



# Editor's Note



As they say, all good things must come to an end. So does my short tenure at the helm of this wonderful newsletter. It seems that my personal issues have overshadowed the production of this newsletter from time and again and it is time to accept the inevitable and handover the reins back to the competent staff of Diagnofirm.

It goes without saying that this newsletter is very important in many ways to not only Diagnofirm and me, but to all the readers. It is a very important means of educating all of us about health and related issues and it is a very valuable service towards the well-being of all of us. It has the potential to become a premier health publication in Botswana. I had hoped that I could achieve that, but it wasn't meant to be. But I know that in the right hands, it will one day achieve what it is destined to achieve. At least I've made some contribution, as small as it may be, which I hope will go a long way in taking this newsletter to ever higher heights.

As the proverbial tumbleweed, I'll be jumping from continent to continent and who knows what the future holds. I may yet live to experience my wish to spend at least a decade in every continent. So far, I've done three. Winds blow wherever they may, and I shall ride them to my new destinations.

What is really needed for this publication to achieve its potential is a dedicated group of individuals who love to write and who love to bring ever more exciting content to all of you. It requires a passion that goes beyond the obvious. That keeps one busy day and night, thinking, reading, researching, writing, and rewriting each

article. Such passion obviously exists in Mr. Chand, who's shown tremendous patience with all the editors so far and who has put all the resources behind this newsletter. I personally wish to thank him for his support and his kindness. Such passion also exists in Professor Bhagat, who spent his valuable time sharing his knowledge and experience with us. I wish to thank him as well, not only for his contributions, but for the way he inspired me to do more.

There were many others who helped with the newsletter. One person deserves special thanks for working with me to shape the look and design of this publication. That person is Caroline Raven, who worked tirelessly to give us a sharp, pleasant, and effective layout. She is a very good designer and hopefully, she too will realize her true potential someday soon.

The crew of Tiger Design and Graphics, later Production Plus, along with many staff members of Global Printers, deserve special mention for working behind the scenes to complete each issue. I wish them all well, and I wish all of you well. Let's hope that this coming New Year brings a lot of happiness for all of us.

Merry Christmas, Happy New Year, and Season's Greetings. Please accept my heartfelt thanks for being our reader. I hope you'd enjoyed our presentations.

M Naeem



Merry Christmas & Happy New Year

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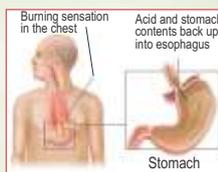
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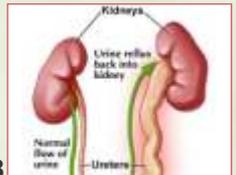
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# TB Skin Test

Tuberculosis, commonly known as TB, is a lethal disease if left untreated. It is caused by Mycobacterium tuberculosis and commonly affects the lungs, but it may spread to other parts of the body. It is spread when a normal healthy person comes in contact with the saliva of an infected person, usually through coughing, sneezing, or other means. Most infections are usually dormant, also called latent or asymptomatic, but some do eventually progress to active disease.

Tuberculin Skin Test (TST) is commonly used to diagnose the presence of a latent TB infection. There is now a new test, QuantiFERON-TB Gold®, which is emerging as a more effective and quicker test. It eliminates a lot of the problems that are found with TST and it is more reliable in identifying those at risk of progressing to active TB disease.

People who require these tests are divided into three risk categories.

High-risk category includes people suffering from HIV, those who came in close contact with a person having active TB infection, people with TB symptoms (chronic cough, blood-tinged sputum, fever, night sweats, weight loss), and people who take certain medications that contain corticosteroids, or that are used to treat rheumatoid arthritis or Crohn's disease.

Moderate-risk category includes travellers returning from areas where TB rate is high, those who use illegal drugs by injection, nursing home residents, workers in hospitals, schools, and prisons, and those with low body weight.

Low-risk category includes those who do not fall in the first two categories.

Tuberculin Skin Test involves injection of TB protein under the top layer of skin on your inner forearm. Skin reacts to the antigen by developing a firm red bump at the injected site within 2 to 3 days. A

positive reaction usually remains visible for about a week.

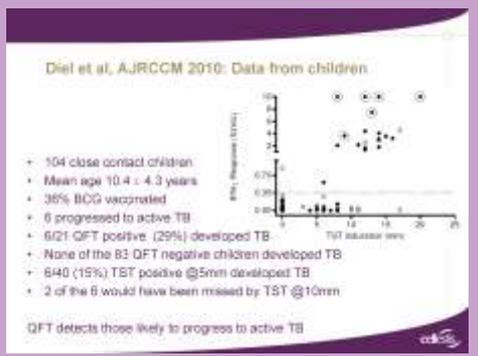
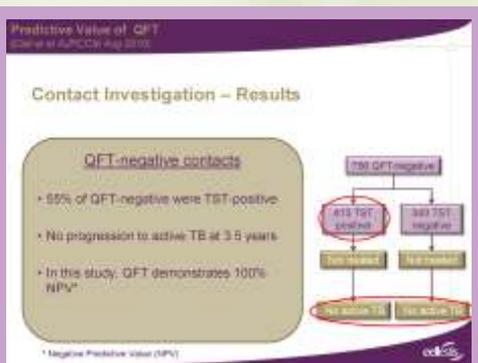
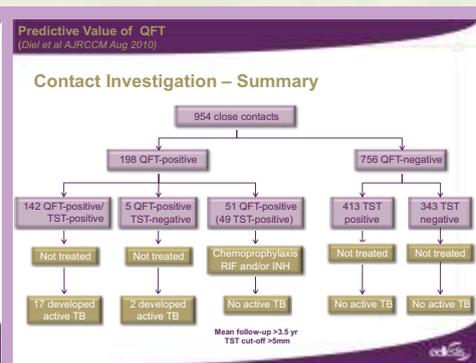
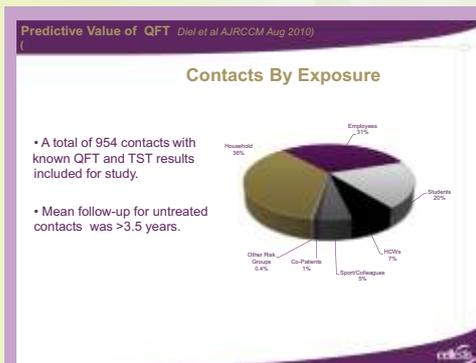
In a negative or normal result, there is no firm bump, only redness, or the bump is smaller than 5 mm. In a positive result, the size of the bump is about 5 mm in high-risk group, about 10 mm in moderate-risk group, and about 15 mm in low-risk group.

This test is affected by many factors and the result may not accurately predict the presence of latent TB infection under certain conditions. A BCG vaccination can give positive result. Other vaccinations or certain medications that interfere with the immune system can give false results. Very new infections cannot be detected. People who get regular TB tests may suffer from "booster effect" where TST may give very strong results but no infection exists.

QuantiFERON-TB Gold® (QFT-G) test is a relatively new test to diagnose latent TB infections. This test is an in vitro diagnostic aid which measures a component from the cell-mediated immune response to M. tuberculosis. It is based on quantitative measure of interferon-gamma which is released from lymphocytes in the whole blood which is incubated with purified protein derivative and control antigen. It is also known as IGRA, interferon-gamma release assay.

IGRA tests are better diagnostic tools because of the following reasons: Test are done in vitro and can be accomplished in a single visit; tests check for multiple antigens; tests do not have "booster effect"; tests are not affected by prior BCG vaccination; tests are less subject to reader bias and error; and most importantly, where TST results produce false positives, IGRA tests are more sensitive and better at predicting the progression of an infection to active TB.

We present below the results of a study showing the comparative results of both TST and IGRA (QFT-G). IGRA test has better negative Predictive Value (NPV).



[This article was condensed from many on-line resources.]



# Diarrhoea



Diarrhoea is defined by the World Health Organization as having three or more loose or liquid bowel movements per day or having more stools than normal for a person. The loss of fluids through diarrhoea can cause dehydration and electrolyte imbalance. Our body tissue needs water and electrolytes, such as sodium and potassium, to function properly. Oral

rehydration salts and zinc tablets are used to replenish the loss of electrolytes. Dehydration due to diarrhoea is a common cause of death in developing countries and it is the second most common cause of infant deaths worldwide. In Botswana, there have been many cases of death due to diarrhoea and everyone should know how to recognize symptom of diarrhoea and what to do if someone is afflicted by this ailment, especially if a child or an infant has diarrhoea.

## Definition of Diarrhoea:

One can use either the frequency of bowel movements or the consistency of the stool to define diarrhoea in absolute or relative terms.

**Frequency:** Absolute diarrhoea is having more bowel movements than normal. Average healthy individuals have maximum of two to three daily movements, then more than three movements constitute diarrhoea in absolute terms. Relative diarrhoea is having more than normal bowel movements for an individual, so if someone has only one bowel movement a day, then having two or more would be considered diarrhoea, relatively speaking. :-)

**Consistency:** Since consistency of stool varies from individual to individual, depending on a person's diet, there is no absolute way to define diarrhoea based on consistency. But if a person's stool becomes looser than normal, when diet is consistently the same, then it can be defined as diarrhoea. However, liquid and watery stool is always considered diarrhoea.

## Classifications of Diarrhoea:

There are many different classifications of diarrhoea. Since the presence of liquid in the stool is a definitive sign of diarrhoea, then the reasons

for the presence of water in stool are used to classify this ailment.

**Osmotic Diarrhoea:** Something in the intestine is drawing water from the body and into the bowel. This usually occurs when a food substance is not digested properly and nutrients present in the bowel then draw water to keep the concentration balanced. There are many sugar substitutes, like sorbitol in gum, that are poorly absorbed by the body. Similarly, people who have lactose intolerance have excess lactose in the bowel or fructose build up in people unable to absorb it or excessive amounts of vitamin C or magnesium can lead to water build up.

**Secretory Diarrhoea:** Either too much water is being secreted into the intestine or absorption of water from the bowel is inhibited. This is mainly caused by infections, drugs, or toxins. Cholera toxin stimulates the secretion of chloride ions and sodium ions are secreted into the lumen with water to maintain the charge balance.

**Exudative Diarrhoea:** Presence of blood or puss in the stool, usually the result of inflammatory bowel diseases, such as Crohn's disease or ulcerative colitis, and several severe infections like E. Coli or other forms of food poisoning.

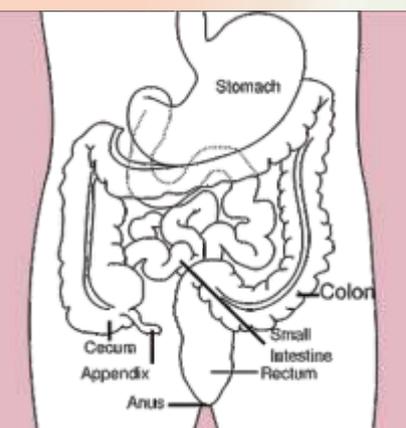
**Motility-Related Diarrhoea:** Caused by the rapid movement of food through the body, thus leaving little time to absorb sufficient water and nutrients. It is usually caused by vagotomy, diabetic neuropathy, complications of menstruation, or hyperthyroidism.

**Inflammatory Diarrhoea:** Caused by damage to the mucosal lining or brush border. Result is decreased ability to absorb fluids and passive loss of protein-rich fluids. Causes of damage can be bacterial, viral, or parasitic infections autoimmune problems, colon cancer, tuberculosis, and enteritis.

**Dysentery:** If there is blood in the stool, it is not diarrhoea, but dysentery, caused by the invasion of bowel tissue. Dysentery is usually symptom of such problems as *Shigella*, *Entamoeba histolytica*, and *Salmonella*.

## Types of Diarrhoea:

There are two types of diarrhoea: acute and chronic. Each type has different causes, diagnosis, and treatment. Acute Diarrhoea last only for a few



days, no more than a week. Chronic Diarrhoea on the other hands almost always lasts more than three weeks.

## What may not be Diarrhoea?

People who suffer from diarrhoea may experience the conditions listed below, but these conditions often have different causes and different treatments.

Inability to control bowel movement until one can get to a toilet.

Sudden strong urge to have a bowel movement where one must find toilet immediately or there will be incontinence.

After going once, there is a sensation that one needs to go again, but nothing comes out.

Bowel movement immediately after eating.

## Causes of Acute Diarrhoea:

There are three main causes of acute diarrhoea. Most common one is due to viral, bacterial, or parasitic infections. Bacteria can also cause food poisoning. New medication may also cause diarrhoea.

**Viral Gastroenteritis:** This is the most common cause worldwide, where stomach and the small intestine become infected with a virus. Symptoms include nausea, vomiting, abdominal cramps, and of course, diarrhoea. Symptoms usually last from 48 to 72 hours with little or no fever. Unlike bacterial infections, there is no blood or puss in the stool. This infection can spread from person to person and it can become epidemic, most commonly when infected people handle food and end up making healthy people sick.

**Food Poisoning:** Bacteria in contaminated food produce toxins that cause cramps, vomiting, and diarrhoea. These toxin are either produced before the food is eaten (symptoms appear within short time) or in the small intestine after eating (symptoms appear from 7 to 15 hours). Symptoms usually last 24 hours.

**Traveller's Diarrhoea:** Caused by pathogenic strains of E-Coli. Our bodies have E-Coli as part of its normal portfolio but when travelling to another country, the foreign strain that enters our system through food, water, fruits, and vegetables can cause diarrhoea. Symptoms usually occur after 3-7 days and subside within 3 days.

**Bacterial Enterocolitis:** Bacteria acquired by drinking contaminated water or eating contaminated foods invade the small intestine and colon and cause inflammation resulting in blood and puss in the stool, fever, abdominal pains, and diarrhoea. These include Salmonella and Shigella.

**Parasites:** Some contaminated water and food can lead to parasites entering our small intestine and thus causing inflammation and diarrhoea. May be accompanied by blood and puss and may have fever as one of the symptoms.

**Drugs:** Antacids, nutritional supplements containing magnesium, chemotherapy medicine, certain antibiotics, some heart and high blood pressure medicines can cause diarrhoea. It is easy to identify this kind of diarrhoea because it starts soon after the drug treatment is begun.

## Causes of Chronic Diarrhoea:

**Irritable Bowel Syndrome:** Most common cause is the rapid passage of food through the colon.

**Infectious Diseases:** A few infectious diseases, including HIV, cause chronic diarrhoea.

**Bacterial Overgrowth:** Normal bacteria in the colon may spread from colon to the small intestine due to some problems, thus causing diarrhoea. Sometime overgrowth result from an acute infection and after that infection is sorted out, there is bacterial overgrowth.

**Inflammatory Bowel Disease:** Crohn's disease and ulcerative colitis are two such diseases that cause inflammation of the small intestine and/or colon, and cause chronic diarrhoea.

**Colon Cancer:** Cancer can lead to either constipation or diarrhoea by secreting water.

**Carbohydrate Malabsorption:** Caused by inability to digest certain sugars which then accumulate in the small intestine and draw water. Lactose is the most common such sugar, but fructose and sorbitol may also cause malabsorption.

**Fat Malabsorption:** Just like the sugars mentioned above some people may be unable to digest fat due to pancreatic problems or issues related to the lining of the small intestine, all resulting in poor absorption of the digested fat. Bacteria turn undigested fat into substances that draw water.

**Endocrine Diseases:** Hyperthyroidism and under-active pituitary or adrenal glands can cause diarrhoea.

**Laxative Abuse:** Some people try to use laxatives to lose weight or there may be other reason for laxative abuse, thus resulting in diarrhoea.

## Cholera:

Cholera is an acute form of diarrhoea with frequent outbreaks in underdeveloped countries. It usually occurs when clean water supply is interrupted and people have to drink water which contains the bacterium *Vibrio cholerae*. This bacterium is transmitted through water or food contaminated by the diarrhoea of an infected person or by faeces of an infected person who doesn't necessarily have the symptoms. Main symptoms of cholera are profuse watery diarrhoea and vomiting, so much so that a person can excrete up to 10-20 L of diarrhoea a day with fatal result. Cholera can kill within hours if not treated aggressively because severity of the diarrhoea and vomiting can lead to rapid dehydration and electrolyte imbalance. Worldwide it affects 3-5 million people and causes 100,000-130,000 deaths a year as of 2010.

## Complications of Diarrhoea:

When there is excessive loss of fluids and minerals due to diarrhoea, the person will become dehydrated. In the absence of replenishment, such loss results in tissue damage, especially in growing children and infants. Mild dehydration causes thirst and dry mouth but severe dehydration causes low volume of blood, reduce blood pressure, weakness, shock, kidney failure, confusion, too much acid, and coma.

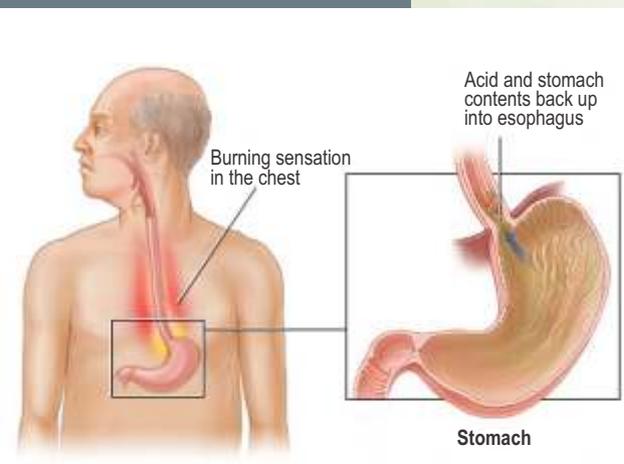
Mineral deficiencies result from the loss of too much sodium and potassium. Abnormalities of chloride and bicarbonate may also develop.

Irritation of the anus may also develop as a result of too many irritating substance passing so frequently through it.

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# Heartburn



Heartburn is uncomfortable feelings of burning or warmth that most people usually feel in their chest after eating a heavy meal or a particularly spicy meal. Even though the sensation is painful, it is not associated with your heart. Instead, it is associated with your stomach. Although, let me say this very clearly, that even though you may think that your chest pain is due to heartburn, you must

seek immediate medical attention just to be sure that it is not due to any heart problems.

When we eat, our food passes through our esophagus and squeezes past a tight muscle at the lower part of esophagus into our stomach. This muscle is called the lower esophageal sphincter or LES and it keeps the food from coming back up. Once in the stomach, our food is digested by the stomach acids. These are very strong acids and there is a special layer of mucus that protects our stomach from them. However, many reasons can cause the LES to relax and thus allow these acids to enter our esophagus, which does not have any special protection. These acids lead to irritation of the esophagus lining, which can also be caused by many other substances in our food, and cause heartburn.

Sometimes the acids may be so much in quantity that they may travel all the way to our mouth and may even enter our wind pipe, thus causing heavy bouts of coughing. This is usually the reason if you wake up at night coughing and choking, because these acids have found their way into your trachea, especially if you eat very close to your sleep time. Doctors usually recommend eating to be completed three to four hours before one goes to sleep. Lying on one's back reduced the effects of gravity and relaxes the LES, thus causing acids to enter the food pipe.

Other reasons that loosen the sphincter are listed below:

- Chocolate, peppermint, caffeine, fatty foods and alcohol cause the sphincter to loosen.
- Body's position also causes the sphincter to loosen, such as lying and bending over.
- Increased pressure on the stomach due to obesity, pregnancy, or due to lifting, straining, coughing, even tight clothing can cause acids to flow into the esophagus.

- Certain medical conditions such as diabetes, and many prescription medications for blood pressure, asthma, aspirin, ibuprofen, medicines for osteoporosis, or heart medications can also loosen the sphincter.
- Many substances like spicy foods, citrus fruits and juices, tomatoes and tomato products, even cigarette smoke can cause this muscle to loosen.

Heartburn is also known as acid indigestion and it usually occurs within the hour after eating. Pain is worst when lying down or when straining the body. Usually pain is relieved by drinking water, swallowing saliva, or taking antacids.

There is a more serious condition called gastroesophageal reflux disease (GERD) which may also cause frequent heartburn episodes. Complications of heartburn can result in ulcers in the esophagus, as well as, affect the respiratory tract causing asthma, chronic cough, sore throat, and hoarseness. It may also lead to tooth decay as the acids eat away the enamel on the teeth. In severe cases, esophagus may tear or bleed and cause blood in vomit or bowel movements.

There are certain procedures that doctors use to determine the extent of damage caused by acid reflux. Most common is called upper gastrointestinal (GI) endoscopy, where a special camera is used to enter your esophagus and visually see the damage. Another procedure, upper GI series, involves drinking of a liquid that coats the esophagus and shows up on the x-rays. Weakness of the LES muscle is measured by esophageal manometry and strength of acid is measured by 24 hour pH monitoring.

Simple lifestyle changes can greatly reduce heartburn episodes. If one avoids large meals, spicy meals, meals containing chocolate, caffeine, and other foods that cause heartburn, and foods that contain citrus or tomato, one can avoid heartburn. One must also avoid activities that put strain on the stomach and adapt the habit of giving three to four hours between eating and sleeping, one may avoid suffering from heartburn. See if this sounds familiar, stop smoking, stop drinking, lose weight, and control your diabetes. That would also help with ridding yourself from heartburn.

Antacids should be taken one hour after meals or when the symptoms occur. There are medications available that block the production of acids, eliminate acid quickly from your stomach, and even block your stomach from secreting acids.



*continued on page 15*



# Who Cares for the Caregiver?

## Caring for people with heart disease

Kiran Bhagat



Many people who have heart disease are likely to rely on other members of the family or friends for help. The caregiver or helper is often neglected in the support that they need in helping a family member or friend who has been diagnosed with heart disease. The very idea of high blood pressure, heart failure, stroke or heart attack is frightening in itself with many caregivers feeling helpless and

ignorant to many of the questions that arise during their caring.

### Types of heart disease

The types may vary from frequent chest pain (angina) or a recent heart attack to more complicated conditions such as heart failure, uncontrolled hypertension or palpitations.

Whatever the type of heart condition, as a caregiver you will want to find out as much as possible from the clinic, hospital or a specialist as that will ease your understanding and make you more confident. Understanding what the patient themselves will go through and the frequent testing in a facility or specialist unit can itself be very frightening. Often the patient will feel much happier when accompanied by a familiar face. You should therefore become more comfortable with visiting the specialist clinic, hospital or doctor.

Whilst it is not possible to understand the vast number of tests that may be undertaken, try to come a little knowledgeable about some other more basic tests which include:

- Blood tests
- ECG
- Exercise test
- Scanning of the heart (Echocardiography)

Words for more specialist tests or devices such as:

- Pacemaker
- Angiogram
- Angioplasty

### Questions that are important to ask and have some idea of the answers

1. Is the patient likely to have another similar attack with the one they have undergone?

2. What was the cause of the initial attack?
3. How much activity can the patient undertake and if so how often and for what length of time?
4. What can I as a caregiver do to help?
5. Which drugs are given, how frequently and what are the side effects?
6. How often do we need to come for a checkup?
7. Will the patient ever return to a normal life (working life or otherwise)?
8. What action should I take should his symptoms get worse or what can I expect and do under such situations?

### Problems of a caregiver

Often the caregiver may withhold a feeling or fear so as not to upset the patient. This can ultimately result in stress, depression and an unwell state for the caregiver themselves.

In some cases, the caregiver begins to feel overwhelmed with responsibility and guilt and start neglecting their own life. These feelings may turn to anger which are often internalized.

If you notice signs of irritability, anxiety, symptoms of feeling low (depression) or internal anger in some situations with feelings of helplessness or loneliness, these are warning signs for which you as a caregiver also need some assistance and counseling.

### Coping as a caregiver

Having identified some of the symptoms that you are not coping, the best way to manage them is to address the main causes of this stress.

Seeking assistance for the care of the patient and not trying to find solutions to everything may be the first step. Taking steps to maintain your own health, not be overly protective of the patient and feeling more confident about the disease of the patient and the outlook (prognosis) and being able to talk to someone else will help in managing the stress. Many times it is helpful to talk to another caregiver in a similar situation. It is also useful to find means to relax either with the patient or doing so in your own space and time.



**Editors Note:** *Caring for the Caregiver* is a topic very close and personal to me and I am glad that Prof. Bhagat has raised it in this issue. You see, I was married to someone suffering from epilepsy and she used to have many episodes of grand-mal seizures. I was the only one available to care for her and the randomness of her seizures made it difficult to do anything but care for her nonstop. I wasn't able to go to work on regular basis. Even though my employer was very sympathetic, my income was very random. I fell behind almost all of my bills and was burdened further by bills from her care. I used to be so afraid of something happening to her during sleep that I used to wake up many times in the middle of the night to check her breathing. There was no help available and I became so hopeless that I used to pray before going to sleep every night that either I don't wake up in the morning or she doesn't. In either case my misery would come to an end.

She was also going through similar hopelessness. One day she decided to end her life and I had to take her to the hospital. The doctors put her under psychiatric evaluation and kept her under watch for two weeks just to make sure that she was okay when she came back out. I visited her on daily basis and had regular consultations with the staff. When it was time for her to come out, the doctor informed me that they had decided to keep her under their care for another month. When I asked for the reason, considering she was okay, he looked at me and I'll never forget the words that came out of his mouth, he said, "We are keeping her here to give the caregiver a break." I couldn't hold my tears back because the doctor gave me the peace of mind that I needed so badly.

That month was enough to help me get my own life in order and it became very obvious to me that I was unable to care for her on my own. I made a decision, which has not only been good for me but I am sure it has also been good for her; I asked her parents and her family to intervene and take over her care. I believe if I hadn't reached that decision, I probably would have ended my own life. It was that bad.

I thus know firsthand that caregivers go through emotional and physical hardship. They suffer from depression, loneliness, and become hopeless. Their financial situation is very bleak because they are unable to work as they would if they didn't have to care for someone. They say that when you are living with a person who is terminally ill, then you yourself are also terminally ill. I believe that and I know that from my own experience.

I found some helpful hints about Caregiver Stress Management from the website [www.abta.org](http://www.abta.org), from American Brain Tumor Association, and I believe it is a good source to refer to if you are "burdened" with the duty of caring for someone suffering from serious long-term illness where the patient is your responsibility until the end of his or her life. I have presented a summary of their write-up below.

Tips that can help you balance your life while you care for a loved one. (Condensed from [www.abta.org](http://www.abta.org))

#### **Delegate Responsibility:**

Don't do everything yourself if there are others who can help. Develop a schedule of responsibilities based on a person's ability, maturity and availability. There are other tasks that people can help with besides caring for the patient. They can do other chores which would relieve you from stress as well.

#### **Look for Help Outside of the Home:**

Look for help from friends, members of your church or social group, and even resources available from local government or council.

Someone may be able to watch the patient for a short time while you go and run some errands. Other people can run errands for you, do shopping, help with cooking, or provide support in many other forms, including financial support. You may find some time for yourself which essential to your own well-being. [In my case, a friend's wife volunteered to take my wife for a trip to the mall. I believe there's a huge palace waiting in heaven for her as a reward after all my prayer's in her favour.]

#### **Be Assertive:**

Learn to say no. Set limits on your time. Some people may be duty-bound to help so ask for it. Tell visitors to come only when it is convenient for you and don't add responsibilities above and beyond what you can handle.

#### **Take Time for Yourself:**

This is very important. Make sure you make time for yourself a few hours a week where you have absolutely no concern for the patient, but only concern for yourself. Do things that may be selfish in nature but make you happy. Find reasons to laugh, play, and forget that you have someone depending on you for his or her life. Pamper yourself.

#### **Discuss Your Feelings:**

Find an outlet through a supportive listener, be it a friend, family member, healthcare professional, clergy member, professional counsellor, or a support group. Find someone else with similar care giving responsibilities, who may be in same kind of predicament as you and looking for an outlet as well. Let your feelings out. Share your pain and depression and believe you me, a few kind words from someone will lift your spirits a thousand fold. There is nothing wrong with feeling anger towards the patient, but you must learn how to deal with it and must know that the patient is not to be blamed. He or she need you as much as you need to deal with the duty.

#### **Ask Questions:**

Knowledge is power. If there is any doubt, ask as many questions as you need to clarify things. If you know that the condition is terminal, then your mind can accept the fact and prepare for the eventual end. If there is hope of recovery, then you can think of things to do to make that happen. Once everything is clear, you can be at peace with the situation and with yourself. Worry and guilt can be eliminated from your daily routine.

#### **Take care of your own body:**

You don't want to get sick yourself as a result of stress, overwork, and worries. Make sure you eat right, exercise, get enough sleep, relax, get physical checkups, and get proper treatment for any problems that may come up. You don't want to end up on the other side of care giving. There are many other stress management tips. The biggest one is to laugh as much as possible. Find reasons to laugh. Find ways to be happy. In addition, set priorities. Separate tasks into manageable chunks and do them one at a time. Make a list and cross them off. There is a tremendous relief in knowing how much you have accomplished than in knowing how much is still left to be done. Relax, pace yourself, and don't try to win each battle. Move on where necessary. Above all, reach out for support. You'll be surprised how many people outside of your circle are there to give help.

# Diabetes



Lesley Rhaman of Diagnofirm explaining a point to participants.



Mr Bozo, Mabuza and Thothodzani of Diagnofirm.



The Minister of Health, Mr John.



Lesley Rhaman and Thothodzani of Diagnofirm testing one of the volunteers.



Joy Crosbie with the association's.



Kids belonging to Mr Matsheng Samuel a member of the association.



Thothodzani and Anita Kebakile conducting closely following proceedings.

# es Day...



Mr Bozo and Thothodzani of Diagnofirm helping a volunteer.



Mr Seakgosing giving a speech.



National Health Laboratory(NHL) students.



Vice chairman Mr Martin Mosima.



Diagnofirm team of Bozo, Mabuza and Thothodzani with NHL participants.



Conducting testing, Mr Bozo of Diagnofirm is



Joy Crosbie the Botswana Diabetes Association treasurer, with Anita Kebadilwe and attending kids.



# Common Sexually Transmitted Diseases and their symptoms

Mr X. Mugari (Head of Biochemistry)

HPV gonorrhoea  
HEPATITIS B  
HERPES HIV SYPHILIS  
GENITAL WARTS  
GENITAL HERPES  
TRICHOMONIASIS

If you have sex, you may also have an STD, along with subtle or noticeable STD symptoms. Straight or gay, married or single, you're vulnerable to STDs and STD symptoms, whether you engage in oral, anal or vaginal sex.

Although condoms are highly effective for reducing transmission of STDs, no method is foolproof. This is particularly true with certain

STDs, such as genital warts and genital herpes.

STD symptoms aren't always obvious. If you think you're experiencing STD symptoms, see a doctor. Some STD symptoms can be treated easily and eliminated, but others require more involved and long-term treatment.

Either way, it's essential to be evaluated, and — if diagnosed with an STD — get treated. It's also essential to inform any partners so that they can be evaluated and treated. If untreated, STDs can increase your risk of acquiring another STD such as HIV. This happens because an STD can stimulate an immune response in the genital area or cause sores, either of which might make HIV transmission more likely. Some untreated STDs can also lead to infertility.

## STDs often asymptomatic

You could have an STD and be asymptomatic — without any signs or symptoms. In fact, this happens with a lot of STDs. Even though you have no symptoms, you're still at risk of passing the infection along to your sex partners. That's why it's important to visit your doctor on a regular basis for STD screening, so you can identify a potential infection and get treated for it before passing it along to someone else.

## Chlamydia symptoms

Chlamydia is a bacterial infection of your genital tract. Chlamydia may be difficult for you to detect because early-stage infections often cause few or no signs and symptoms. When they do occur, they usually start one to three weeks after you've been exposed to chlamydia. Even when signs and symptoms do occur, they're often mild and passing, making them easy to overlook.

## Signs and symptoms may include:

- Painful urination
- Lower abdominal pain
- Vaginal discharge in women
- Discharge from the penis in men
- Pain during sexual intercourse in women.
- Testicular pain in men

## Gonorrhoea symptoms

Gonorrhoea is a bacterial infection of your genital tract. The first gonorrhoea symptoms generally appear within two to 10 days after exposure. However, some people may be infected for months before signs or symptoms occur. Signs and symptoms of gonorrhoea may include:

- Thick, cloudy or bloody discharge from the penis or vagina
- Pain or burning sensation when urinating
- Frequent urination
- Pain during sexual intercourse

## Trichomoniasis symptoms

Trichomoniasis is a common sexually transmitted disease caused by a microscopic, one-celled parasite called *Trichomonas vaginalis*. This organism spreads during sexual intercourse with someone who already has the infection. The organism usually infects the urinary tract in men, but often causes no symptoms in men. Trichomoniasis typically infects the vagina in women and may cause these signs and symptoms:

- Greenish yellow, possibly frothy vaginal discharge
- Strong vaginal odor
- Vaginal itching or irritation
- Pain during sexual intercourse
- Painful urination
- Light vaginal bleeding

## HIV symptoms

HIV is an infection with the human immunodeficiency virus. HIV interferes with your body's ability to effectively fight off viruses, bacteria and fungi that cause disease, and it can lead to AIDS, a chronic, life-threatening disease.

When first infected with HIV, you may have no symptoms at all. Some people develop a flu-like illness, usually two to six weeks after being

*continued on page 14*



# Blood Glucose

Prepared by Lesley Rabman (Quality Manager)



Blood glucose (sugar) measurements in diabetic people for the maintenance of a good level of glucose control.

People with diabetes are encouraged to monitor their blood glucose levels to minimize the risk of diabetic related complication. This monitoring can be done by.

1. Daily self monitoring – i.e. measuring your blood sugar levels everyday using a Glucometer. This will give the diabetic their blood sugar level at the time of testing and can give an indication of their day to day sugar control it also allows them or their health care provider to adjust their insulin, but this does not show their blood sugar levels at other times of the day. The blood glucose is usually measured in mmol/l.

2. HbA1c measurement – This test should be performed at least twice a year as part of a visit with a doctor.

## What is HbA1C?

Is also known as glycated hemoglobin is a percentage of hemoglobin found in red blood cells, measures average blood glucose control for approximately the 3 months (the lifespan of red blood cells). The results can help doctors or and their patients know if the diabetes treatment plan is working.

HbA1C is measured by a simple blood test performed in a laboratory. The American Diabetes Association, ADA recommends that most people with diabetes have their HbA1C level checked at least twice a year. It recommends that diabetics strive for HbA1C of less than 7%. The HbA1C for a person without diabetes is approximately between 4–6%.

(It was shown in the landmark Diabetes Control and Complications Trial (DCCT) conducted in 1993 the importance of HbA1C measurement as an indicator of risks for the complication of diabetes such as blindness, kidney disease or nerve damage. The study showed keeping the HbA1C closer to normal reduces the risk for diabetes related complications as the HbA1C increases so does the risk of complication.)

So your doctor or health care provider will use the log results from the daily self monitoring and HbA1C measurement to help the diabetic achieve good blood glucose control.

3. Estimated average glucose – eAG. (A new test to be used in glucose monitoring in diabetics.) What is estimated average glucose (eAG) and how is it performed?

A study was performed to show the relationship between HbA1c and average blood sugar levels over 3 months.

(The A1C-Derived Average Glucose (ADAG) Study is an international study sponsored by the American Diabetes Association (ADA), European Association for the Study of Diabetes (EASD), and International Diabetes Federation (IDF). The objective of the ADAG Study was to define the mathematical relationship between HbA1C and estimated average glucose (eAG) and determine if HbA1C could be reliably reported as eAG, which would be in the same units as daily self-monitoring. In the study five hundred seven people, including 268 patients with type 1 diabetes, 159 with type 2 diabetes, and 80 people without diabetes were recruited from 10 international centers.

HbA1C was measured using a combination of continuous glucose monitoring and frequent finger stick glucose measurements similar to the way in which people with diabetes check their diabetes control at home by self-monitoring of blood glucose (SMBG).

By comparing the measurement of A1C with the average glucose levels, study investigators

HbA1C %	eAG (mmol/l)
5%	5.4
6%	7.0
6.5%	7.8
7%	8.6
7.5%	9.4
8%	10.1
8.5%	10.9
9%	11.8
9.5%	12.6
10%	13.4
10.5%	14.1
11.0%	14.9
11.5%	15.7
12.0%	16.5
12.5%	17.3
13.0%	18.1

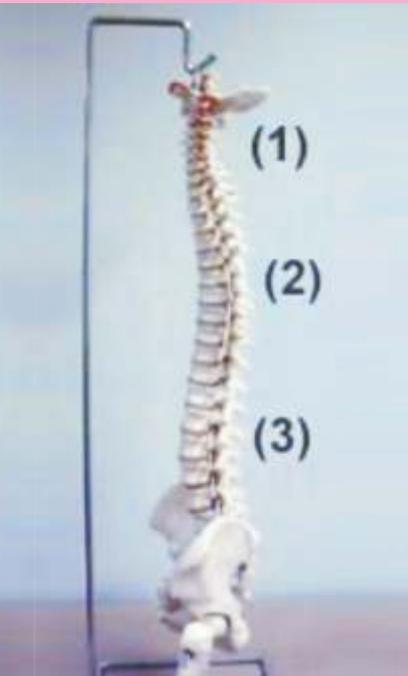
continued on page 14





# Back Care to prevent back pain!

K.Malie (LBK Physio Clinic)



Creating and maintaining good posture decreases your risk of developing back problems.

Achieving comfortable, good posture will provide a functional range of movement that will allow you to perform daily activities safely.

Even if your back feels OK at the moment, you may be straining it if you:

1. Have poor posture.
2. Move your body incorrectly.
3. Are out of shape or overweight.

All of these strains add up until one day a simple act like bending over can bring on back pain. When correctly aligned the back has three curves. It curves in (forward) at your neck (1), out in the chest region (2), and in again in the lower back (3). These curves help distribute pressure evenly throughout the vertebrae and discs.

Body mechanics is defined as the way in which you move your body and back. Good body mechanics includes lifting loads close to your body to reduce strain on your back and maintaining your three natural curves to keep your back in balance.

flat on the floor.

3. Your desktop should be slightly above your waist.
4. Sit close to your work, do not lean over it.
5. Do not slump over while sitting.
6. Take frequent breaks to get up and stretch.



## Keys to Bending and Leaning

1. Let your legs do the work.
2. Stand with your feet shoulder length apart, one foot ahead of the other.
3. Contract your stomach muscles.
4. To lower you upper body, bend with your knees and hips, keeping your back in proper alignment. Rest one knee on the floor for extra support if needed.

## Keys to Proper Lifting

1. Stand close to the object to be lifted.
2. Spread your feet wide apart to straddle the object.
3. Squat, bending your knees and hips, keeping your back in proper alignment.
4. Contract your stomach muscles.
5. Lift by using the work of your leg muscles, not your back.
6. When lifting with another person, one person should say when to lift, walk and unload.
7. Do not twist as you lift. Instead, pivot with your hips and shoulders in line and shift your weight.
8. Mentally prepare, by planning what you are going to do.

## Final tips for good posture...

1. Keep proper spinal alignment
2. Bend knees instead of bending your back
3. Keep stomach muscles tight
4. Use larger muscle groups
5. Keep loads close to the body
6. Maintain stability and balance throughout
7. Mentally prepare and plan before lifting
8. Avoid twisting



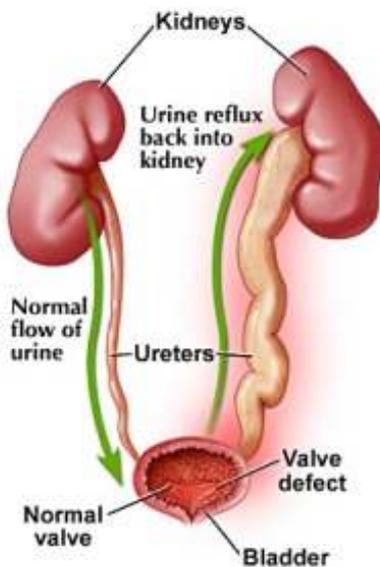
## Keys to Sitting

1. Sit in a chair that supports your lower back. If the chair does not support your back sufficiently, you can place a lumbar cushion (which can be bought at your local pharmacy) at the level of your low back, for added support.
2. Position your chair so that your knees are at least as high as your hips when your feet are





# Urinary Tract Infections



Our urinary system is made up of kidneys, bladder, ureters and urethra. Any infection in this urinary tract is referred to as Urinary Tract Infection (UTI). A UTI is caused by pathogenic organisms like bacteria, fungi, or parasites.

## Symptoms:

UTIs are common. Women tend to be more susceptible than men. Although sometimes the infection goes unnoticed, it can cause problems that range from

pain and burning when urinating to organ damage and even death. Some people may have no symptoms and the infection may clear out quickly, but most patients experience the following:

- Pain or burning when urinating
- Frequent urge to urinate
- Unpleasant smell in the urine
- Cloudy or reddish urine
- Feel bloated or feel pressure in lower belly
- Vaginal or penile discharge
- Rectal, testicular, penile, or abdominal pain
- Fever, tiredness or shakiness
- Nausea or back pain

bladder is called cystitis; and that of the kidneys is called pyelonephritis.

UTIs can also be caused by Chlamydia and Mycoplasma, in both men and women. These are sexually transmitted infections and tend to be limited to urethra and the reproductive systems.

## Treatment:

Usually milder infections can be cured with oral antibiotics. In case of pathogens that cause STDs, one may require more than one antibiotic. Severe infections may require hospitalization and strong antibiotics. Fungal or parasitic pathogens require specific antifungal or antiparasitic medications. Many times the doctor may prescribe an antibiotic before the pathogen is identified, in which case the antibiotic may have to be changed. Simply using painkillers does not cure UTIs.

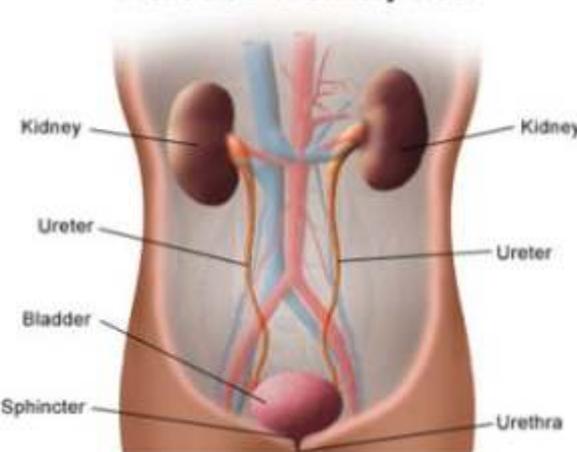
Many health professionals will suggest drinking cranberry juice to eliminate UTI, but there is no conclusive study that actually proves the effectiveness of cranberry juice or any other berry juices that are used as a home remedy. Some researchers do suggest that cranberry juice reduced the adherence of pathogen to human cells once it reaches the urine, but there is no study that conclusively proves that.

## Prevention:

Good hygiene seems to be the best prevention method, as it is for many other situations. People are encouraged to urinate when the urge strikes, instead of waiting and trying to hold it in for any length of time. Otherwise pathogens have more time to survive and replicate. One must also wash the urine away and not let it “stick” around. Uncircumcised men are encouraged to pull the foreskin away to reduce the chances of urine lingering at the urethral opening. Women must wipe front to back to eliminate the chance of pathogen coming in contact with their urethra. Washing before and urinating after sex is essential. Wearing underwear that absorbs can help minimize the pathogen growth.

*[This article was condensed from the following resources. Copyright stays with the original source. MedLinePlus, Wikipedia, U.S. Department of Health and Human Services.]*

Front View of Urinary Tract



## Causes:

Urine is normally free of bacteria, viruses, and fungi due to its sterile nature. There are times when bacteria from the digestive tract cling to the opening of the urethra and begin to multiply. Urethra is the tube that expels urine to the outside and its proximity to colon, especially in women, can cause the infection. Sexual contact can transfer the infection to the male partner. Most UTI are caused by E.

Coli, which is a normal inhabitant of the colon. Infection of urethra is called urethritis; that of

## Prevention of Dehydration:

It is very important to rehydrate patient, especially infants and children, as quickly as they are dehydrating due to diarrhoea. There are oral rehydration solutions that can be prepared with clean water and salt mixtures of glucose and electrolytes. Glucose forces the quick absorption of the fluids and electrolytes keep the balance and prevent and treat electrolyte deficiencies.

In severe cases, fluid may have to be injected intravenously.

Fruit juices, water, soft drinks, and sports drinks can also be used to prevent dehydration. Avoid drinks with caffeine and in the case of lactose intolerance, avoid dairy products.

## Treatment:

**Absorbents:** Compounds that absorb water are used to treat diarrhoea. These substances make the stool less watery. They may also bind toxins and other medications. The two main absorbents are attapulgite and pycarbophil. They are available over the counter from your pharmacist. These absorbents must be taken

with care as taking more than necessary may have the opposite effect and cause constipation. Medications and absorbents must be taken a few hours apart.

**Anti-Motility Medications:** These drugs relax the muscles of small intestine and colon, resulting in slower bowel movement, thus allowing more water to be absorbed. These medications also reduce cramping. These medications require prescription and must not be used without a doctor's guidance because they have certain side effects.

**Bismuth Compounds:** Many bismuth-containing compounds are very effective against Traveller's Diarrhoea. These compounds contain bismuth and aspirin and work as anti-inflammatory agents and reduce the secretion of water.

*[This article was condensed from the following sources. Please note that the copyright belongs to the respective resource: MedicineNet.com, Mayo Clinic, WebMD, and Wikipedia.org.]*

## Common Sexually Transmitted Diseases: continued from page 10

infected. Early HIV signs and symptoms may include:

- Fever
- Headache
- Sore throat
- Swollen lymph glands
- Rash
- Fatigue

These early signs and symptoms usually disappear within a week to a month and are often mistaken for those of another viral infection. During this period, you are very infectious. More persistent or severe symptoms of HIV infection may not appear for 10 years or more after the initial infection.

As the virus continues to multiply and destroy immune cells, you may develop mild infections or chronic signs and symptoms such as:

- Swollen lymph nodes — often one of the first signs of HIV infection
- Diarrhea
- Weight loss
- Fever
- Cough and shortness of breath

Signs and symptoms of later stage HIV infection include:

- Persistent, unexplained fatigue
- Soaking night sweats
- Shaking chills or fever higher than 100.4 F (38 C) for several weeks
- Swelling of lymph nodes for more than three months
- Chronic diarrhea
- Persistent headaches

## Hepatitis B

- Mild fever. Headache and muscle aches, joint pain. Tiredness. Loss of appetite. Nausea and vomiting. Dark-colored urine and pale bowel movements. Stomach pain. Skin and whites of eyes turning yellow (jaundice). About 30% of people have no symptoms. Treatment includes taking a medicine to help the liver fight damage from the virus. There are medications available to treat long-lasting (chronic) HBV-infection. These work for some people,

but there is no cure for hepatitis B when you first get it.

- Fortunately, routine immunization of all children with the Hepatitis B vaccine will hopefully eliminate future Hepatitis B infections.

## Genital Warts (Human Papillomavirus (HPV))

- Genital warts that usually first appear as small, hard painless bumps on the penis, in the vaginal area, or around the anus. They sometimes can be hard to see, but if left untreated can turn into a fleshy, cauliflower-like appearance. Some people have no apparent symptoms. HPV is linked with a higher risk of cervical cancer in women.
- Gardasil, the HPV vaccine, will hopefully decrease the risk of getting genital warts and cervical cancer and can be given to girls between the ages of 9 and 26 years of age.

## Syphilis

- In the first (primary) stage, about 10 days to six weeks after exposure: a painless sore (chancre) or many sores that will heal on their own. If not treated, infection spreads to the next stage. Secondary stage: skin rash that usually does not itch and clears on its own. Fever, swollen lymph glands, sore throat, patchy hair loss, headaches, weight loss, muscle aches, and tiredness. Latent (hidden) stage: symptoms disappear, but infection remains in body and can damage the brain, nerves, eyes, heart, blood vessels, liver, bones, and joints. Late stage: not able to coordinate muscle movements, paralysis, numbness, gradual blindness, dementia, and possibly death. Can be completely cured, but can be caught again, especially if both sex partners aren't treated.

## Genital Herpes

- Small red bumps, blisters, or open sores on the penis, vagina, or areas close by. Also, vaginal discharge in women. Fever, headache, and muscle aches. Pain when urinating. Itching, burning, or swollen glands in genital area. Pain in legs, buttocks, or genital area. Symptoms may go away and then come back. Some people may have no symptoms. There is no cure. Treatment includes taking a medicine to lower severity of symptoms.

These are, however, prescribed by a proper medical practitioner. There are even surgical procedures that can be done in severe cases but you must consult your physician for these.

### Home Remedy

There is one home remedy that can lead to quick relief from symptoms of heartburn. Heartburn is usually caused by excessive acid in one's stomach, which then finds its way up the food pipe. If we introduce a base to neutralize excess acid, one can find relief. There is one such base available in most kitchens: baking soda. Baking soda is usually known as sodium bicarbonate and it reacts with the stomach acid to produce water and carbon dioxide, a simple chemical reaction that we all learn in our schools. A teaspoon of baking powder mixed with water and swallowed quickly will

make you belch quickly and provide relief from pain. One to two spoonfuls a day are okay to take. Antacids work on the same principle. But take note that we are talking about baking soda, and not baking powder. Baking powder is a mixture of baking soda and acidic powder. If you were to take baking powder, it would basically neutralize itself without providing any relief from stomach acid. Some people even find relief in drinking carbonated drinks like Coca Cola or other such drinks, but that may be more psychological than real, as these carbonated drinks basically release the carbon dioxide dissolved in them and cause empty burping. Relief is mostly due to the dilution of stomach acids caused by excess liquid, which can easily be achieved with just plain water.

[This article was condensed from [emedicinehealth.com](http://emedicinehealth.com)]

### Blood Glucose: continued from page 11

were able to derive an equation so that A1C levels can be interpreted accurately as an average glucose level or eAG. The equation is  $eAG \text{ (mmol/l)} = 1.59 \times HbA1C - 2.59$ . Or see chart.

The chart shows a comparison of A1C (%) and average glucose levels (mmol/l)

Reporting glucose control as 'average glucose' will assist health care providers and their patients in being able to better interpret the HbA1C value in units similar to what patients see regularly through their self-monitoring.

Many patients who practice self monitoring blood glucose measurements already see an "average glucose" on their blood Glucometer. Is eAG the same thing?

No, an eAG value is unlikely to match the average glucose level shown on a person's meter. Because people with diabetes are more

likely to test more often when their blood glucose levels are low--- first thing in the morning, and before meals---the average of the readings on their meter is likely to be lower than their eAG, which represents an average of their glucose levels 24 hours a day, including post-meal periods of higher blood glucose when people are less likely to test. One advantage of using eAG as a measure of glucose control is that it will help patients more directly see the difference between their individual meter readings and how they are doing with their glucose management overall.

So in conclusion the next time you go to your doctor and he sends you to the laboratory for an HbA1C test you Diagnofirm now includes your estimated average glucose with the HbA1C result and compare it with the daily self monitoring blood sugar level results



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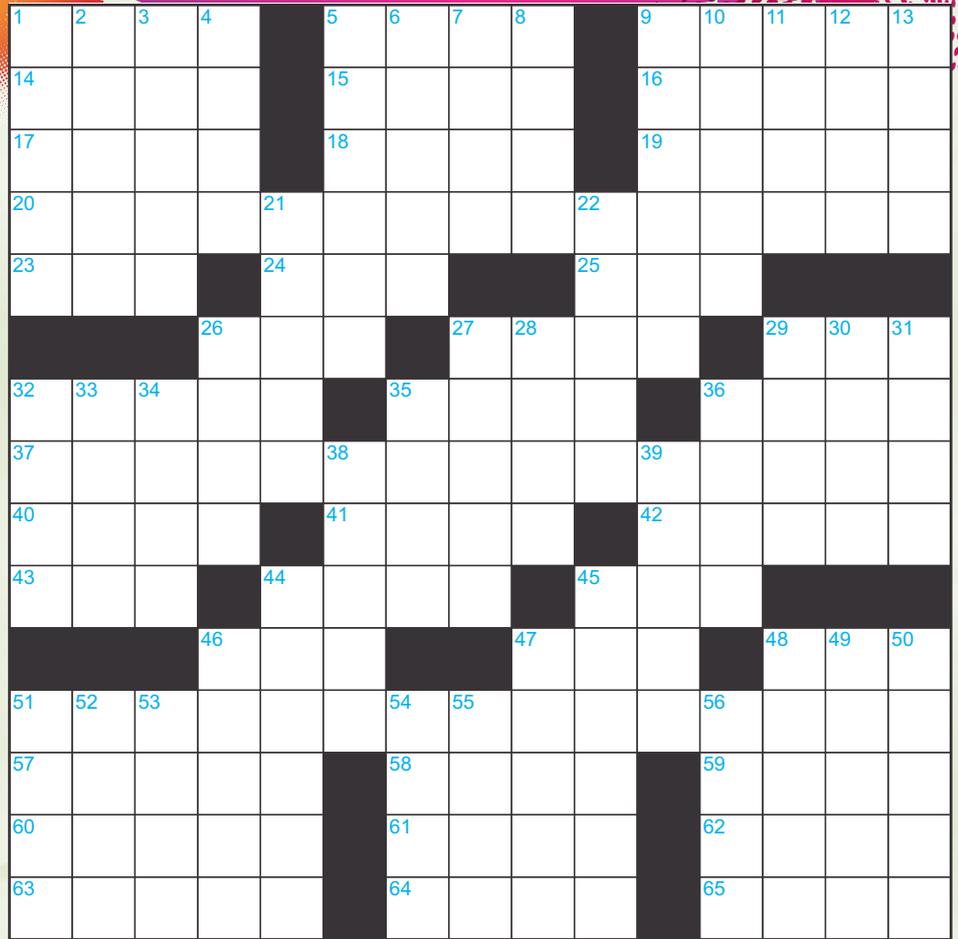
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fun & games



# CROSSWORD



## Scramblers

Unscramble each of the clue words then copy and unscramble the circled letters to form mystery words

Theme: **COMPUTER**

AEBADTAS



EPKOTSD



LWONDODA



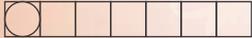
CONTEMDU



BOYKRDAE



RAORGMP



## Last Issue solutions

### CROSSWORD



## Scramblers

Theme: **BASIC EMOTIONS**

- |          |   |          |
|----------|---|----------|
| VOLE     | = | LOVE     |
| YJO      | = | JOY      |
| RUSRIESP | = | SURPRISE |
| NARGE    | = | ANGER    |
| SAENSDS  | = | SADNESS  |
| ARFE     | = | FEAR     |

**Mystery Words:**  
YRISAGDNRB = ANGRY BIRDS

### ACROSS

1. restore deleted text
5. put something away for later use
9. woman's one-piece garment
14. melt or defrost
15. remove outer layer
16. unnerving, haunting, spooky
17. extreme anger
18. Cambodian unit of currency
19. cut & copy, cut & \_\_\_\_\_
20. not reconciled to some political, economic, or social change
23. peg used in golf
24. shack made out of wood over the top (abbreviation)
25. tit for \_\_\_\_\_
27. cover with asphalt or cement
29. guiding principle of all reality as conceived by Taoists
32. undress provocatively
35. wash, bathe (archaic)
36. British variant of show (archaic)
37. the spelling of a word in one language with the alphabet of another language
40. contraction of *am not*
41. lascivious look
42. church announcement of marriage
43. robot for short
44. rural Roman god with the body of a man and legs and horns of a goat
45. cigarette in UK, something else in USA
46. computer-aided manufacturing (abbreviation)
47. sit in past tense
48. he with an s
51. sciences of nature (2 words)
57. warning device
58. a gemstone with rich iridescence
59. one thousand million years (plural)
60. to arouse; to awaken
61. telephone someone
62. canned or processed fish
63. discourage from taking action
64. Dr. Jekyll's alter ego
65. platter for serving food

### DOWN

1. a pompous, self-important gait
2. retainer of Anglo-Saxon lord
3. tidal bore or flood
4. excessively sentimental, sweet, or pretty to begin to grow; give off shoots or buds
5. corrupt, immoral, dishonest
6. minerals from which metals are extracted
7. bump on the skin
8. delegate something
9. respond
10. in the past
11. place of some event
12. plant part containing embryo
13. protective leather leggings
21. Mars \_\_\_\_\_
22. shade of a colour
26. plate for bread in Communion
27. allege
28. slim
29. same as *eon*
30. possesses property
31. thrust knife
32. group of three
33. speak in loud exaggerated manner
34. place; stead
35. castrated adult animal
36. South American "camel"
37. reduce
38. Old MacDonald
39. a ribbed woven fabric of silk or rayon or cotton
45. The Mummy's \_\_\_\_\_
46. burn somebody with hot liquid
47. clean something by rubbing
48. plant used to dye skin
49. short nonfiction prose
50. plant used in medicine
51. plant with fleshy toothed leaves
52. stretched tightly
53. long narrow inlet of sea stretching inland
54. remove animal's ovaries
55. variation of *net*