



Training Manual for SEHAT Workers

Phase 1 - Hypertension

Project SEHAT

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PART 1- PROGRAM OVERVIEW

INTRODUCTION

This user manual has been developed for Community Health Workers (CHWs) to use during Project SEHAT. The CHW, also known as a SEHAT worker, is expected to carry the manual as she goes about doing her work and to use the manual as a reference point.

ABOUT SEHAT

SEHAT (Society for education in health) is a not for profit foundation that has been established in Dalkolha by a group of doctors and members of civil society to address local health issues, especially in the field of emerging lifestyle diseases, and to strengthen the capacity to deliver primary health care in this regard.

PURPOSE OF THIS MANUAL

This is the first of three manuals which will help train a SEHAT worker to identify, record and manage individuals who have high blood pressure, diabetes or who are smokers. This is the first manual and will focus on identifying individuals with high blood pressure and managing them in the setting of their homes. This will try to educate the SEHAT worker about hypertension including the consequences of suffering from it, the way to identify people with it and provide appropriate advice to help people control it.

PART 2- PROJECT SEHAT OVERVIEW

PROJECT SEHAT

Project SEHAT (Study to Expand Heart Associated Treatment) aims to develop a framework to diagnose and treat hypertension, diabetes and smoking in a comprehensive, continuous manner. It recognizes that most people suffering from these conditions are either undiagnosed or untreated, leading to numerous preventable deaths, primarily from heart attacks and stroke. It aims to develop capacity in the community to manage hypertension, diabetes and smoking by empowering people with knowledge and encouraging voluntary healthy actions.

ABOUT COMMUNITY HEALTH WORKERS

Community health workers are members of the communities where they work, selected by the communities, and should be responsible to the communities for their activities. CHWs should be supported by the health system but not necessarily a part of its organization, and have shorter training than professional health workers.

CHWs are typically married women between the ages of 20 and 45 years. She can be young or old, literate or illiterate. What is most important is that she be a member of her community who is in good standing, and who can understand and respond to local cultural norms and customs in order to ensure the community's acceptance. A CHW is not necessarily an educated expert, but one who should be trusted by the public, skilled at planning, helpful and able to communicate with others in the local language.

ABOUT SEHAT WORKERS

The goal of the SEHAT program is to transfer knowledge and skills on health and empower the community to improve the quality of life of every individual. Through SEHAT workers, we hope to increase awareness and treatment of hypertension, diabetes and smoking and to increase health seeking behavior of the community. Over time, we expect the health and wellbeing of the community to improve. We will start with hypertension as it is the biggest killer in India today and leads to a lot of other diseases. Hypertension or high blood pressure is the number one killer in India today, killing far more people than infections, Tuberculosis, AIDS or any other disease. By targeting the causes of hypertension through SEHAT workers, we hope to improve general well being and quality of life. We will then systematically target Diabetes and smoking, and help control these other causes of early death and suffering.

CRITERIA FOR SELECTING SEHAT VOLUNTEERS-

- Resident of the hamlet
- Able to read and write in Bengali (education level completed is not a formal criteria)
- Preferably female, married and young to middle-aged (between ages of 20-40)
- Able to comfortably communicate one-on-one and in groups to share information with the community.

TASKS OF A SEHAT VOLUNTEER-

The main task of a SEHAT volunteer is to help control the blood pressure of all the people under her care. She will do this by increasing the person's knowledge of hypertension, by encouraging the person to eat a healthier diet and engage in physical activity and by increasing the health seeking behavior of the person. The SEHAT volunteer will be trained and expected to-

- Maintain a registry of every person under her care who has Hypertension.
- Educate the person about hypertension, its consequences and the benefits of treatment.
- Help the patients lead a better lifestyle by educating them about eating the right food and engaging in physical activity.
- Monitor the person's blood pressure and change in dietary habits and physical activity.
- Encourage people suffering from Hypertension to see a doctor and to monitor their compliance with hypertension medicines.

PHASES OF PROJECT SEHAT

Phase 1- Training of SEHAT workers and screening

Training of SEHAT workers will take place in a 1 week program where they will be introduced to Project SEHAT, and taught the screening protocol for the project. They will also be taught how to measure blood pressure and fasting blood glucose.

Phase 2- Training about Hypertension intervention

SEHAT workers will be educated about Hypertension and the means to tackle it in a one week training session, and trained to effectively deliver care to their patients.

Phase 3- Intervention for hypertension

The SEHAT workers will, over a 6 month period, help blood pressure patients make lifestyle changes and also guide them on seeking appropriate healthcare from physicians.

Phase 4- Training for diabetes smoking

At the end of 6 months, workers will also be educated about tackling diabetes and smoking in their patient population in a 1 week training session.

Phase 5- Implementing intervention for Diabetes and smoking, alongside hypertension

For the next 1.5 years, all three conditions will be targeted by the community health workers.

PART 3 - HEALTH INFORMATION

HUMAN BODY – THE BASICS

The Brain and Spinal Cord (Nervous System) – The brain is shaped like a cauliflower and weighs 1.5 Kg, divided into 2 halves. Symptoms of problems in the brain include seizures (fits), weakness on one side of the body or difficulty speaking (stroke), change in a person's thinking and/or being unconscious.

The Heart and Blood vessels (Cardiovascular System) – The heart has two upper chambers and two lower chambers. The upper chambers receive blood. The lower chambers pump blood. The heart is part of the circulatory system. The circulatory system is made of all the vessels that carry the blood throughout the body. Vessels are long, hollow tubes of tissue, much like drinking straws. Vessels carry blood to and from the heart. Blood (with little oxygen) enters the right top chamber of the heart. Blood then flows down to the right lower chamber so it can be pumped out to the lungs. In the lungs, waste is taken from the blood (carbon dioxide). The blood then gathers more oxygen. The blood, rich with oxygen, returns to the heart and enters the upper left chamber. The blood then flows down to the lower left chamber and is pumped to all of the body organs and tissues. The heart receives its own blood supply through the coronary arteries. A blockage in the coronary arteries causes chest pain or heart attack. Stiffness in the blood vessels or too much fat in the blood can cause high blood pressure.

The Lungs (Respiratory System) – The body has 2 lungs inside our ribcage. We bring air to our lungs through the windpipe or trachea. The lungs have small air sacs called alveoli. The function of the lungs is to change the blood with no oxygen for blood with oxygen. Oxygen is breathed in and carbon dioxide is breathed out. Oxygen is part of our fuel for our activities. Tuberculosis is a disease that affects our lungs. Smoking can cause lung cancer and health problems with both our heart and lungs.

The Kidneys (Renal System) – Kidneys are 2 bean shaped organs inside our abdomen, in the flanks. The main function of the kidney is to filter or remove waste products from our blood. The average amount of urine produced by an adult in a day is 1.5 liters. Diabetes and high blood pressure are two diseases that can harm our kidneys.

The Gastrointestinal (GI) System – The GI system starts at the mouth and ends at the anus. Parts include the mouth, esophagus (food tube), the stomach, intestines, liver, appendix and rectum. Food taken into our mouth is digested into the stomach, nutrients are absorbed in the small intestine, water is absorbed in the large intestine and waste materials are removed through the anus. Problems of the liver can cause jaundice and ulcers can affect the stomach. Diarrhea is a problem affecting many parts of the GI system.

Legs- High blood pressure can cause the blood vessels of the legs to narrow which leads to decreased blood flow to the legs. This can manifest as pain in the legs, especially on walking.

Eyes- High blood pressure and Diabetes can both permanently damage one's eyesight.

INTRODUCTION TO RISK FACTORS FOR CARDIOVASCULAR DISEASES

In this training course you will learn about cardiovascular diseases, i.e., diseases of the heart or blood vessels. There are so many types of heart disease and diseases of the blood vessels that we won't be able to cover all of them in this course; but we will learn about the most common and most serious diseases, what causes them, and what can be done to prevent them.

The top two killers of people who suffer from diseases of the heart or blood vessels: heart attack and stroke.

You will also learn about three conditions that can damage your heart and blood vessels and can lead to heart disease and stroke. These are–

- High blood pressure.
- Smoking
- Diabetes
- High Cholesterol

High blood pressure, smoking, diabetes and high cholesterol are four of the most important risk factors for heart disease and stroke. 80% of heart disease and stroke can be treated by controlling these 4 factors.

Who is at risk for heart disease and stroke?

A risk factor for heart disease or stroke is a behavior or condition that makes a person more likely to have heart disease or to have a stroke or heart attack. Heart disease and stroke have many of the same risk factors. Reducing your risk for heart disease will reduce your risk for stroke; and any change in lifestyle that reduces your chances of having a stroke will improve your heart's health.

Why are heart diseases and stroke important?

- Heart disease is the number one cause of death in India
- Stroke is the third leading cause of death in India.
- Heart disease and stroke are also the leading cause of permanent disability among working age adults. Having a disability means a person is unable to do some or all of the tasks of daily living.

The rest of this training book will focus on Hypertension. We will learn about the other risk factors in detail in phase 2 of the project.

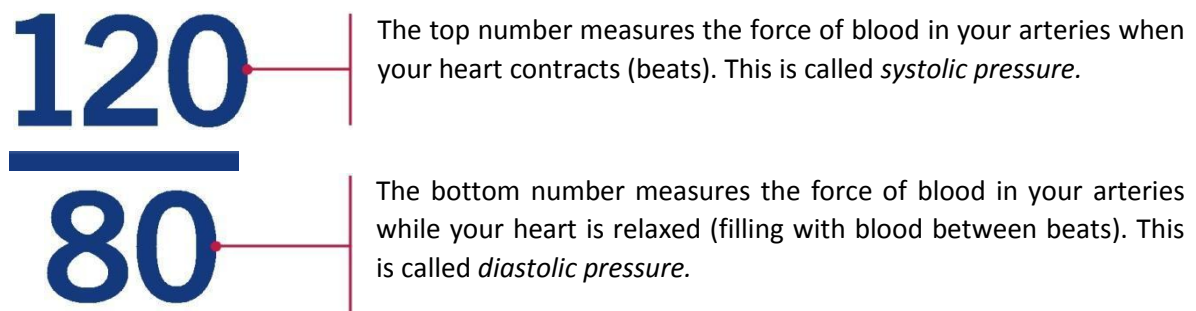
BASICS OF HYPERTENSION

What is blood pressure?

Blood pressure is the force of blood moving through your arteries. Arteries are the blood vessels that carry blood from your heart to the rest of your body.

What do blood pressure numbers measure?

Blood pressure is measured with 2 numbers. An example is shown below.



How is blood pressure measured?

The blood pressure is measured using a blood pressure machine.

Before taking the blood pressure:

1. Ask individual to avoid smoking, tea, coffee or exercise for 30 minutes
2. Ask him/ her to sit down and relax for at least 5 minutes.

Taking the blood pressure:

1. Ask the individual to sit down with both feet flat on the floor and your back up against the chair.
2. Wrap the blood pressure monitor cuff above his/ her elbow. The
3. Rest his/ her arm on a table. The upper arm should be at heart level.
4. Press the button on the machine to start measuring the blood pressure.
5. Make sure the individual does not talk or move his/ her arm while you take the blood pressure.
6. Write down the results. Wait atleast 2 minutes, take it again, and write down the results.

What is a "good" blood pressure reading?

Blood pressure lower than or equal to 120/80 is ideal but problems usually begin with a blood pressure more than 140/90, at which point one has to take treatment.

What is high blood pressure?

High blood pressure is when your blood pressure is usually higher than it should be. It is also called *hypertension*. It's like a car tire with too much air in it. If the tire pressure is not lowered, there is risk for tire damage. If your high blood pressure is not lowered, there is risk for damage to your eyes, brain, heart, blood vessels, and kidneys. High blood pressure has no symptoms. It is considered a silent condition. Over time, it can damage your heart, brain and other organs.

BLOOD PRESSURE MEASURES

Definition	Blood pressure range	Interpretation
Normal	Less than or equal to 120/80	Your blood pressure is perfectly healthy.
Pre-hypertension	120/80-140/90	At risk for hypertension. Do not need immediate intervention.
High blood pressure (Hypertension)	140/90 and higher	Needs treatment. A better diet and physical exercise should be started, and the patient should be encouraged to visit a doctor to start medicines for lowering blood pressure.

Who is at risk of having high blood pressure?

1. Increased Age
2. Overweight
3. Family history of hypertension
4. Drinks alcohol nearly everyday
5. Doesn't exercise
6. Eats a lot of salt and doesn't eat fruits and vegetables

How common is high blood pressure?

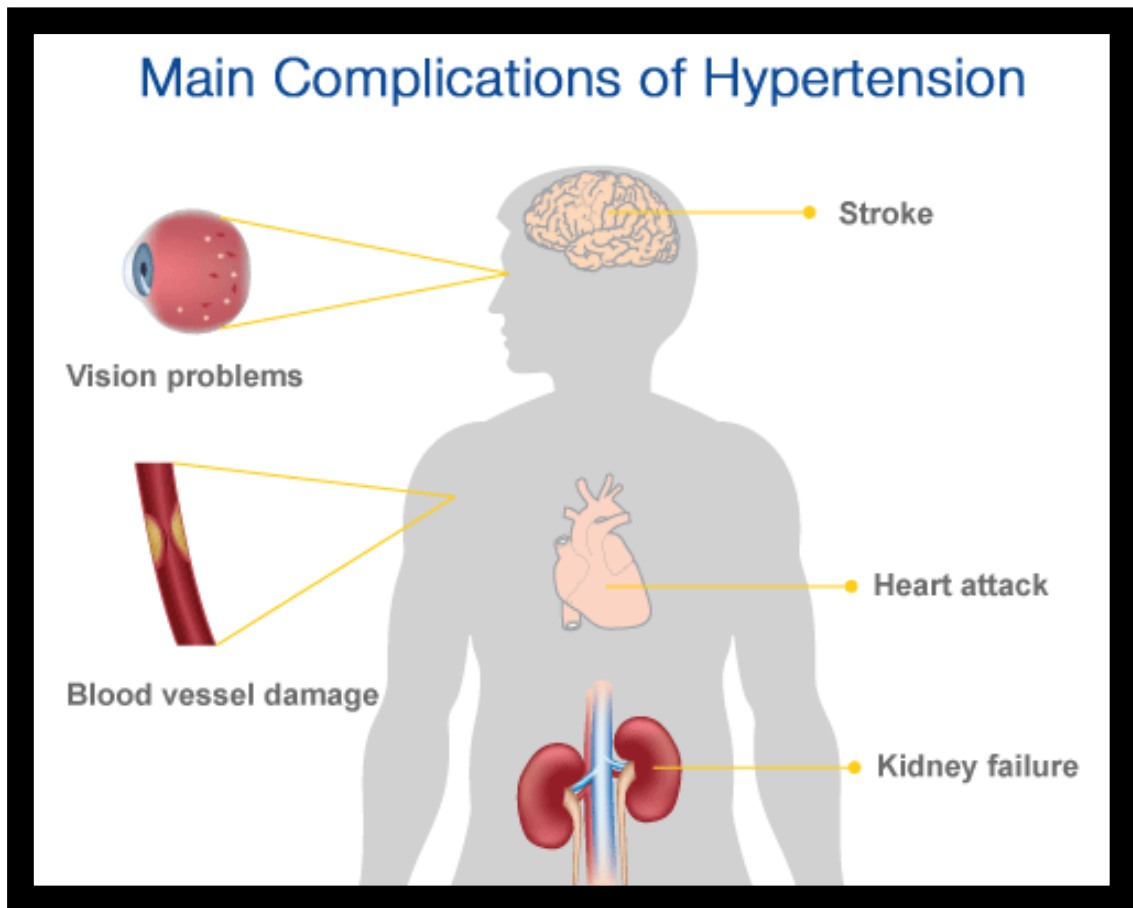
Nearly 25% of the population above 35 years of age has hypertension. Two thirds of individuals above the age of 65 have hypertension.

What are the symptoms of high blood pressure?

High blood pressure often has no symptoms and is therefore also known as the 'silent killer'. An individual can have it without feeling sick. However, some people with high blood pressure can have headache.

What are the consequences of high blood pressure?

The higher the BP, the greater is the chance of heart attack, heart failure, stroke, and kidney disease. A stroke happens when a blood vessel leaks or is blocked by a clot. Then part of the brain does not get enough oxygen. This can cause brain damage, which may be permanent and life changing. **Lowering blood pressure is the most effective way to prevent strokes.** In individuals 40–70 years of age, each increment of 20 mmHg in systolic BP (SBP) or 10 mmHg in diastolic BP (DBP) doubles the risk of heart attacks.



What are the benefits of lowering blood pressure?

Antihypertensive therapy has been associated with reductions in stroke incidence averaging 35–40 percent; heart attack, 20–25 percent; and heart failure, more than 50 percent. It is estimated that in patients with stage 1 hypertension (SBP 140–159 mmHg and/or DBP (90–99 mmHg) achieving a sustained 12 mmHg reduction in SBP over 10 years will prevent 1 death for every 11 patients treated.

What is target blood pressure?

Target blood pressure for hypertensives is 140/90. A target blood pressure should be set before starting any treatment or drugs, so that it is clear to everyone including the patient regarding what is the goal to be achieved. This allows the patient to stay motivated and increases his chance of taking his treatment properly.

How do you treat high blood pressure?

Remember, all patients with high blood pressure need to be sent to the doctor at once! They need to go to the doctor every 2-3 months till their blood pressure is under control. Once their blood pressure is controlled, they can visit the doctor every 6m to 1y.

There are two important components of treating high blood pressure:

1. Lifestyle changes – This is a very important component and is essential for the good control of high blood pressure. The following table shows the important lifestyle modifications and its effect on blood pressure.

Modification	Recommendation	Approximate SBP Reduction (Range)
Weight reduction	Maintain normal body weight (body mass index 18.5–24.9 kg/m ²).	5–20 mmHg/10 kg weight loss
Adopt healthy eating plan	Consume a diet rich in fruits, vegetables, and low fat dairy products with a reduced content of fat.	8–14 mmHg
Dietary sodium reduction	Reduce dietary sodium intake to no more than 6 g of salt per day	2–8 mmHg
Physical activity	Engage in regular aerobic physical activity such as brisk walking (at least 30 min per day, most days of the week).	4–9 mmHg
Moderation of alcohol consumption	Limit consumption to no more than 2 drinks per day in most men and to no more than 1 drink per day in women and lighter weight persons.	2–4 mmHg

It is the CHWs responsibility to inform the patient about the above mentioned aspects of treating high blood pressure. The CHW should also monitor the patient’s progress on changing their lifestyle and reinforce the lessons repeatedly.

2. Medications – Medications can have dramatic lowering of the blood pressure. However, it is important that the individual take the medication regularly throughout life. It is important that patients continue to take these medications even when they do not have any symptoms. It is the CHWs responsibility to ensure that the patient is correctly taking his/ her medication and continues to take them regularly.

We will in subsequent chapters discuss each of these components of controlling high blood pressure in detail.

HEALTHY DIET

What is a healthy diet?

A healthy diet is one which has

1. Favors fruits, vegetables and dal.
2. Has sufficient quantities of rice, wheat and other grains.
3. Is low in fats, cholesterol, salt and sugar
4. Has variety in it to include dal, grains, fruits, vegetables, egg, milk and meat.

Variety of foods is important because different foods have different nutrients, such as vitamins and minerals that your body needs. See the food pyramids to be a guide on what kinds of food to eat and in what quantity



What are the kinds of nutrients in foods?

There are 3 main types of nutrients in our food that provide us with energy. These are Carbohydrates, proteins and fats.

1. *Carbohydrates* - Carbohydrates are the nutrients that we need in the largest amounts. Ideally, 45% - 65% of our energy should come from carbohydrate. We need this amount of carbohydrate because carbohydrates are the body's main source of fuel. Carbohydrates are converted to glucose which is main source of energy for all our organs to function. Carbohydrates are mainly found in starchy foods (like grain and potatoes), fruits, milk, and yogurt. Other foods like vegetables, beans, nuts, seeds and cottage cheese contain carbohydrates, but in lesser amounts.
2. *Proteins* – Proteins are the building blocks of our body. It is needed for growth, repair and fighting diseases. It is a nutrient that is needed in large quantities after carbohydrates. Protein is found in all meats (chicken, fish, mutton), cheese, milk, nuts (channa, almonds), legumes (dal, rajma), and in smaller quantities in starchy foods and vegetables.
3. *Fats* – Fats are a very concentrated source of energy and have many important functions in our body. However, excess of fats increases risk for heart disease and stroke. It is very important to consume this nutrient in moderation. Oils, ghee and butter all contain almost 100% fats. Hence everything that is fried or oily is very rich in fats. Meat, chicken, nuts, milk products, butters and margarines, oils, fish are all very rich sources of fats.

How does one assess a patient's diet?

The best way to understand the dietary practices of a patient is the 24 hour recall method. In this ask the details of what foods the patient had in the last 24 hours. Assess each meal separately, make sure you ask about fruit and vegetable intake. Enquire about the amount of salt used and amount of oily foods the patient eats. Ask about the kinds of snacks consumed. This will give you a brief idea of what the patient is eating. You should tailor your advice to what the patient is eating.

What foods are considered healthy and which unhealthy?

Foods that should be eaten in plenty:

1. Fruits and Vegetables - A diet that includes fresh fruits and vegetables may reduce the risk of heart disease, stroke, and other diseases. Fruits and vegetables provide the vitamins, minerals, and fiber that are important for good health. Most fruits and vegetables are naturally low in fat and calories and are filling.
2. Dal, channa, rajma and other beans – These are rich in protein, provide a lot of energy and are very filling. These can be eaten in plenty.

Foods that should be eaten in moderation:

1. Rice, roti, and other grains – These are staple foods and are a main source of energy. Should be consumed in moderation as these are converted to sugars and fats by the body.
2. White meat like fish, chicken – Are rich in proteins. However they also have a lot of unhealthy fats. Should be consumed in moderation. Fish should be baked / boiled. Frying these meats is bad for the heart.

3. Milk and Dahi

Foods that should be eaten sparingly:

1. Oils, Ghee, Butter
2. Fried foods: samosas, pakodas, etc.
3. Meat like mutton, beef and other red meat
4. Sugary foods : like sweets, ice cream,
5. Processed foods: Biscuits, chips, dish made with maida, papad, pickles.

To give you examples of what kinds of foods to avoid and what to eat see the table below:

Healthy Foods (use often)	Not so healthy foods (use less often)
Starches	
Roti	Paratha fried with oil
Plain rice (cooked)	Pulao or fried rice w/ >1 tsp oil
Roasted mudhi or chuda (puffed rice)	Chuda or upama cooked with oil
Meat or meat alternatives	
Dhal (mung, toor, or masoor)	Dhal with lots of oil or ghee
Baked Fish or Chicken	Fried chicken or fish
Pan-fried fish w/masala (cooked with oil and spices)	Fried fish in tomato gravy
Vegetable dishes	
Stir-fried vegetables	Vegetable curry w/ lots of oil and spices
Daliya (mixed Vegetable w/ dal)	Daliya with coconut and ghee
Dairy	
Yogurt and buttermilk made w/ skim milk or 2% milk	Yogurt and buttermilk w/ whole milk
Raita made with low-fat milk	Raita with fried boondi
Fruit dishes	
Plain fresh fruit	Fruit salad with jaggery/ sugar or salt

Salt restriction

Another very important strategy to decrease high blood pressure is salt restriction. Indians eat way too much salt. The Dietary Guidelines suggest that we take in less than 2,300 milligrams of salt total each day. This is about 1 teaspoon of salt. The lower ones salt intake is, the lower their blood pressure will be.

Recommend that the patients use half the amount of salt they normally use when cooking, if any. Ask them to gradually reduce the amount of salt they use, until they use very little. Slowly decreasing salt intake over a period of weeks in small amounts helps people get used to low salt diet.

What foods contain a lot of salt?

1. Salted or dried fish/ meat
2. Pickles
3. Chips, Papads
4. Sauce, ketchup
5. Salted biscuits

Tips to healthy cooking:

1. Replace salt with herbs and spices. Use lemon juice, peppers or hot chilies to add flavor.
2. Cook by steaming or stir-frying instead of deep frying in oil. Grill, boil, steam and bake instead of frying where possible.
3. Choose whole grain for part of your ingredients instead of highly refined products. For example use atta instead of maida.
4. Use cow's milk instead of buffalo milk as it has lower fat content. If you are buying milk packets buy low fat milk instead of regular milk.
5. Increase the amount of dal and pulses to increase the bulk of the food. Avoid eating large quantities of rice.
6. Use freshwater fish like _____ instead of saltwater fish like _____.
7. Do not use extra salt while eating, especially on top of fruits and vegetables.
8. Use vegetable oils such as mustard or sunflower oil. Avoid Ghee or Vanaspati.
9. Remove the fatty portions of the meat before cooking them.

What are the barriers to healthy eating and how to overcome them?

1. The biggest reason why people eat unhealthy foods is **ignorance**.
The best way to overcome this is to educate them about good eating habits as mentioned above. AS CHWs you must reinforce the importance of a healthy diet at every visit. You must question them on their eating habits and identify reasons why they are eating unhealthy. Help them choose healthy foods by replacing unhealthy foods with more healthy alternatives.
2. Another possible barrier is **cost**. Fruits and vegetables are perceived to be expensive. This might be a valid concern in some households. Emphasize that all vegetables (except potatoes) are healthy. You know best what the cheap vegetables available in the market are. Give them suggestions on that. Same is true for fruits: bananas are inexpensive and nutritious.
3. Another barrier is **taste**. Some perceive that healthy eating is less tasty. It is understandable that low salt diet, with little fats/ oils might be less tasty. However, spices are not unhealthy. Recommend adding plenty of spices to make food more tasty. Ask them to replace unhealthy fats and oils with healthier options. Instead of ghee and vanaspati ask them to use mustard oil/ groundnut oil which is healthier.

What additional measures are needed amongst diabetics?

Dietary restriction is a very important measure amongst diabetics. While the details of a diabetic diet will be discussed in phase 2 of your training, you still need to know about the basics of a diabetic diet now. This is because upto 20% of your patients with high blood pressure will also have diabetes. The basis of a diabetic diet is similar to that of hypertension but in addition to the salt and fat restriction and eating plenty of fruits and vegetables, individuals with diabetes also need to avoid sugar, or carbohydrates. It's not enough for people with diabetes to just stay away from sweets. They need to keep track of the amounts of carbohydrates they eat.

Diabetics have high blood glucose. Since all carbohydrates is converted to glucose by our body it is important to control the amount and type of carbohydrate consumed by diabetics. Some carbohydrates like those present in grains (especially jowar, bajra, oats and sooji) are broken down slowly into glucose in our blood. Hence these grains should be consumed more than rice which is

broken down quickly to glucose. Similarly, potatoes, sweet fruits like mango, papaya are broken down very quickly into glucose and cause blood glucose to rise very quickly. These should be avoided. All sugary items like sweets, sugar, colas, cakes, biscuits have extremely high amounts of carbohydrates which are broken down very quickly to glucose. These should be avoided by diabetics as they are very bad for them.

Avoid in diabetics	Good for diabetics
Fruits	
<p>Jackfruit</p> <p>Eat in moderation</p> <p>Pineapple (1 slice a day, if the whole fruit is divided in 10 parts)</p> <p>Watermelon(1 slice a day, if the whole fruit is divided in 20 parts)</p> <p>Mango (half a mango a day)</p> <p>Chikku (half a chikku a day)</p> <p>Papaya(1 slice a day, if the whole fruit is divided in 6 parts)</p> <p>Lychee (less than 8 in a day)</p> <p>All other fruits (such as sugarcane, dates, pomegranate)</p>	<p>Oranges</p> <p>Grapes</p> <p>Plum</p> <p>Pear</p> <p>Banana</p> <p>Best in Diabetes</p> <p>Guava</p> <p>Jamun</p> <p>Apple</p> <p>Lemon</p>
Vegetables	
<p>Pumpkin</p> <p>Potato</p>	<p>All other vegetables</p>
Grains	
<p>White Rice</p>	<p>Bajra</p> <p>Jowar</p> <p>Oats</p> <p>Sooji</p>
Legumes	
	<p>Dal – All kinds</p> <p>Rajma</p> <p>Channa</p>

The above table is only a guide for what is preferred in diabetics. It is good to avoid potatoes and rice in diabetics but this does not mean that it can never be eaten. It simply is a guide to help patients choose foods good for their diabetics. They can be eaten occasionally, but other foods should be preferred for routine use. However, sugars, sweets and very oily foods should be avoided strictly.

PHYSICAL ACTIVITY

In earlier sessions, we talked about how important physical activity is. We've learned that being physically inactive puts people at risk for heart disease and stroke. Heart disease is twice as likely to develop in inactive people as in people who are physically active. Regular physical activity is important at all ages. Middle-aged and older people benefit from regular physical activity just as much as young people do.

Why Is Physical Activity So Important?

1. Lower the risk of developing heart disease and the risk of dying from heart disease.
2. Lower the risk of having a second heart attack in people who have already had one heart attack.
3. Lower the risk of stroke.
4. Lower the risk of developing high blood pressure.
5. Lower the risk of developing Type 2 diabetes.

How Much Physical Activity Is Needed?

Adults should get a total of at least 30 minutes of moderate physical activity 5 days of the week, or every day if possible. Physical activity is any activity that increases your heart rate, makes you breathe faster and makes you sweat. Physical activity should be of at least moderate intensity, meaning that the activity should make you just out of breath when trying to talk. The following table gives you an example of what activity is appropriate.

WORK RELATED PHYSICAL ACTIVITY		LEISURE/ SPARE TIME RELATED PHYSICAL ACTIVITY	
MODERATE INTENSITY	VIGOROUS INTENSITY	MODERATE INTENSITY	VIGOROUS INTENSITY
MAKES YOU BREATHE SOMEWHAT HARDER THAN NORMAL	MAKES YOU BREATHE MUCH HARDER THAN NORMAL	MAKES YOU BREATHE SOMEWHAT HARDER THAN NORMAL	MAKES YOU BREATHE MUCH HARDER THAN NORMAL
Cleaning (mopping, polishing, scrubbing, sweeping, ironing)	Forestry (cutting, chopping, carrying wood)	Cycling	Football
Washing (beating and brushing clothes, wringing clothes by hand)	Laboring (pushing or lifting heavy weights, digging)	Jogging	Badminton
Gardening	Ploughing	Dancing	Running
Milking cows (by hand)	Cycle rickshaw driving	Fast Walking	
Planting and harvesting crops	Gardening (digging)	Cricket	
Digging dry soil (with spade)	Shifting furniture (stoves, fridge)	Yoga	
Weaving	Grinding (with pestle)		
Woodwork (chiseling, sawing softwood)	Climbing stairs		
Mixing cement (with shovel)			
Walking with load on head			
Drawing water			
Tending animals			

Who needs advice on physical activity?

Physical activity is needed for everyone. However, it is important to assess how much physical activity a person is getting before recommending more activity. You need to assess the individual's job and his/ her recreational activities. For example it would be inappropriate to suggest more physical activity to people already doing a lot of vigorous intensity activity like a manual laborer or someone who works in the fields or someone who cycles one hour to and from work. However, housewives, people who have a desk job and other sedentary lifestyle need to be recommended physical activity.

What Community Health Workers Can Do to Help People Become More Physically Active?

1. If a person has been inactive for a while, encourage him or her to start slowly. He or she should start out with as little as five minutes of walking at a time and then slowly more add minutes to that time.
2. Tell them to slowly build the time spent doing an activity by adding a few minutes every few days or so until they've reached at least 30 minutes of activity per day. As they find that doing 30 minutes of activity becomes easier, they should gradually increase either the number of minutes or the intensity of the activity.
3. The easiest activity to do in your area is walking. Identify parks or spots for walking and suggest it to the patient.

What are the barriers to regular physical exercise?

- *Do not have enough time to exercise:* Help the patient find time in their life. For example try to identify time spent watching TV or time spent chatting with neighbors. Encourage them to use this time for activity. Suggest going out with neighbors for a walk can be social activity instead of a chore.
- *Do not have parks, sidewalks, or safe and pleasant walking paths convenient to home or office.* – It is your responsibility to locate such places and encourage the participants to visit these spots.
- *Find it inconvenient to exercise Or Find exercise boring Or Do not find exercise enjoyable.* – Help them understand that physical activity does not always mean exercise. Help them find ways to actively engage in physical activity in their daily lives. For example help them understand that shopping for grocery, cleaning the house and other such activities can also constitute physical activity. Help them engage in such activity.
- *"I am usually too tired"* - Regular activity will improve your energy level. Tell yourself, "This activity will give me more energy."
- *Lack encouragement, support, or company of family and friends.*- As CHWs you have plenty of opportunity to help people form groups and friends. Help your patient find other people in the area who need physical activity and help them make evening walks a group activity.

WEIGHT LOSS

How do you know if one's weight is healthy?

There are various ways to tell if someone is overweight or obese. One way to begin to determine whether an individual's weight is a healthy one is to measure the waist size. Waist circumference (or waist size) is a measure that is strongly associated with the risk of heart disease. Therefore persons with a wide hip have a higher risk of heart disease and therefore need to lose weight.

What do I measure the waist circumference?

Waist circumference is usually measured at the level of the belly button using a tape. Make sure that women are not pregnant before you measure the waist.

- Find the point midway between the lowest ribs and the top of the hip bones by placing your hands on the hips. This is the level of the waist.
- Place the tape measure around the waist.
- Ask the patient to breathe out gently. Make sure he/ she is not sucking in the tummy.
- Be sure that the tape is snug, but does not compress the skin, and is parallel to the floor.
- Adjust the tape so that it is level around your waist line and take the measurement.

What is the ideal waist circumference? When is it too high?

Most men with waist circumference ≥ 90 cm and women with waist circumference ≥ 80 cm are considered overweight should be urged to lose weight. However, remember that pregnant women should never be asked to lose weight unless her doctor says so!!

Why is it bad to be overweight?

Many serious health problems and diseases are related to obesity. Some examples are—

- Heart disease.
- Diabetes.
- High blood pressure.
- Stroke
- Arthritis and sleep problems are also made worse by obesity.

Even losing a small amount of weight can improve many health problems that come with being overweight. Losing even 3-4 kgs can significantly decrease the risk of having these diseases.

How do you lose weight?

One of the best ways to lose weight is to burn more calories than we take in. Food provides the energy or fuel that the body needs to function. A calorie is a way to measure the energy a food item provides for the body. The more active a person is the more food the person's body needs. It's easy to give your body more food than it needs. When you do that, either the body stores the extra fuel in its fat cells, which become bigger to make room for the extra fuel, or it makes more fat cells.

To lose weight a person must burn more calories (energy) than that is consumed. There are therefore two strategies to lose weight:

1. Decrease the intake of calories by eating lesser amounts of fats and carbohydrates.

2. Increase the amount of calories used by increasing physical activity. The best way to lose weight is to combine both strategies. We have already described these two strategies in the previous sections on healthy diet and physical activity.

MEDICATIONS AND DOCTOR VISITS

One of the most effective ways of controlling high blood pressure is using medications. This is one of the reasons that all patients with high blood pressure should be referred to a physician.

How often do patients need to visit a doctor?

Regular follow up with a doctor every 2-3 months is required till the patient's blood pressure is below the target of 140/90. After target blood pressure has been attained, follow up with the doctor every 6 months to 1 year is sufficient.

How often and for how long do patients need to take their medication?

Patients need to take their medication daily. They should avoid missing doses. These medications generally need to be taken life long as directed by the doctor. Medications need to be continued even after the patient has controlled his blood pressure (less than 140/90).

What advice should be given to the patient regarding medications?

1. Help the patient identify his/ her blood pressure medication. (Refer to the list at the end of this training booklet)
2. Check the prescription for the doctors advice on how often to take the medication and reinforce this advice.
3. Help the patient identify a target blood pressure and make sure he/ she understands the importance of reaching the target.
4. Reinforce the idea that the medication is working even if the patient cannot feel its effects.
5. Reinforce the importance of taking the medications daily for lifelong.

What are the barriers to visiting the doctor and taking medications?

1. Medicine is too costly- Encourage the patient to ask his doctor for a cheaper medicine or go to the government hospital. You can help by giving the address of the government hospital.
2. Side effects from medicine- Instead of stopping the medicine himself, encourage the patient to talk to the doctor about the side effects. Any medicine can sometimes have side effects. In most cases, another medicine can be given which will not have the same side effects.
3. Patient has no symptoms and feels fine- Educate the patient about the silent nature of hypertension and explain the benefits of treatment and the consequences of not taking treatment.

PART 4 - BASIC COMMUNICATION SKILLS

Throughout the next two years, you will need to visit your patients, understand their problems and educate them. To be effective at this you must learn how to communicate effectively.

You as CHWs have a unique opportunity to make a lot of difference to your communities. You have great advantages for being excellent health care providers. You are part of the community, know many of your patients personally and understand the problems they face! This understanding will be very helpful. But on the other hand, you have to approach the patient in their homes, have to administer tests on them that they may not feel they need and teach them to live healthy even when they do not think they have a problem! These are difficult problems and you will need to communicate well to be effective. It is essential that you build trust in your patients and in your communities.

The first visit to a patient's home is a crucial encounter that can either lead to the development of a good patient-CHW relationship or end in dissatisfaction on both sides. Your interview with the patient should go well beyond the capture of information, you should use it as the building block upon which your relationship with the patient is constructed. Some tips to effective communication are listed below:

TIPS FOR EFFECTIVE COMMUNICATION	
Make eye contact with the patient, and introduce yourself	Indicate your role to the patient. Make sure the patient understands who you are and what you will be doing. Explain to the patient the purpose of the project and its benefits.
Set the patient at ease and build rapport	Many patients will be uncomfortable meeting the CHW at their homes. Be friendly, if appropriate talk about non-SEHAT areas of interest to put the patient at ease. The patient might be busy. Try to find a time that is convenient for the patient.
Ask one question at a time	Presenting more than one question is confusing and inconsiderate.
Use transition statements	Explain to the patient what you are going to ask about before you ask the questions/ give advice. For example say: "Now I am going to talk a little bit about the importance of controlling your blood pressure" before starting that section.
Learn about the patient and his/her family	Do this informally during the course of the visit through an ongoing conversation with the patient. This is very important to understand the barriers to healthy lifestyle.
Encourage the patient to ask questions	Invite her/him to openly and freely ask questions at any time. This will further develop trust and enhance your relationship with the patient
Avoid judgmental language or behaviors	As a CHW, you must put aside your own beliefs and values and refrain from projecting them onto the patient. The medical problem or issue is not about you, but about the patient and their beliefs system and you need to understand the patient's point of view by imagining yourself in his/ her position.
Provide Encouragement	Praising patients also strengthens your relationship with the patient. Offer them praise (e.g: " It sounds like cutting back on smoking has been difficult for you, but I'm glad to hear you have not given up trying")
Ascertain that the patient	You can do this by involving the patient in the conversation,

understands the information you have provided.	instead of just you talking all the time. Ask questions to ensure understanding but avoid giving the impression that the other person's knowledge is being "tested."
Elicit the patient's feeling or concerns about the information	e.g. . . . "What thoughts do you have about this so far?") and respond appropriately
Collaborate with the patient	Although you can explain your recommendation, do not assume that the patient will automatically agree with you. The plan needs to conform to the patient's understanding, belief system and values.
Be aware of your non-verbal cues	Being attentive, making eye contact, and providing positive cues will encourage the patient to be open with you. Your body language should show that you are engaged, do not sit back in the chair, rather lean forward and pay attention.
Involve other family and community members as needed.	Grandmothers/grandparents, other older members, and husbands/wives who are important persons involved in decisions such as in: diet, food cooked at home, going to the doctor, helping in buying medication.
Take into account potential barriers	Ask questions like: "What obstacles/factors would prevent you from being able to comply with this plan?" to ascertain barriers. For example, lack of resources. Patients may not be able to act on their intentions because they lack basic resources. Where feasible, refer them and their families to organizations that can supply items such as the medications and other materials they may need. Help patients identify accessible quality health care services.
Learn to integrate prevailing religious and cultural beliefs into your advice	Using prevailing beliefs to enforce your advice is an effective way to get through to the patient. For example you can use the concept of "satvik" food to enforce your advice on healthy eating OR you can talk about Baba Ramdev's advice on doing yoga and exercise to motivate the patient to increase his/ her physical activity.
Teach using examples	Use compelling, real-life stories that women, their families, and community members can identify with. For instance, the occurrence of stroke or heart attack is a dramatic event that everyone in a community remembers. That type of story could be turned into a lesson learned.

How to improve adherence to advice?

Control of hypertension or smoking or diabetes is possible only if the patient is motivated to take the prescribed medication and to establish and maintain a health-promoting lifestyle. Motivation improves when patients have positive experiences with the CHW. Empathy both builds trust and is a potent motivator. Motivation is possible only if you understand where the patient is coming from. Try to weave in the patient's beliefs and cultural influences into your advice.

You and the patient must agree upon pre-determined goals. For example set a BP goal (of <140/90) in patients with hypertension. A patient-centered strategy to achieve the goal and an estimation of the time needed to reach goal are important. When BP is above goal, alterations in the plan should be attempted.

Patients' non-adherence to therapy is increased by misunderstanding of the condition or treatment, denial of illness because of lack of symptoms or perception of drugs as symbols of ill health, lack of patient involvement in the care plan, or unexpected adverse effects of medications. The patient should be made to feel comfortable in telling the CHW all concerns and fears medication/ life style advice.

The cost of medications is an additional barrier that must be overcome to achieve goal BP. This can be done by asking the patient to talk to his doctor about cheap medicines or to go to the government hospital if he still can't afford it.

What to do if the patient stops following your advice?

1. Enquire why the patient got off-track.
Was it because of stress at home or work? Find out what triggered the slip and start again from the beginning.
2. Don't worry about a slip.
Everyone slips—especially when learning something new. Remember that changing your lifestyle is a long-term process.
3. See if your patient tried to do too much at once.
Often, those starting a new lifestyle try to change too much at once. Instead, change one or two things at a time. Slowly but surely is the best way to succeed.
4. Break the process down into small steps.
This not only keeps one from trying to do too much at once, but also keeps the changes simpler. Break complex goals into smaller, simpler steps, each of which is attainable.

PART 5 – PROJECT STRUCTURE AND DUTIES

STRUCTURE OF INTERVENTION BY SEHAT WORKERS

First visit of the CHW- Informed consent will be taken for participation in the trial and information about demographics and relevant medical history will be obtained. Blood pressure, fasting blood glucose, weight and waist measurements will be taken.

Second visit of the CHW- The CHW will make her second home visit at the end of screening. In a one hour session, she will give advice about lifestyle interventions and information about hypertension, cardiovascular diseases and the benefits of treatment. She will tailor the daily family menu to reduce salt intake and make appropriate dietary recommendations within the economic context of the family. She will encourage hypertensives to seek a physician and an appropriate BP goal will be set. She will make an appointment to follow-up with the patient after two months. However, even before the follow up appointment 2 months later, CHWs should make an effort to enquire if the patient has followed up on their advice, gone to a doctor and started taking his medicines or not. All the relevant information will be entered in the work diary at the patient's home itself.

Third visit with the CHW- The CHW will measure the blood pressure and if goal blood pressure is not reached she will reinforce the previous recommendations, seek to address reasons for non-compliance, address knowledge deficits and encourage physician seeking for hypertensives. She will arrange to follow up for hypertensives again after two months. If the goal blood pressure is achieved, she will reinforce her recommendations to prevent relapse and arrange to follow up after two months.

Subsequent visits- A patient will continue to be visited by a CHW every 2 months till the end of 2 years.

INFORMATION MANAGEMENT

Recording patient information and other information is vital to do one's job as a CHW well. It increases efficiency, saves time and allows the CHW as well as project manager to keep track of how much has been done and what remains to be done. The CHW will be responsible for all the data keeping throughout the project. Her salary and incentives will be linked to the completeness and accuracy of her information keeping.

Work Diary

The work diary of the SEHAT worker will be divided into two parts. The first part deals with the Individual Patient Record (IPR), while the second part is the appointment diary.

The Individual Patient Record will allow you to keep track of each patient and study his progress over time. It will save time at every visit. It should be kept updated at all times and be filled in the home of the patient. The appointment diary should be used to make and keep track of all appointments. At the end of every visit, the appointment should be ticked and an entry made under the relevant date for the next appointment.

Patient card

The patients will have a card that they will keep with themselves, on which the blood pressure reading for the visit should be entered. This will allow the patient and his doctor to keep track of the blood pressure over a long period of time.

Quality control

Every week, the SEHAT worker has to report to the supervisor with her work diary. The supervisor will inspect the diary, make entries in her computer and randomly note down the details of 10% of appointments. Over the next week, she will then confirm with the patients that the encounter was conducted exactly as stated in the diary.

This is to ensure that there is quality control and there is no misuse of position. A CHW is a community asset and any faking of data is a loss to the community. Therefore, it is essential to ensure that the CHW does her work to the best of her ability, as she is required to.

If any discrepancy is found by the trial manager, all her appointments will be rechecked and if found unsatisfactory, all her payments will be stopped and she will be relieved of her duties.

APPENDIX

LIST OF HYPERTENSIVE MEDICATIONS

COMMONLY USED ANTI-HYPERTENSIVE MEDICATIONS

Generic Name	Usual dose
Amlodipine	5mg, 10 mg
Atenolol	25mg, 50mg, 100mg
Lisinopril	5mg, 10mg, 20mg
Spironolactone	25mg, 50mg
Telmisartan	20mg, 40mg
Hydrochlorothiazide	12.5mg, 25mg, 50mg

LIST OF ALL ANTI-HYPERTENSIVE MEDICATIONS

Class of medication	Medication names
“- olol”	Atenolol, Betaxolol, Bisoprolol, Metoprolol, Nadolol, Propranolol, Timolol, Acebutolol, Penbutolol, Pindolol, Carvedilol, Labetalol
“-sartan”	Candesartan, Eprosartan, Irbesartan, Losartan, Olmesartan, Telmisartan, Valsartan
“-pril”	Benazepril, Captopril, Enalapril, Fosinopril, Lisinopril, Moexipril, perindopril, Quinapril, Ramipril, Trandolapril
“-dipine”	Amlodipine, Nicardipine, Nifedipine
Miscellaneous	Amiloride, Bumetanide, Clonidine, Chlorothiazide, Chlorthalidone, Diltiazem, Doxazosin, Eplerenone, Furosemide, Hydralazine, Hydrochlorothiazide, Indapamide, Isosorbide Mononitrate, Methyldopa, Minoxidil, Prazosin, Terazosin, Torsemide, Triamterene, Verapamil

LIST OF COMMONLY USED DIABETES MEDICATIONS

Metformin	Glibenclamide	Gliclazide	Glyburide
Glimepiride	Insulin	Pioglitazone	Sitagliptin

LIST OF ALL DIABETIC MEDICATIONS

Type	List
Important	Metformin, Pioglitazone
“Gli-“	Glibenclamide, Gliclazide, Glimepiride, Glipizide, Glyburide
“-gliptin”	Alogliptin, Linagliptin, Saxagliptin, Sitagliptin, Vildagliptin
“-bose”	Acarbose, Voglibose
Injectables	Insulins (many types), Exenatide, Liraglutide, Pramlintide
Miscellaneous	Canagliflozin, Chlorpropamide, Colesevelam, Glucomannan, Miglitol, Nateglinide, Repaglinide, Rosiglitazone, Saroglitazar, Tolazamide, Tolbutamide




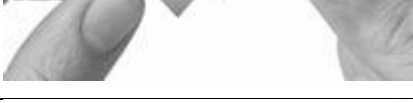



OTHER HEART MEDICINES

Aspirin

-statin

Atorvastatin, Fluvastatin, Lovastatin, Pitavastatin, Pravastatin, Rosuvastatin, Simvastatin

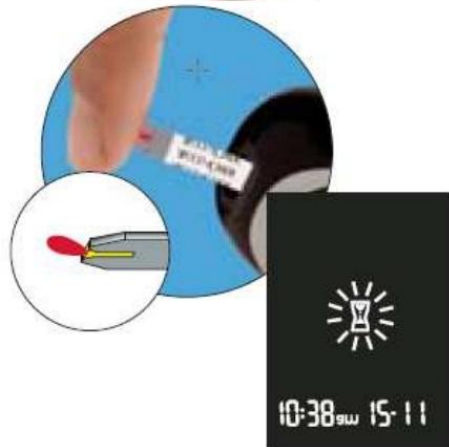
BLOOD SUGAR MEASUREMENT TECHNIQUE

<p>THE ACCU-CHEK – LANCING DEVICE Parts of the device used to produce a fingerprick.</p>	
<p>INSERTING THE LANCET <i>Always insert new lancet before each measurement. This is essential to prevent infection!!</i></p> <ol style="list-style-type: none"> 1. Pull off the cap of the lancing device 	
<ol style="list-style-type: none"> 2. Firmly insert a new ACCU-CHEK lancet in the lancet holder until it snaps into place 	
<ol style="list-style-type: none"> 3. Twist the protective cap on the lancet several times and pull gently to remove it. 	
<ol style="list-style-type: none"> 4. Snap on the cap after lining up the notches. The cap snaps easily into place. 	
<ol style="list-style-type: none"> 5. Select the desired depth setting by turning the Comfort Dial so that the desired setting is in the center of the depth indicator window. 	
<p>PREPARE THE ACCU-CHEK GLUCOMETER</p> <ol style="list-style-type: none"> 1. Insert a test strip into the meter. 2. Both a test strip and flashing blood drop symbol will appear on the display. 	

PERFORMING A FINGERSTICK

Wash the patient's hands and dry them thoroughly. Use spirit swabs to clean the finger. Make sure the finger is completely dry before continuing.

1. Press the plunger on the end of the device all the way down, and you will hear a click. When the device is ready, you will see a yellow dot appear and remain in the center of the clear release button.
2. The best place to do the test is the fingertip is the side, because it has the best blood supply, yet allows for the least painful fingerstick. Any finger may be used for a fingerstick.
3. Grasp the finger near the area to be pricked and gently massage for three seconds.
4. Hold the lancing device firmly against the side of your fingertip, then press the release button. Gently squeeze your fingertip to get a small drop of blood.
5. Touch the drop of blood to the tip of the yellow end of the test strip, not on top of the strip or window. A flashing hourglass symbol and a beep indicates enough blood has been applied. If necessary, more blood can be applied within 5 seconds. The result appears on the display.
6. Record the blood sugar and discard the strip into a puncture-proof container.



REMOVING THE LANCET

1. To remove the lancet, pull off the cap of the ACCU-CHEK lancing device.
2. Hold the lancing device so the lancet points downward. Slide the ejector forward to release the lancet into a puncture-proof container.

