get plenty of exercise. However some have jobs where

they only exercise a certain part of their body and others don't get much exercise at all. Exercise helps your heart and your body stay stronger and work better. It lowers blood pressure, improves your cholesterol levels, and can help you lose weight if that is a problem. It also strengthens your bones and improves your energy level and spirits.

There is now a world-wide epidemic of obesity that involves all age groups in developing as well as developed countries. Appropriate physical activity is therefore important for men, women and children and ALL age groups. The WHO recommends the following **Five Keys to Appropriate Physical Activity**:

“1. If you are not physically active, it's not too late to start regular physical activity and reduce sedentary activities. (For example, Reduce sedentary habits such as watching TV and playing computer games.)

2. Be physically active every day in as many ways as you can.

3. Do at least 30 minutes of moderate-intensity physical activity on 5 or more days each week.

4. If you can, enjoy some regular vigorous-intensity physical activity for extra health and fitness benefits. (For example, Ride a bike to work instead of taking the car.)

5. School-aged young people should engage in at least 60 minutes of moderate-to vigorous-intensity physical activity each day.”

At least 60% of the world's population fails to complete the recommended amount of physical activity required to induce health benefits.

As noted in section 41, heart disease and stroke and the related conditions of obesity, diabetes and high blood pressure kill far more adults than anything else in the world. There are scores of medications for these conditions, and though some are very helpful, all have adverse effects.

Appropriate Diet and Exercise are two very simple things. Yet the WHO and our best evidence-based sources report that (even in the most advanced countries) what we do for ourselves and for our families can save many more lives and prevent much more suffering than all of our medicines and all of our surgeries combined.

### **39. OSTEOPOROSIS**

A physically active life style will also help prevent osteoporosis. Osteoporosis is thinning and deterioration of bone usually caused by inadequate calcium. The WHO states we must act now to prevent a pending epidemic of spine and hip fractures due to this disease.

A lack of calcium and Vitamin D causes Rickets in children. It also causes impairment of growth and poor development of teeth. Osteoporosis is a calcium deficiency that affects older people. It especially affects women after menopause and results in fractures of the hip, back and other areas.

**Complying with the following WHO recommendations while we are young can prevent osteoporosis when we are older:**

-Avoid smoking (This not only causes thinning of the bones but also thinning of the skin and premature wrinkles. So people who don't want to look old before their time shouldn't smoke.)

-limit alcohol intake to no more than one drink per day for women or two per day for men.

-Breast-feed your babies

-Calcium intake of at least 800 mg per day for young children to 1500 mg per day for adults. Milk (powdered or fresh, regular or non-fat) is the very best source of source of

calcium for most people (375mg Ca /cup). One cup 3 times a day would meet the calcium requirements of most people. (In some countries, orange juice is now fortified with similar amounts of calcium.) Other excellent sources are yogurt and cheese. Calcium is also found in green leafy vegetables, canned sardines and salmon, clams and oysters. Another good source is tofu, or bean curd, when it is made with calcium salts.

-A physically active life style with some time (5-15 minutes per day) spent outdoors will help prevent osteoporosis. Sunlight activates Vitamin D, so 5-15 minutes outdoors per day is often recommended, especially for older people and people in colder climates. (However, it is also important not to get too much sun and to protect your eyes. Too much sun can cause skin cancer, premature aging and cataracts of the eyes. Avoid the midday sun whenever possible. Wearing a hat and good quality sunglasses can prevent cataracts and other sun damage and all outdoor workers should wear them.--However, you must be certain the sunglasses provide both UVA and UVB protection, otherwise they cause more harm than good.)

-Natural sources of Vitamin D include salt water fish, liver and egg yolk.

-Walking or other weight bearing activity will also help prevent osteoporosis.

-For those with osteoporosis who have difficulty digesting milk, yogurt and cheese are excellent sources that are usually well tolerated.

-Another good source of calcium is calcium carbonate tablets. There is a limit to the amount of calcium that can be absorbed at one time, so it is best to take the tablets several times a day. The tablets are also better absorbed when taken with meals, especially those meals that do not contain much natural calcium. A common supplemental regimen is calcium 600 mg twice a day plus vitamin D 800 to 1200 I.U. daily.

-Calcium carbonate is also often used as an antacid. We will talk about Acid Reflux Disease next.

#### **40. ACID REFLUX DISEASE**

Acid reflux disease is one of the most common problems we see in adult patients. There are a number of causes for stomach pain. For example, if you have weight loss or a severe gnawing pain in the mid stomach that is relieved by eating, or if you vomit blood or have blood in the stool, you need to have an evaluation for ulcer or other disease.

However, the most common cause of pain in the mid upper stomach or lower chest is acid reflux disease. This is also called “Heartburn” or “Acid Indigestion” or “Gastroesophageal Reflux Disease.” It affects the muscle sphincter connecting the esophagus (feeding tube) with the stomach. The picture shows the location of the sphincter between the esophagus and the stomach.

Reflux means to flow back or return. Acid reflux occurs when the sphincter is weak or relaxes inappropriately allowing the stomach's acid contents to flow up into the esophagus.

Fortunately, there is **much you can do to prevent and treat this distressing condition.** Treatment aims at reducing damage to the lining of the esophagus from stomach acid:

-Smoking weakens the lower esophageal sphincter and increases acid production, it is therefore very important to stop smoking.

-Avoid alcohol for the same reasons. (Smoking and alcohol also make ulcers worse. You will often hear us talk about smoking and excessive use of alcohol. These are not at all “religious” or “moral” issues for us or the WHO.--They are critical, life-threatening health issues for all of us and so the WHO must talk about them.)

-Other foods may also need to be limited if they cause you symptoms. These include fried and fatty foods, coffee, carbonated beverages, and “hot” foods such as pepper.

-People with stomach pain should avoid aspirin and nonsteroidal anti-inflammatory pain medicines such as Ibuprofen. (In the absence of liver disease or abuse of alcohol, Paracetamol is usually ok)

-Avoid lying down until 2 to 3 hours after eating. Avoid bending over shortly after meals, and avoid wearing belts that are too tight.

-Going for a walk after meals is also recommended and is helpful for many other conditions as well.

-If you have symptoms while sleeping, lie on your left side (as this lady is doing) and/or elevate the head of the bed 4 to 6 inches.

-Lose weight if overweight.

-Decrease the size of portions at mealtime (You can increase the number of feedings if you are not over-weight).

-Chew gum (preferably sugarless) for 1 hour after meals. This increases alkaline saliva which neutralizes stomach acid.

-Antacids may also help reduce symptoms. The calcium antacids are often recommended because they also help prevent another common problem, osteoporosis (thinning of the bones) *See SECTION 39*. However the calcium antacids sometimes cause a “rebound secretion of acid,” so don’t use them if they make your symptoms worse instead of better.

#### **41A. HEART DISEASE AND STROKE**

The WHO reports there is now an epidemic of deaths due to heart disease in developing countries. This can be prevented as the **causes are all under YOUR control**.

Stroke and Heart Disease risk factors **You** can control include: **Smoking, Overweight, High blood cholesterol, Sedentary (little exercise) lifestyle, Diabetes, High blood pressure, and Stress.**

**-Smoking:** We have already discussed some of the harmful effects of smoking such as gum and dental disease, stomach problems, and so on. Tobacco related diseases are the world’s leading preventable cause of death.--Responsible for about 5 million deaths a year. Total tobacco consumption is on the rise. We now know that nicotine is a very highly addictive drug, so once you start smoking it is very difficult to quit. Yet nicotine remains legal, uncontrolled and unregulated, so the number of smokers, estimated at 1.3 billion today, is expected to rise to 1.7 billion by 2025. Some people are lucky and don’t die from smoking. However, every second smoker will die of a tobacco-caused disease. (Quitting smoking can immediately begin to reduce those risks.--The sooner you quit, the less your risk of early death) Smoking causes heart attack, stroke, and blood vessel disease that leads to amputation--all of these terrible diseases shown here.

It also causes lung cancer, emphysema, bronchitis and many other diseases, including erectile dysfunction in men (Tobacco advertisements try to show us that smoking is “sexy” but its effects are exactly the opposite). **STOPPING SMOKING IS BY FAR THE MOST IMPORTANT THING THAT CAN BE DONE TO PREVENT THESE DISEASES AND IS MUCH MORE EFFECTIVE THAN ANY MEDICINE.** If you smoke in your home, the secondary inhalation of the smoke also causes diseases such as asthma, cancer and sudden infant death in your loved ones. The scientific evidence is so overwhelming that there is no longer any excuse for anyone, anywhere, to smoke at any time.

## 41B. HEART DISEASE AND STROKE (CONTINUED)

Other Stroke and Heart Disease Risk Factors You Can Control Include:

**-Overweight:** (See also SECTION 38. NUTRITION & PHYSICAL ACTIVITY)

Weighing too much can increase your risk for developing many health problems including Heart disease, Stroke, Type 2 (adult onset) diabetes, Cancer and other serious diseases. You can lower your health risks by losing as little as 10 to 20 pounds. Limit the amount you eat, and exercise for one half to one hour every day. You should especially avoid foods high in saturated (animal) fats, trans fats and calories. Greasy, fatty foods such as meats, as well as many desserts and sweets are loaded with unhealthy fats and calories (fat has over twice as many calories as carbohydrate or protein). Instead, eat a variety of fruits, vegetables, low-fat dairy products, beans and whole grain foods each day. These foods provide lots of vitamins, minerals, and fiber, yet they provide the least concentrated sources of calories, so can also help you control your blood sugar, as well as lose weight.

**-High Blood Cholesterol:** (See also SECTION 38. NUTRITION & PHYSICAL ACTIVITY) This also can be controlled by reducing the amount of animal fats in your diet. There are also medicines that can help. Cholesterol levels can also be improved by exercise.

**-Sedentary (Little Exercise) Life Style:** (See also SECTION 38C PHYSICAL ACTIVITY) Most people in rural areas of developing countries get plenty of exercise. However some have jobs where they only exercise a certain part of their body and others don't get much exercise at all. Exercise helps your heart and your body stay stronger and work better. It lowers blood pressure, improves your cholesterol levels, and can help you lose weight if that is a problem. It also strengthens your bones and improves your energy level and spirits. The Institute of Medicine now recommends that all people engage in some type of exercise for at least one hour every day of the week. However, even a half hour a day will help decrease your risks and help you to lose weight.

**-Diabetes (Type 2 or Adult Onset):** (See also SECTION 38. NUTRITION & PHYSICAL ACTIVITY) Poorly controlled diabetes also places you at serious increased risk of heart attack and stroke as well as blindness and amputation. Although medications are often necessary; diet, weight reduction and exercise have been shown to be more effective than medications in preventing and controlling adult onset diabetes. It is also essential that you never smoke (often results in amputations). Alcohol is especially toxic to diabetic patients and can worsen diabetic nerve damage, decreased vision and high blood pressure. If you have diabetes, you should be seen by a dietitian to help you regulate your diet and blood sugar levels. To help keep your blood sugar at a healthy level you should:

- 1) Eat about the same amount of food each day,
- 2) Eat at about the same times each day,
- 3) Take your medicines at the same times each day, and
- 4) Exercise about the same amount at about the same times each day.

It is also important to keep the amount of carbohydrate you eat consistent throughout the day. Although it is the total amount of carbohydrates (not only sugar) that is most important, you should not eat cookies, cakes, sodas and other fatty and sugary foods until you have seen a dietitian and are familiar with carbohydrate counting and exchanges.

If you are diabetic and overweight, what is most important is losing weight by limiting the size of the portions (amount of calories) you eat and exercising at least ½ to 1 hour every day. You should especially avoid saturated and trans fats, sweets and sugary

foods. Eat a variety of fruits, vegetables, low-fat dairy products, beans and whole grain foods each day. These are the foods you should primarily eat. They provide lots of vitamins, minerals, and fiber, yet they provide the least concentrated sources of calories, so can also help you control your blood sugar, as well as lose weight. Most vegetables are relatively low in carbohydrate so are an especially good choice.

**-High Blood Pressure:** (See also SECTION 38. NUTRITION & PHYSICAL ACTIVITY) Most people with high blood pressure don't feel sick. That is why high blood pressure is called the "Silent Killer". The reason it is important to treat high blood pressure is because it causes heart attacks and stroke. Fortunately, there is much you can do to decrease your blood pressure. Diet changes are our most effective treatments and include reducing the salt in your diet (to less than 1500 mg Sodium per day), increasing potassium intake (bananas and other fresh fruits and vegetables), and other recommendations as described in Section 38. Decreasing alcohol intake, increasing physical exercise, decreasing weight, and reducing stress are also very important for controlling your blood pressure.

Blood pressure requires close follow up by your regular health care provider. If your provider puts you on a blood pressure medicine it is very important that you always continue it, every day, even if you don't feel sick. Always see your provider before stopping your blood pressure medicine (Even before skipping one dose). Stopping the medicine abruptly can cause a rebound blood pressure that is very high and very dangerous and can cause heart attack and stroke. So it is very important that you continue to be seen regularly by your provider so he or she can monitor your blood pressure and adjust your medicines.

**-Stress:** Stress can also lead to heart attack and stroke and other health problems. Some people respond to stress by overeating. Studies have shown that patients who pray and have a spiritual life emphasizing love and forgiveness seem to manage stress better and respond better to treatment.

**Healthy diet, regular exercise and avoiding tobacco products** are just 3 simple things. Yet the WHO reports that **over 80%** of all the unnecessary deaths due to:

Premature Heart Disease (#1 Cause of Death),

Stroke (#3 Cause of Death),

Type 2 Diabetes (#6 Cause of Death),

and **40%** of Cancer (#2 Cause of Death)

could be prevented by a healthy diet, regular exercise and avoiding tobacco products. Though our drugs and surgeries for these conditions may help, they save very few lives compared to diet, exercise and avoiding tobacco.--Just 3 simple things. And each is under your control, and your control alone.

## **42A. TREATMENT OF BACK PAIN**

**Episodes of acute back pain** may be treated with ice to the area for the first 6 hours after injury. This may be continued for the first two days to decrease swelling. After three days heat may be applied to help healing.

-Pain relievers such as Paracetamol are often recommended. Do not use alcohol while taking Paracetamol or use more than the recommended dose. Do not use paracetamol if you have liver disease. Be certain to keep all medicine out of reach of children.

-Activity may be somewhat restricted for the first two days and then gradually increased, beginning with stretching and simple exercise such as walking. People with

acute back pain should stay active and continue daily activities as much as possible. They should temporarily avoid prolonged sitting, heavy lifting, or twisting the spine and should pay particular attention to correct posture in all their activities.

-Note the firm mattress and the pillow between the legs--this will also help prevent back pain. Also note the man's foot resting on a box. This will help prevent back pain if you have a job that requires prolonged standing.

-If the episode of pain lasts for more than 6 weeks or there are other symptoms such as fever or weight loss or retention of urine, you need to see your provider for further studies as soon as possible.

-After the acute pain has subsided, stretching movements can help relieve your back and help prevent further episodes. These should be done daily and are best done after you have been active for awhile and your muscles are "warm." The movements should be smooth and not jerky and should be held for at least 30 seconds. Some positions may be held for 10 to 15 minutes if it feels comfortable and continues to bring relief. **Examples of stretching movements include:**

-Lying flat on your back on the floor: This is especially helpful for recent injuries. Have your legs resting elevated on a footrest or chair with a pillow—This can be very relaxing so many patients prefer to hold this position for 15 minutes or more.

-Sitting: Leaning forward in your chair and lowering your head to your knees and holding that position for at least 30 seconds or for as long as it feels comfortable.

-Standing: With your hands on your low back lean backward and hold for at least 30 seconds or for as long as it feels comfortable.

#### **42B. TREATMENT OF BACK PAIN (CONTINUED)**

Perform exercises to strengthen your back muscles. After the acute pain has subsided, back exercises should be done daily. It is best to first warm up your muscles by walking and stretching before you exercise. Do not do exercises that cause pain. If you are recovering from a serious back injury, do only those exercises that have been approved by your provider.

The following are **examples of exercises** that have been used to strengthen the muscles of the spine:

-Pelvic Tilt: This is a good exercise to start with, especially if you have had a recent back injury. Lie flat on your back with your legs flexed at the knee. Tilt your pelvis to bring your lower spine in contact with the floor by contracting your abdominal and buttock muscles. Hold for 5 to 10 seconds and relax. Repeat 10 to 12 times. Do three sets. (This exercise is easier to do if you place your arms along side your body rather than behind your head as shown in the picture.)

-Bicycle: Lying flat on your back, flex your legs at your knees and hips. Alternate flexing and extending in a bicycle motion. Do three sets of as many as you can comfortably do. Do not hold your breath or use jerky movements. (If you have had a recent back injury, it may be better to place your arms along side your body rather than behind your head as shown in the picture. If there is no recent injury, this exercise is sometimes done with the neck flexed more than is shown in the picture, however, do not put pressure on your neck.)

-Partial sit ups or crunches are often recommended. Begin flat on your back with your legs flexed at the hip. Your hands can be crossed over your chest if that is more comfortable. You can place your feet under a bed frame or heavy piece of furniture to provide leverage. Slowly raise your head and shoulders off of the floor. Do three sets of

as many as you can comfortably do. Rest for 5-10 minutes or do another type of exercise between sets. Do not hold your breath, use jerky movements, or put pressure on your neck.

#### **43. HOW TO PREVENT BACK PAIN**

Back pain is the most common health problem of the adult patients we care for. Most back pain we see is related to very hard labor and very difficult living conditions. However, **there is much you can do to prevent this painful and sometimes incapacitating condition.**

**Daily stretching and back exercises** (as described in *SECTIONS 42A and 42B*) for treatment, are also very effective in helping you to prevent back pain. The following are also important:

-Do not smoke

-Losing weight will help if you are overweight.

-Always lift properly. Never bend over when you lift. Always keep your back straight and bend your knees. This allows you to lift with your legs instead of your back. Do not turn or twist to pick up something, even if it is light. Keep the object as close to your body as possible.

-Wear a back support if your work requires that you lift often. This will provide some support and will remind you to keep your back straight when lifting. People in many parts of the world wrap a very long narrow cloth tightly around their waist for the same purpose. This practice goes back to Old Testament times when people would "gird up their loins".

-Use good posture while sitting and standing. If your job requires prolonged standing, elevate and rest one foot on a box or stool to help keep your back straight (*See SECTION 42A*).

-Use a firm mattress, or place your mattress on boards or on the floor. Place pillows under your lower legs if you sleep on your back. Place a pillow between your legs if you sleep on your side (*See SECTION 42A*). Do not sleep on your stomach.

#### **44. ACCIDENT PREVENTION FOR INFANTS AND TODDLERS**

**Sudden Infant Death Syndrome:** Infants sometimes die unexpectedly while they are sleeping. This is often associated with cough and cold medicines, parents' smoking; also with putting infants to sleep on their stomach. Do not use pillows or leave other soft objects in an infant's crib. Always put infants to sleep on their back. Stop smoking (This could save your life as well as your child's).

**Poisoning:** This is an especially common cause of death in children less than 3 years of age. Young children may put anything in their mouth. They are constantly investigating the world around them, and putting things in their mouth is part of the way they learn. Many common medicines and household products are poisonous and cause deaths in children. Common examples include

Medicines: Aspirin, paracetamol, tranquilizers, sleeping pills, iron pills.

Household Products: Drain cleaners, weed killers, insect or rat poisons, lye, kerosene, detergent, mothballs.

##### **How you can prevent deaths from poisoning:**

-Keep all medicines locked up and out of sight.

-Keep all chemicals and detergents locked up and out of sight.

-Teach your children not to drink or eat anything unless it is given by an adult.

-Try not to take medicine in front of small children. Children tend to copy adult behavior.

**Choking** is also a very common cause of death in children less than 5 years of age. Part of the reason is that they are always putting everything in their mouth. But they also often choke on foods that people mistakenly give them such as nuts and popcorn. Because they don't yet have all their teeth, their chewing is not very effective and large particles can get caught in their throat. Older people who don't have all their teeth often choke on food such as steak for the same reason.

**How you can prevent deaths from choking:**

-Do not give your young children nuts, popcorn, hard candy, hotdogs or any foods of similar size.

-Always cut up your younger child's food (especially foods like chunks of meat) into very small pieces. Older people who are missing teeth should also do this.

-Do not let young children play with deflated balloons, marbles, or toys with small parts they can choke on.

-If your child is less than 5 years and must take pills or "chewable" vitamins, grind them into a powder between two spoons. You can then mix them with a small amount of liquid or food.

-If someone is choking and the airway is **completely** obstructed, use abdominal thrusts (*See SECTION 48*) to help.

#### **45. DROWNING/ FALLS/ TRAFFIC ACCIDENTS**

Accidents are the most common cause of death in school age children. Children this age are taking off on their own. They look to friends for approval. They try to do daring things. They may not want to obey grown-up rules. But your child can learn safety rules with your help and reminders.

**How you can prevent deaths from drowning, falls and traffic accidents:**

-Your child is not safe alone in water, even if he or she knows how to swim. Do not let your child play around any water unless an adult is watching. Never let your child swim in canals or any fast-moving water.

-Teach your child to always enter the water feet first (Diving head first has caused many neck fractures with permanent paralysis of the arms and legs)

-Teach your younger child never to cross the street without a grown-up. Teach your older child to stop completely at the curb, then look to the left, to the right, and back to the left again before crossing.

-Always use seat belts when riding in cars or trucks.

#### **46. RABIES/INDOOR SMOKE**

**Rabies:** Bites from dogs, cats, bats, skunks or other animals may cause rabies. Rabies is a disease that is always fatal once the symptoms begin. However effective treatment is available if it is used before symptoms begin. It is therefore very important to seek treatment as soon as possible after a bite. Rabies is especially common in developing countries.

**How you can prevent deaths from rabies:**

-All people who wish to keep dogs, cats and other animals as pets should have them immunized against rabies. (They should also have their pets seen regularly by a veterinarian to prevent the spread of other illnesses to themselves and their children. In

addition to rabies, dogs and cats carry more than 15 different kinds of worms and serious bacterial and other diseases that they often transmit to people.)

**-Prevention of dog bites:** The most important lessons for children to learn are not to tease dogs they know, and to avoid dogs they don't know. Don't disturb a dog while she's sleeping, eating, chewing on a toy, or caring for puppies. Also instruct your child to do the following: Stand still if you are approached or chased by a strange dog. Do not scream or run, ride your bicycle, kick, or make threatening gestures. Stand up straight and motionless, hands at your sides, and avoid eye contact with the dog. Never turn your back to the dog. Once the dog loses interest in you, slowly back away until he is out of sight. If the dog does attack, "feed" him your jacket, purse, bicycle, or anything that you can put between yourself and the dog.

-If a dog, cat, or other domestic animal bites you or your child; it should be captured, securely confined, and observed for 10 days. (If it can be confirmed that the animal is still healthy after 10 days, you will probably not have to have rabies shots)

-All **bite wounds** should be flushed thoroughly, and gently but thoroughly washed with soap and water for 15 minutes. (If available, a dilute virus killing agent such as povidine-iodine solution should be used to irrigate the wounds.) Then see your health care provider to determine whether rabies vaccine is necessary.

-Notify the health or police department whenever you see an animal that seems sick or injured, or one that is acting strangely. Don't try to catch the animal or pick it up.

**Indoor Smoke:** Our friends in malaria areas tell us that smoke seems to help keep mosquitoes away. However, **irritants** from indoor smoke are associated with asthma and are a common cause of lung damage.

In addition, **carbon monoxide poisoning** is caused by an invisible gas that is formed whenever wood, coal or other fossil fuels are burned. It is also formed whenever fuels are burned in engines. The gas is colorless and odorless so you cannot see or smell it. Carbon monoxide poisoning requires special tests to diagnose, so we do not know how common it is in other countries. However, it is the most common cause of poisoning in the States. It is especially common when the weather is cold and families burn fuel indoors without adequate ventilation so that the poisonous gas cannot adequately escape. Sometimes the entire family is found dead. Earlier symptoms include headache, nausea and tiredness--People with these symptoms are often misdiagnosed as having the "flu," but it is really early carbon monoxide poisoning. There may also be dizziness, confusion or problems with vision. Remember that we are not talking about the part of the smoke that you can see and smell (although these are also harmful). Deadly levels of carbon monoxide can be present even when there are only hot embers without any smell of smoke at all. **How you can prevent deaths from carbon monoxide poisoning:** Always be certain the chimney for your stove is functioning properly. (This will also prevent lung damage caused by smoke.) If there is no chimney and you must have a fire inside the house, always be certain that all the doors and windows are left wide open to provide adequate ventilation.

## 47. FIRST AID

**Scrapes and Cuts:** Wash with clean water and soap. Apply sterile gauze dressing. If the cut is large, apply dressing, press firmly and elevate to stop bleeding. Bandage and seek medical care. Puncture wounds (such as stepping on a nail) can be easily infected and should always be seen by your health provider. Need for tetanus boosters should be checked whenever the skin is broken or, for burns, even if the skin appears intact.

**Burns:** Immerse in cold water until pain is relieved. Do not break blisters. Non adhesive dressings or plastic film (Saranwrap, etc) makes an excellent non-adhesive emergency covering. Do not use ointments, greases, powder, etc. Seek medical care.

**Fractures:** Any deformity of injured part usually means a fracture. Do not move the person without splinting. Suspected neck or back injury should only be moved with medical assistance to avoid causing paralysis.

**Sprains:** (*See Picture*) Elevate the injured part. Cold (ice) compresses may be helpful, especially during the first six hours. Seek medical advice if marked pain or swelling. If minor sprain: Continue elevation, rest, and compression dressing (ace wrap) for 2 to 3 days, followed by a gradual return to normal activity.

**Eyes:** Attempt removal of foreign body by gentle use of a clean moist cotton swab. Pain in the eyes from foreign bodies, scrapes, scratches, etc. can be alleviated by bandaging the lids shut until medical aid can be obtained. For chemicals splashed in eyes, flush immediately with clean water and continue for 15 minutes. Do not use drops or ointment. Seek medical aid.

**Nosebleeds:** Nearly always the bleeding is from the front middle divider of the nose. In the sitting position, squeeze outside of the nostrils with thumb and index finger for 5-10 minutes. A common mistake here is to not hold the pressure continuously for 5-10 minutes. Bleeding in the nose is like bleeding everywhere else; if you release the pressure, even temporarily, you will pull off the clot and the bleeding will start again. (Nosebleeds can often be prevented by keeping the fingernails cut short and applying an ointment such as Vaseline to the front middle divider of the nose.)

#### **48. CHOKING HELP: ABDOMINAL THRUSTS (HEIMLICH MANEUVER)**

Many communities are now offering courses in life saving techniques such as Abdominal Thrusts and CPR (Heart-Lung Resuscitation). These courses take several hours and it is not possible for us to teach you here. However, we do want to leave you with some information on treatment of choking and encourage you to take the courses if they become available in your area.

**Choking:** Any person who has choked on something and is still coughing, crying or able to make any sounds is best LEFT ALONE. Abdominal thrusts can cause damage to internal organs, especially in children, so you must be certain the airway is completely obstructed.

Ask the victim if he is choking. (Often the victim will look like the child in the picture and will bring his hands to his throat and his eyes will be wide with distress, and there will be no sound.) If the person is not able to make any sounds and there is no air movement, Abdominal Thrusts should be given.

#### **Abdominal Thrusts with a Conscious Victim Standing or Sitting (See Upper Picture):**

- 1) Stand behind the victim. Place the thumb side of one fist against the victim's abdomen in the midline slightly above the navel and well below the chest.
- 2) Grasp the fist with the other hand and exert 5 quick upward thrusts. The fist should not touch the lower part of the rib cage as this may damage internal organs.
- 3) Each thrust should be a separate distinct movement and should be continued until the object is expelled or the victim becomes unconscious.

#### **Abdominal Thrusts with a Conscious or Unconscious Victim Lying Down (See Lower Picture):**

1) Place the victim on his back with his head to one side and open his airway. Kneel close to the victim's side or straddle his hips.

2) Place the heel of one hand on the victim's abdomen in the midline slightly above the navel and well below the chest. The other hand should be placed on top of the first.

3) Press both hands into the abdomen with a quick upward thrust. If necessary, a series of five thrusts is performed, and each thrust should be a separate and distinct movement. Each thrust is directed upward in the midline and should not be directed to either side of the abdomen.

4) After delivery of 5 abdominal thrusts, attempt rescue breathing: if the airway remains obstructed, repeat these maneuvers.

#### **49. RECOVERING FROM DISASTERS AND OTHER TRAUMATIC EVENTS**

We often care for people who have been victims of physical or sexual assault or rape, or have suffered serious accidental or war inflicted injury. Others are recovering from disasters such as hurricanes or earthquakes. Traumatic events such as these are usually sudden and overwhelming. In some cases, there are no outwardly visible signs of physical injury, but there is nonetheless a serious emotional toll. Profound sadness, grief, anger and other strong emotions are normal reactions. Understanding these normal responses to traumatic events can aid you in coping effectively with your feelings, thoughts, and behaviors, and help you along the path to recovery.

##### **The following are normal responses to a disaster or other traumatic event:**

Mental functioning. Those who have suffered traumatic stress may act irrationally, have difficulty making decisions; or may act in ways that are out of character for them normally. **Initially** you may feel shock (Feeling stunned, dazed, numb, or overwhelmed) or denial (Not fully acknowledging the severity of the event). **Later responses** vary with the individual. You may experience: Irritability or anger; Self-blame or the blaming of others; Isolation and withdrawal; Fear of recurrence; Feeling helpless; Mood swings; Sadness, depression, and grief; or Concentration and memory problems.

Physical health: Traumatic stress can cause a range of physical symptoms which may include: Loss of appetite; Headaches or chest pain; Diarrhea, stomach pain, or nausea; Hyperactivity; Nightmares; The inability to sleep or Fatigue or low energy.

Interpersonal relationships: Those who survive traumatic stress may undergo temporary personality changes that make relationships difficult. There may be an increase in arguments with friends and coworkers or marital discord.

It is also important to realize that there is no "standard" reaction to extreme stress and we all respond differently. Some people react immediately and recover quickly, while others have delayed reactions.

**How can I help my family and myself?** We each have different needs and different ways of coping. Focusing on your strengths and abilities will help you to heal. The following have been found to help:

-Give yourself time to heal. Don't hold yourself responsible for the disastrous event or be frustrated because you can't do more to help in the rescue work. Anticipate that this will be a difficult time in your life. Allow yourself to mourn the losses you have experienced. Try to be patient with the changes in your emotional states and those of your family.

-Engage in healthy behaviors to help you cope with stress: Take steps to promote your own physical and emotional healing by maintaining a healthy life style. (i.e. healthy eating, rest, exercise, relaxation, meditation.) This healthy outlook will also help your

family. It is also very important to try to reestablish routines such as eating meals and going to bed at regular times. Spend time with family and friends. Try to limit demanding responsibilities of yourself and your family. Participate in memorials, rituals, and use of symbols as a way to express feelings. Use existing support groups of family, friends, and church. Do not use alcohol or drugs--They very commonly make things much worse for both survivors and their loved ones.

-Try to find a local support group with others who have experienced similar stress (Often available following disasters, or war related injuries, or for women who have been victims of abuse or rape). It is common to want to strike back at people who have caused great pain. However, nothing good is accomplished by hateful language or actions.

-Ask for support from those who care about you and will listen and empathize with your situation (Though it is important to remember that they may also be suffering from the effects of traumatic stress). Allow yourself to receive as well as give.

-Acknowledging our feelings helps us recover. Talk with someone about your feelings-- anger, sorrow, and other emotions--even though it may be difficult. Communicate your experience in whatever ways feel comfortable to you--such as talking with family, a pastor or close friend, or keeping a diary. Use meditation and/or other spiritual resources.

**Helping Children Cope with Disaster.** Disasters can be frightening for adults, but they are especially traumatic for children, especially if they don't know what to do.

-Children depend on daily routines. When emergencies interrupt this routine, children often become anxious. Reestablishing a regular schedule for eating, playing, chores and going to bed will help restore a sense of security.

-In a disaster, they'll look to you and other adults for help. **How you react** to an emergency gives them clues on how to act. If you react with alarm, a child may become more scared. They see our fear as proof that the danger is real. If you seem overcome with a sense of loss, a child may feel their losses more strongly.

-Children often regress and show younger behaviors such as thumb sucking and bed wetting. Children's fears also may stem from their imagination, and you should take these feelings seriously. A child who **feels** afraid **is** afraid. Your words and actions can provide reassurance. When talking with your child, be sure to present a realistic picture that is both honest and manageable for the child.

-Feelings of fear are healthy and natural for adults and children. But as an adult, you need to keep control of the situation. When you're sure that danger has passed, concentrate on your child's emotional needs by asking what he or she is most concerned about.

-Having children participate in the family's recovery activities will help them feel that their life will return to "normal." Your response during this time may have a lasting impact.

-Be aware that after a disaster, children are **most afraid** that: the event will happen again; someone will be injured or killed; they will be separated from the family; or they will be left alone.

**Immediately after the disaster, try to reduce your child's fear and anxiety:**

-Keep the family together. While you look for housing and assistance, you may want to leave your children with relatives or friends. Instead, keep the family together as much as possible and make children a part of what you are doing to get the family back on its feet. Children get anxious, and they'll worry that their parents won't return.

-Calmly and firmly explain the situation. As best as you can, tell your children what you know about the disaster. Explain what will happen next. For example, say, "Tonight, we will all stay together in the shelter." Get down to the child's eye level and talk to them.

-Encourage children to talk about the traumatic event and ask questions as much as they want. Encourage children to describe what they're feeling. If they are very young, have them draw pictures of what happened and explain them to you. Listen to what they say. If possible, include the entire family in the discussion.

-Include your children in recovery activities. Give children chores that are their responsibility. This will help children feel they are part of the recovery. Having a task will help them understand that everything will be all right.

-You can help your children cope by understanding what causes their anxieties and fears. Reassure them with firmness and love. Let your child cling to you more often and let them be more dependent on you in the months following the trauma. Hugs, holding and other types of physical affection are extremely important to children who have experienced stress.

-The above will help your children realize that life will eventually return to normal. If a child does not respond to the above suggestions, seek help from a mental health specialist or a member of the clergy.

-WHO reports emphasize the importance of the holistic (spiritual as well as mental and physical) approach to healing. Most of the places we go to, the local pastors offer the most help. If you have any questions or need help in this area, please let us know.

**Family Emergency Plan:** Contact your local emergency management or civil defense office, or your local Red Cross chapter for materials that describe how your family can create an Emergency Plan. Everyone in the household, including children, should play a part in the family's response and recovery efforts.

-Teach your child how to recognize danger signals. Make sure your child knows what fire alarms and local community warning systems (horns, sirens) sound like.

-Teach your child how and when to call for help. Help your child memorize important family information such as their family name, address and, if available, local phone number. They should also know where to meet in case of an emergency. Some children may not be old enough to memorize the information. They could carry a small index card that lists emergency information to give to an adult or babysitter.

## **50. CONCLUSION--THE MOST IMPORTANT KNOWLEDGE (SUMMARY)**

So this is the most important knowledge from the very best sources we could find in the world. It is from the World Health Organization and its collaborating partners that include the very best physicians and health experts from all over the world. It is the most important knowledge that would help you save the most lives and prevent the most suffering for you, your family and your community.

The importance of loving each other was emphasized by our ancestors (yours and mine), and was reviewed at the very beginning of this program (Section 2). For most of our patients this remains the most important knowledge. World Health Organization reports confirm that if we were all able to treat each other in a truly compassionate manner, we could eliminate nearly all the unnecessary deaths and suffering in the developing, as well, as developed world. Also,

-To prevent AIDS, have sex only with your spouse.

-Don't smoke, and if you use alcohol, use only a small amount.

- Keep your homes and neighborhoods clean and free of breeding areas for flies and mosquitoes.
- Use safe drinking water.
- Breast-feed your babies.
- Always use properly built latrines.
- Teach your children to wash their hands and remember to do so yourself.
- Always be very careful when you use medicines-Even herbal medicines and even the ones we give you. Always keep all medicines locked up and out of reach of children.
- And remember that nearly always the most important treatment you can provide is TLC (Tender Loving Care).

Do you have any questions.....?

Thank you again for your kind hospitality and for inviting us to your wonderful community. We will leave copies of this health education program with\_\_\_\_\_. Our hope is that you will have community meetings to further discuss the WHO guidelines we have reviewed.--And that you will identify and begin to find solutions to the problems that are most important to you and your community.

*(Appropriate farewell in native language.)*

## **REFERENCES**

The “Health Education Program for Developing Countries” content has always been based on the best available evidence-based sources. The sources for the best available international standards and guidelines have changed over the years. The program content is now based almost entirely on information available through the World Health Organization (WHO) and its numerous (over 900) collaborating partners. The WHO website is also continually updated to incorporate changes in evidence-based guidelines. We have therefore deleted our previous reference pages. For further information please see: [www.who.int](http://www.who.int)