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Editors Note

It's the festive season again. And again we have to the same things to worry about, Christmas budgets, weight gains and all that comes with over indulgence and over-spending. We at Diagnostics-Update.com suggest you have a quiet relaxed festive season that will be healthy both physically and financially to you. So, the year has come to end and another is beginning, what's new? What's new is that we are in 2009 and even though we will face the same problems, it's time we come up with new solutions. The reason we still have to deal with the same old problems means that the tried and trusted solutions are not working, so, make 2009 the year that you try things a little differently.

Even though we are preaching trying things differently, what we won't be changing is our message at this time of the year of that we hope everyone observed World AIDS day and will continue to do that in 2009 and stop the spread. We feature an update on the country's HIV/AIDS status. We hope this shall provide interesting reading. And will also provide hope to everyone that the measures being taken by the Botswana government towards this scourge are beginning to bear fruit. But before we rest on our laurels, let's try even harder to maintain this progress and not lose sight of our goals which are zero transmission by 2016. Also, have a look at our articles ob Cholera. They are very enlightening and will hopefully save you from any Cholera scares come the festive season and new year.

In the whole spirit of trying things differently, we will be changing the general layout of our newsletter to reflect the vibrancy of our articles and to also address the current state of our health issues. It is a hope and plea that we will receive more original articles that will deal with the pressing issues our national and global health village, be it in the field of laboratory science or otherwise. So, if you have grown accustomed to this current layout, this is the last of its kind and if you've grown tired of it, look forward to our next issue.

To everyone, have a pleasant and prosperous 2009.

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Recent And Upcoming Events @ Diagnofirm

The past months have seen the commemoration of world Diabetes day and world AIDS day. These are events commemorating two very pertinent issues in our present day society.

World diabetes day was commemorated this year in Serowe so as to spread the message around the country about this disease that people take very lightly. DML was involved in this event together with several other corporate stakeholders, and this day saw over 100 people being tested for blood glucose, waist circumference, BMI and blood pressure. The event culminated inthe donation of 10 glucometers by DML and Abbot Diabetic Care.

The national commemoration of world AIDS day was marked in Selebi-Phikwe this year. In attendance amongst other dignitaries was His Excellence the President of Botswana Lt-General Seretse Khama Ian Khama. The event being held in Phikwe – which has one of the highest HIV/AIDS infection rates and the presence of the country's foremost citizen, will hopefully send a strong message of how committed the country is to alleviate the HIV/AIDS scourge preventing the further spread of the disease.

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Production Plus

Type 1 Diabetes

World diabetes Day is the primary global awareness campaign of the diabetes world. It was introduced in 1991 by the International Diabetes Federation (IDF) and the World Health Organization (WHO) in response to the alarming rise in diabetes around the world. In 2007, the United Nations marked the Day for the first time with the passage of the United Nations World Diabetes Day Resolution in December 2006, which made the existing World Diabetes Day an official United Nations World Health Day.

World Diabetes Day is a campaign that features a new theme chosen by the International Diabetes Federation each year to address issues facing the global diabetes community. While the themed campaigns last the whole year, the day itself is celebrated on November 14, to mark the birthday of Frederick Banting who, along with Charles Best, first conceived the idea which led to the discovery of insulin in 1922.

In 2008, the theme of World Diabetes Day is Diabetes in Children and Adolescents.

Diabetes is one of the most common chronic diseases of childhood. Type 1 diabetes is growing by 3% per year in children and adolescents, and at an alarming 5% per year among pre-school children. It is estimated that 70,000 children under 15 develop type 1 diabetes each year (almost 200 children a day). Currently, an estimated 440,000 children live with type 1 diabetes globally. Type 2 diabetes was once seen as a disease of adults but today, it is growing at alarming rates in children and adolescents.

What is diabetes and what causes Type 1 diabetes?

Diabetes occurs when the level of glucose (sugar) in the blood becomes too high. Normally, after we eat, various foods are broken down in the gut into sugars which are then absorbed into the body. The main sugar is called glucose. To remain healthy, your blood glucose level should not go too high or too low. A hormone called insulin helps to take glucose from the bloodstream into various cells of the body. This helps to keep the blood sugar normal.

Insulin is made by special cells in the pancreas. In Type 1 diabetes the pancreas stops making insulin, and so the blood glucose remains high. This occurs because the immune system makes antibodies which destroy the insulin-making cells in the pancreas. It is not known why the immune system does this. Type 1 diabetes usually first develops in children or young adults.

What are the symptoms of Type 1 diabetes?

Symptoms tend to develop quite quickly, over a few days or weeks. They include: excess thirst, passing large amounts of urine, tiredness, weight loss, and feeling generally unwell. After treatment is started these symptoms soon go. But, without treatment, the blood glucose level will go very high which can cause you to become very ill, lapse into a coma, and die.

Possible long term complications which may develop

Even a mildly raised glucose level which does not cause any symptoms in the short-term can affect the blood vessels in the long-term. This may lead to some complications (often years after diabetes is first diagnosed). These include: an increased risk of heart disease, stroke and poor circulation; eye and vision problems; kidney damage; nerve damage; serious foot problems; impotence. In general, the risk of developing complications is reduced if the blood glucose level is well controlled, and other risk factors such as high blood pressure are dealt with.

What is the treatment for Type 1 diabetes?

Treatment to keep your blood glucose level as near normal as possible. You will need insulin injections for the rest of your life. Most people take 2-4 injections each day. There are various types of insulin and the one advised will be tailored to your needs. You should aim to eat a low fat, high fibre diet with plenty of starchy foods, fruit and vegetables. But, you will need to know how to balance the right amount of insulin for the amount of food that you eat. So, you will normally be given a lot of instruction and advice from a dietician and diabetes nurse.

To reduce your risk of future complications your blood pressure should be well controlled. Medication may be needed for this. In addition you are strongly advised: not to smoke, to exercise regularly, and to lose weight if you are overweight. Some of these lifestyle issues may not seem to be relevant at first to young children with diabetes. But, as children grow, a healthy lifestyle should be greatly encouraged to reduce the risk of developing complications in the long-term.

No Child Should Die of Diabetes

Diabetes is a deadly disease. Each year, almost 4 million people die from diabetes-related causes. Children, particularly in countries where there is limited access to diabetes care and supplies, die young

- Diabetic Ketoacidosis (DKA), a build-up of excess acids in the body as a result of uncontrolled diabetes, is the major cause of death in children with type 1 diabetes. With early diagnosis and access to care, the development of severe DKA should be preventable.
- Insulin was discovered more than 85 years ago. Today children in many parts of the world still die because this essential drug is not available to them.
- Children with diabetes should monitor their blood sugar regularly to help control their diabetes. This monitoring equipment is often unavailable or not affordable.
- In Zambia, a child with type 1 diabetes can expect to live an average of 11 years. In Mali, the same child can expect to live for only 30 months. In Mozambique the child is likely to die within a year.

Cholera Outbreak! Are We Prepared?

The current cholera outbreak in Zimbabwe has necessitated that we at *Diagnostics-Update.Com* write an article to help people understand the disease and to help in preparing the community incase the outbreak does spread across the border.

It is our hope that this article can be used by health professionals to better prepare themselves for an outbreak and by anyone else to help them know what to do in the case of an outbreak.

Cholera is a diarrhoeal disease caused by infection of the intestine with the bacterium Vibrio cholerae, either type O1 or O139. Both children and adults can be infected. About 20% of those who are infected develop acute, watery diarrhoea – 10–20% of these individuals develop severe watery diarrhoea with vomiting. If these patients are not promptly and adequately treated, the loss of such large amounts of fluid and salts can lead to severe dehydration and death within hours. The case-fatality rate in untreated cases may reach 30–50%. Treatment is straightforward (basically rehydration) and, if applied appropriately, should keep case-fatality rate below 1%.

Cholera is usually transmitted through faecally contaminated water or food and remains an ever-present risk in many countries. New outbreaks can occur sporadically in any part of the world where water supply, sanitation, food safety, and hygiene are inadequate.

The greatest risk occurs in over-populated communities and refugee settings characterized by poor sanitation, unsafe drinking-water, and increased person-to-person transmission. **Because the incubation period is very short (2 hours to 5 days), the number of cases can rise extremely quickly.**

It is impossible to prevent cholera from being introduced into an area – but spread of the disease within an area can be prevented through early detection and confirmation of cases, followed by appropriate response. Because cholera can be an acute public health problem – with the potential to cause many deaths, to spread quickly and eventually internationally, and to seriously affect travel and trade – a well coordinated, timely, and effective response to outbreaks is paramount.

Faced with the cholera situation in Zimbabwe, it is imperative that the countries sharing a border with it take heed of this point. Because cases will present themselves in these countries through no fault of their own health systems, but it is up to them to detect and control such cases before they result in an outbreak.

Response activities should always be followed by the planning and implementation of preparedness activities that will allow future cholera outbreaks to be dealt with more effectively. A strong cholera preparedness plan and programme is the best preparation for outbreaks in countries at risk of cholera such as Botswana is, whether or not they have yet been affected.

The advance distribution of transport media and rectal swabs in the areas suspected of being affected by cholera is an asset so that these supplies can be mobilized quickly once an outbreak is confirmed. A national reference laboratory should be designated to supervise the laboratory process – provision of transport media and reagents, training of technicians and monitoring the quality of examinations.

Training of health workers is an essential element for preparedness, especially in high-risk areas.

Emergency supply needs should be evaluated in the light of the particular situation:

- Is it a rural, urban or refugee setting
- The population of the area
- Or, is it an open or closed community

It is most important to ascertain that all patients considered to be cholera cases in fact have the same disease. According to the WHO case definition, a case of cholera should be suspected when:

- in an area where the disease is not known to be present, a patient aged 5 years or more develops severe dehydration or dies from acute watery diarrhoea;
- in an area where there is a cholera epidemic, a patient aged 5 years or more develops acute watery diarrhoea, with or without vomiting. A case of cholera is confirmed when Vibrio cholerae O1 or O139 is isolated from any patient with diarrhoea.

Laboratory Diagnosis of Cholera

CHOLERA is caused by infection with a bacterium called Vibrio cholera. Cholera affects your bowel and causes watery diarrhoea. The watery stools are popularly known as rice water stools. Its mainly found in areas that aren't very clean, and where hygiene and sanitation aren't very good.

There are more than 100 types of cholera. However, there are only two types of cholera that affect humans:

- Vibrio cholera O1 of which there are two subtypes (Classical and El Tor)
- Vibrio cholera O139

Vibrio cholera O1 subtype El Tor accounts for most of the cholera found in the world today.

If you drink a liquid or eat food containing these types of Vibrio cholera, then the bacteria get into your small bowel (intestine) where they produce a poison (enterotoxin) which causes diarrhoea.

Symptoms of Cholera

The time between catching cholera and getting symptoms of diarrhea – known as the incubation period – can be anything between a few hours and five days. Most people get symptoms after two to five days.

If you have cholera you may have symptoms including:

- Watery faeces with bits of mucus – this is sometimes called "rice water" faeces since it looks like water in which rice has been washed.
- Faeces with a mild fishy smell
- Vomiting
- Tummy cramps
- Dehydration

Microbiological confirmation of Vibrio cholerae by direct observation can be obtained immediately, but it usually takes 2 days to get culture results. It is important to gather information on:

– serogroup of Vibrio (O1 or O139);
– Antimicrobial sensitivity patterns.

This laboratory information will be helpful for epidemiological mapping of the outbreak and to assess the possibility of mutations resulting in altered microbial sensitivity.

In the meantime, patients suspected of cholera infection can commence with rehydration treatment.

When performing laboratory tests, it is important to collect the best possible specimen for diagnosis, and it is no different for cholera diagnosis. A perfect sample is very important so as to confirm or dismiss the possibility of cholera infection.

Take stool samples before the patient is given any antibiotics. There are several ways to take samples:

- Fresh stool can be taken (cotton-tipped rectal swab soaked in liquid stool, placed in a sterile plastic bag) and transported quickly (within 2 hours) to the laboratory.
- A transport medium such as Cary-Blair or peptone water allows better conservation of samples (see below for more details).
- Strips of blotting paper or filter paper soaked with liquid stool, placed in sealed tube or plastic bags, with 2 or 3 drops of normal saline (NaCl 9%) so that the specimen remains moist and does not dry out.

Refrigeration during transport is not necessary.

Tubes of Cary-Blair transport medium can be stored at ambient temperature for 1–2 years; the medium can be used as long as it does not appear dried out, contaminated, or discoloured.

To use Cary-Blair medium:

- Moisten the swab in sterile Cary-Blair transport medium.
- Insert the swab 2–3 cm through the rectal sphincter and rotate.
- Withdraw the swab and examine it to make sure that it carries some visible faecal material.
- Immediately place the swab in the transport medium, pushing it right to the bottom of the tube.
- Break off and discard the top of the stick touching the fingers.
- Dispatch the sample to reach the laboratory within 7 days; it is not necessary to refrigerate the sample.

Diagnosis of Cholera

Although V.cholerae will grow on a variety of commonly used agar media,isolation from faecal specimens is more easily accomplished with specialized media.Alkaline peptone water (APW) is recommended as an enrichment broth,and thiosulfate citrate bile salts sucrose agar (TCBS) is the selective agar medium of choice.

Enrichment in alkaline peptone water.

Enrichment in APW can enhance the isolation of V.cholerae when few organisms are present,as in specimens from convalescent patients and asymptomatic carriers. Vibrio spp grow very rapidly in APW and at 6 to 8 hours will be present in greater numbers than non-Vibrio organisms.

(see diagram below)

Isolation and Identification of Vibrio cholera Serogroups O1 and O139

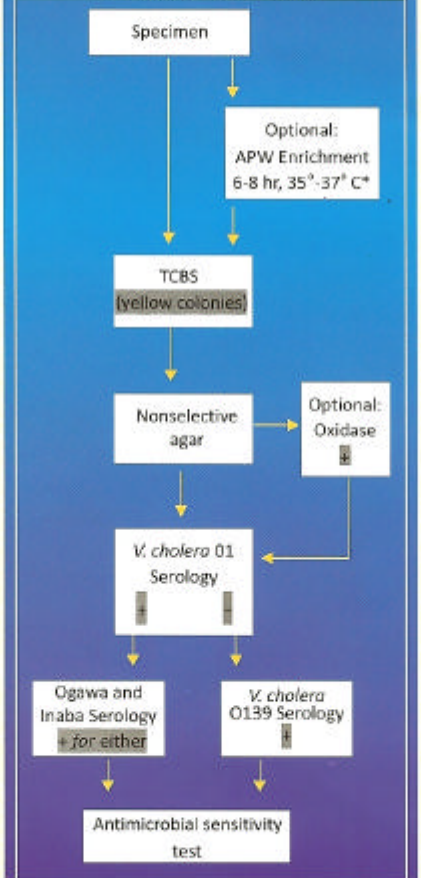


Fig 1. Procedure for recovery of Vibrio cholerae O1 and O139 from faecal specimens

Once the cholera outbreak is clinically verified, the following potential "vehicles of transmission" must be investigated so that appropriate control measures can be taken:

- drinking-water that may have been contaminated at source or during transport and storage, or ice made with contaminated water;
- food that may have been contaminated during or after preparation;
- seafood;
- fruits and vegetables.

In terms of treatment rehydration with replacement of electrolytes lost is the mainstay of cholera treatment. According to the dehydration stage (A, B, C), the

Prevention of Cholera

There are a number of precautions you can take to help protect youself from getting cholera if you are travelling to an area where there is a risk of developing it e.g. in Zimbabwe. Only drink bottled water(make sure the seal is intact) or tap water that has been boiled. Eat food that is freshly prepared,cooked thoroughly and hot-in particular,don't eat raw or undercooked seafood. Don't eat raw vegetables such as green salads as they may have been washed in contaminated water-only eat raw vegetables and fruit that you can peel. Wash your hands after going to the toilet and particularly before handling food or drinking water.

Vaccine: A cholera vaccine (Dukora) has been available in the UK since 2004.Most people who travel abroad don't need to have the cholera vaccine as taking preventive measures will usually provide enough protection against cholera.
You will usually only be offered the vaccine if : You work in an area of known cholera outbreaks,such as relief or disaster aid areas such as is the situation in Zimbabwe. You plan to stay long-term in a place where the of cholera is high-especially if there is limited access to good medical care.

Dukoral is an oral vaccine (you take it by mouth) that comes in sachets that you dissolve in a drink.It can be used by adults and children over two years old.The vaccine course is : Two doses for adults and children aged over 6 years old. Three doses for children aged two to 6 years old.

patient should receive different rehydration therapy (oral or intravenous fluids). Oral rehydration solution (ORS) should be used during and after IV therapy. Surveillance of the patient is crucial during the early stage of treatment. For severe cases intravenous (IV) therapy is the best form of treatment.

Antibiotics should be given only in severe cases so as to reduce the duration of the symptoms and carriage of the pathogen. Case fatality rate (CFR) is the proportion of people diagnosed with a particular disease and who die as a result of that disease. In the case of cholera, a rate greater than 1% is considered to be high and if the CFR exceeds 5%, an investigation should be undertaken and corrective action taken.

The most important messages to prevent the family from being contaminated are:

- Wash your hands after taking care of patients – touching them, their stools, their vomits, or their clothes.
- Beware of contaminating the water source by washing patients' clothes in the water.

In the long term, improvements in water supply, sanitation, food safety and community awareness of preventive measures are the best means of preventing cholera, as well as other diarrhoeal diseases. However, WHO is currently evaluating the use of newer tools to complement these traditional measures. Oral cholera vaccines of demonstrated safety and effectiveness have recently become available for use by individuals. Some countries have already used oral vaccine to immunize populations considered to be at high risk for cholera outbreaks. Use of these vaccines in both endemic and epidemic situations requires further assessment.

Work is under way to investigate the role of mass vaccination as a public health strategy for protecting at-risk populations against cholera. Issues being addressed include logistics, cost, timing, vaccine production capacity, and criteria for the use of mass vaccination to contain and prevent outbreaks.

Why is my waist size important?

Finding out your BMI (body mass index) is the best way to see if you are the right weight for your height. If your BMI shows that you are overweight for your height, you should seriously think about losing weight to avoid the risk of health problems such as heart disease, stoke and diabetes.

Your waist size is also important. If your waist size is too large you should try to lose weight from around your middle. Of course, the right size waist depends a lot on what type of figure you have and whether you're tall or petite.

If you measure your waist around the top of your hips you'll find out your waist circumference. If this is over 94 cms (for the average adult man) or over 81 cms (for the average adult woman) you're at a higher risk of health problems.

Most people are either apple shaped or pear shaped. This means that when they put on weight, the fat is stored around the hips (pear-shaped) or the middle (apple-shaped). If you're overweight and apple-shaped you are at higher risk of health problems than if you're overweight and pear-shaped. If you're apple-shaped and overweight the best way to lose weight is to do more regular exercise. You should do at least 30 minutes on most days of the week, and increase this to about 60 minutes for better results. This will also improve your general health and increase your life expectancy.

How to measure your waist:
Find the bottom of your ribs and the top of your hips and measure in the middle. For most people this is where their tummy button is.

What are the benefits of losing weight?

There are many benefits to losing weight. If you get to the ideal weight for your height this will help to lower your cholesterol levels and blood pressure. You will dramatically lower your risk of health problems such as type II diabetes and heart disease, as well as increase your life expectancy.

Millions of people die prematurely every year because of coronary heart disease, stroke and other illnesses related to poor diet and unhealthy lifestyle. Unfortunately, there are no magic weight-loss solutions, and crash diets don't work in the long-term. The most successful weight loss programmes have three main factors in common:

- increasing your daily exercise (to at least 30 minutes a day),
- eating smaller portions, and
- only having healthy snacks between meals.

Will I put on weight if I quit smoking?

Some people find they put on weight when they quit smoking. However, the majority of ex-smokers only gain a few pounds, and lose them in a matter of months.

Not everyone who quits smoking puts on weight. You are more likely to gain extra pounds if you have smoked for over ten years, or if you smoke more than one packet of cigarettes a day. Nicotine is a stimulant, which means it speeds up the rate at which you burn calories. When you stop smoking, your body does not need as much food energy. This does not mean that you have to eat less, but it is a good idea to choose low fat options and do some exercise to keep any weight gain to a minimum.

Smoking reduces your appetite, so when you quit, food may taste better. Rather than finishing a meal with a cigarette, some ex-smokers find themselves reaching for a second helping of dessert.

It can also be tempting to snack on sugary foods during the day as an alternative to smoking a cigarette. However, if you stick to healthy options, such as fruit, yogurt, or raw vegetables, it can be a good way of beating cravings without piling on the pounds.

If you are worried about putting on weight, it is important to remember that smoking carries a far greater risk to your health than temporary weight gain. You would need to gain about 50 to 60 kg after quitting to make your health risks as high as when you smoked.

Bacterial Vaginosis

Bacterial vaginosis, BV,is the most common cause of vaginitis during child bearing age. The disorder is caused by profound changes in the normal vaginal flora, which is usually dominated by Lactobacilli (Doderlein bacilli), in the favour of bacterial flora characterized by G. vaginalis, Mobiluncus, mycoplasma and a large variety of organisms, mainly gram negative rods.

Symptoms and signs

The most common symptom of BV is an abnormal vaginal discharge especially after sex) with an unpleasant fishy smell. While some women are asymptomatic, many women complain of intense itching, swelling and irritation (often misdiagnosed as Candida infection), as well as stomach pains, which may be spasmodic. In contrast, a 'normal' discharge will be odourless and will vary in consistency and amount with the menstrual cycle.

What causes BV?

Any woman can get BV. But there are certain things that can upset the normal balance of bacteria in the vagina, raising your risk of BV:

- Having a new sex partner or multiple sex partners
- Douching
- Using an intrauterine device (IUD) for birth control
- Not using a condom

There are a variety of causes for bacterial vaginosis.

- Thongs are notorious for causing bacterial vaginosis due to the cloth rubbing against the anus and vagina.
- Cases of bacterial vaginosis are more likely to occur in sexually active women between the ages of 15 and 44, especially after contact with a new partner. Condoms may provide some protection and there is no evidence that spermicide increases BV risk. Although BV can be associated with sexual activity, there is no clear evidence of sexual transmission. It is possible for virgins to get infected with bacterial vaginosis.
- Rather, BV is a disordering of the chemical and biological balance of the normal flora. Recent research is exploring the link between sexual partner treatment and eradication of recurrent cases of BV.
- Pregnant women and women with sexually transmitted infections are especially at risk for getting this infection.
- Bacterial vaginosis may sometimes affect women after menopause.
- A longitudinal study published in February 2006 in the American Journal of Obstetrics and Gynecology showed a link between psychosocial stress and bacterial vaginosis independent of other risk factors.
- In pre-pubescent girls, bacterial vaginosis may be caused by strep, or by bacteria introduced from the anus due to improper hygiene (wiping) after bowel movements.

Although, BV is more common among women who are sexually active, but it is not clear how sex changes the balance of bacteria. You cannot get BV from:

- toilet seats
- bedding
- swimming pools
- touching objects around you

Causative organisms

A healthy vagina normally contains many microorganisms; some of the common ones are *Lactobacillus crispatus* and *Lactobacillus jensenii*. *Lactobacillus*, particularly hydrogen peroxide-producing species, appears to help prevent other vaginal microorganisms from multiplying to a level where they cause symptoms. (Note: *Lactobacillus acidophilus* is not one of the species of *Lactobacillus* identified as playing a protective role in vaginal flora.) The microorganisms involved in BV are very diverse, but include *Gardnerella vaginalis*, *Mobiluncus*, *Bacteroides*, and *Mycoplasma*. A change in normal bacterial flora including the reduction of lactobacillus, which may be due to the use of antibiotics or pH imbalance, allows more resistant bacteria to gain a foothold and multiply. In turn these produce toxins which affect the body's natural defenses and make re-colonization of healthy bacteria more difficult.

Diagnosis

How can I find out if I have BV?

There is a test to find out if you have BV. Your doctor takes a sample of fluid from your vagina and has it tested. Your doctor may also see signs of BV during an examination of the vagina. To help your doctor find the signs of BV or other infections:

- Schedule the exam when you do not have your period.
- Don't douche for at least 24 hours before seeing your doctor. Experts suggest that women do not douche at all.
- Don't use vaginal deodorant sprays. They might cover odors that are important for diagnosis. It may also lead to irritation.
- Don't have sex or put objects, such as a tampon, in your vagina for at least 24 hours before going to the doctor.

The important causes of vaginal discharge are the following:

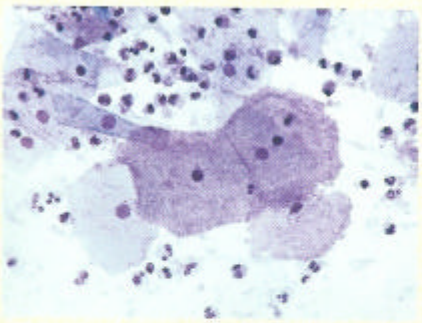
- Odourless discharge which may be normal
- Candidiasis (thrush, or a yeast infection)
- Trichomoniasis, an infection caused by Trichomonas vaginalis
- Bacterial vaginosis

Simple tests can be done to make the proper diagnosis. The healthcare provider will carry out a speculum examination and take some high vaginal swabs. These swabs will be tested for:

- A characteristic "fishy" odor on wet mount. This test, called the "whiff test", is performed by adding a small amount of potassium hydroxide to a microscopic slide containing the vaginal discharge. A characteristic "fishy" odor is considered a positive whiff test and is suggestive of bacterial vaginosis.
- Loss of acidity. To control bacterial growth, the vagina is normally slightly acidic with a pH of 3.8–4.2. A swab of the discharge is put onto litmus paper to check its acidity. A pH greater than 4.5 is considered alkaline and is suggestive of bacterial vaginosis.
- The presence of clue cells on wet mount. Similar to the whiff test, the test for clue cells is performed by placing a drop of sodium chloride solution on a slide containing

vaginal discharge. If present, clue cells can be visualized under a microscope. They are so-named because they give a clue to the reason behind the discharge. These are epithelial cells that are coated with bacteria.

Two positive results in addition to the discharge itself are enough to diagnose BV. If there is no discharge, then all three criteria are needed. A 1990 study demonstrated that the single best test for BV was the test for clue cells on wet mount examination. The best combination of two tests for BV was the test for clue cells and the whiff test.



Cervicovaginal smears show a characteristic "dirty" appearance caused by the various organisms, many of them covering the squamous cells. The 'Clue cells" caused by G. vaginalis are well evident, but other comma shaped organisms may also be evident on the cell surfaces. Clearly, the value of cervico-vaginal smears for diagnosis of BV is limited and the treatment must be based on clinical and bacteriologic data.

In clinical practice BV is diagnosed using the Amsel criteria:

1. Thin, white, yellow, homogeneous discharge
2. Clue cells on microscopy
3. pH of vaginal fluid >4.5
4. Release of a fishy odor on adding alkali—10% potassium hydroxide (KOH) solution.

At least three of the four criteria should be present for a confirmed diagnosis.
An alternative is to use a Gram stained vaginal smear, with the Hay/Ison criteria or the Nugent criteria. The Hay/Ison criteria are defined as follows:

- Grade 1 (Normal): Lactobacillus morphotypes predominate.
- Grade 2 (Intermediate): Mixed flora with some Lactobacilli present, but Gardnerella or Mobiluncus morphotypes also present.
- Grade 3 (Bacterial Vaginosis): Predominantly Gardnerella and/or Mobiluncus morphotypes. Few or absent Lactobacilli. (Hay et al., 1994)

At least 10–20 high power (1000× oil immersion) fields are counted and an average determined.

Complications

Can BV cause health problems?

In most cases, BV doesn't cause any problems. But some problems can arise if BV is untreated.

- Pregnancy problems. BV can cause premature delivery and low birth weight babies (less than five pounds).
- PID. Pelvic inflammatory disease or PID is an infection that can affect a woman's uterus, ovaries, and fallopian tubes. Having BV increases the risk of getting PID after a surgical procedure, such as a hysterectomy or an abortion.
- Higher risk of getting HIV and other sexually transmitted infections (STIs). Having BV can raise your risk of HIV, chlamydia, and gonorrhea. Women with HIV who get BV are also more likely to pass HIV to a sexual partner.

Treatment

If there are any suspicions of Bacterial vaginosis, please consult a health care provider right away. It is treatable. Please do not self treat with over the counter medicines. BV is treated with antibiotic medicines prescribed by your doctor. You can get BV again even after being treated. BV is twice as common as thrush and it is estimated that 1 in 3 women will develop the condition at some point in their lives. In addition to the physical discomfort and symptoms, BV can also have a significant impact on a woman's quality of life.

Is it safe to treat pregnant women who have BV?

All pregnant women with symptoms of BV should be tested and treated if they have it. This is especially important for pregnant women who have had a premature delivery or low birth weight baby in the past. There are treatments available at any stage of your pregnancy. Be sure to talk to your doctor about what is right for you.

How can I lower my risk of BV?

Although there is still a lot of research regarding BV and probable risk factors, there are steps you can take to lower your risk.

- Help keep your vaginal bacteria balanced. Wash your vagina and anus every day with mild soap. When you go to the bathroom, wipe from your vagina to your anus. Keep the area cool by wearing cotton or cotton-lined underpants. Avoid tight pants and skip the pantyhose in summer.

- **Don't douche.** Douching removes some of the normal bacteria in the vagina that protects you from infection. This may raise your risk of BV. It may also make it easier to get BV again after treatment.
- **Have regular pelvic exams.** Talk with your doctor about how often you need exams, as well as STI tests.
- **Finish your medicine.** If you have BV, finish all the medicine your doctor gives you to treat it. Even if the symptoms go away, you still need to finish all of the medicine.

Practicing safe sex is also very important. Below are ways to help protect you.

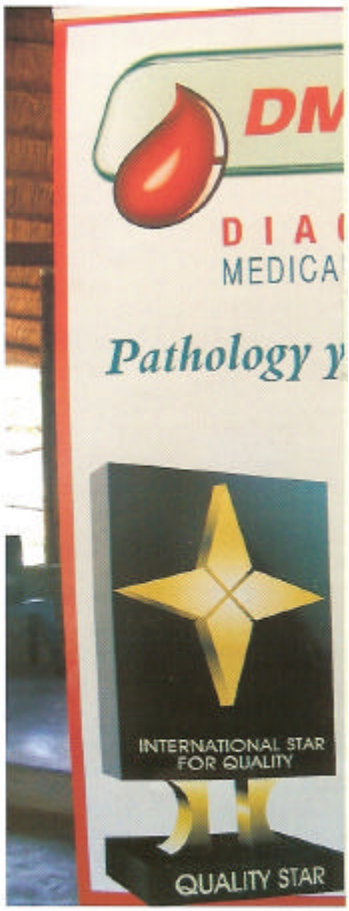
- **Total abstinence from sex.** The best way to prevent any STI is to not have vaginal, oral, or anal sex.
- **Be faithful.** Having sex with just one partner can also lower your risk. Be faithful to each other. That means that you only have sex with each other and no one else.
- **Use condoms**. Protect yourself with a condom EVERY time you have vaginal, anal, or oral sex. Condoms should be used for any type of sex with every partner.
- **Talk with your sex partner(s) about STIs and using condoms.** It's up to you to make sure you are protected. Remember, it's YOUR body!
- **Talk frankly with your doctor or nurse and your sex partner(s) about any STIs you or your partner(s) have or had.** Talk about any discharge in the genital area. Try not to be embarrassed.

World Dia

Diabetes in

Professor Bhagat & Lesego giving a Diabetes lecture on World Diabetes Day in Serowe

A young Diabetes patient giving a testimony



Chief Kgamane giving an address to Serowe residents to mark World Diabetes Day

Mme Mmeisi Mmereki speaking on behalf of the Serowe Diabetes Support Group

Diagnofirm Lab Manager, Desire Mhlabi donates glucometers to Sekgoma Memorial Hospital from DML and Abbot Diabetes Care

betes Day

n Children

Dr. Elvis Kavuru, the Chief Medical Officer of Sekgoma Memorial Hospital stressing a point about

Dr. Akim of WHO giving a speech

Agatha Mathangwane introduces the dignitaries on behalf of the District Commissioner

Chief Kgamane and Dr. Kavuru

Chief Kgamane takes a glucose test

A feeling of being out of breath

Breathlessness is the feeling of being out of breath. This is normal in healthy people who exert themselves physically, but can be a sign of illness if it occurs at a much lower level of exertion than expected.

The basis behind breathlessness is a balance. On the one hand, there is the body's need for oxygen and its supply from the lungs. On the other hand, there is the level of waste gas (carbon dioxide, or CO2) that builds up in the body during exercise. Muscles working hard in exercise need more oxygen, and produce more CO2. Special cells in the main arteries detect the levels of oxygen and CO2, and these send signals to the brain and heart to increase breathing and pulse rates. This means that more blood is pumped around the body, picking up more CO2 from the muscles, to be released in the lungs to be breathed out, and picking up more oxygen there to deliver to the muscles.

In a healthy person, physical fitness will set the level when breathlessness is experienced. The more regular physical exercise a body is used to, the more efficient the muscles are. They use oxygen better and create less CO2, and the lungs and heart are more efficient, too. This is why a fit person can do more exercise without getting breathless than an unfit person can.

Certain illnesses can mimic the effects of unfitness, but at much lower levels of exertion than simple exercise, so that even crossing a room slowly can be a major effort. Breathlessness is said to be acute if it happens suddenly and severely, and chronic when it has built up gradually over a long time. The causes of these two types are generally different.

Causes

Most cases of breathlessness occur because of a lack of fitness, often made worse by obesity. This kind of breathlessness can always be corrected by sustained, graded exercise and by losing excess weight.

Other common causes of sudden breathlessness include:

- Asthma
- Pneumonia (chest infection)
- Heart failure (inefficient pumping because of heart disease)
- Sudden worsening of long-term Lung disease (e.g. Emphysema)
- Hyperventilation (over breathing due to anxiety).

Common causes of chronic breathlessness include:

- Obesity (overweight)
- Chronic obstructive lung disease
- Anaemia
- Heart failure (inefficient pumping)
- Asthma.

Breathlessness can sometimes be caused for other reasons. Smoking is a particularly important cause of breathlessness for several reasons. For instance, cigarette smoke contains carbon monoxide, a poisonous gas that combines so tightly with haemoglobin in the blood that the affected haemoglobin can't perform its normal function.

One of the most important causes of severe breathlessness is left heart failure. When the left side of the heart is unable to clear the blood from the lungs quickly enough, fluid accumulation in the lungs causing breathlessness. This is the main symptom of left heart failure and it may occur on mild exertion or even when the affected person is at rest. There may be attacks of sudden breathlessness during the night.

Breathlessness can sometimes have a psychological cause as part of a panic reaction. The most common form of this is over-breathing known as hyperventilation. If this persists, so much carbon dioxide is breathed out that the blood becomes alkaline and its calcium level drops.

Anaemia, in which the oxygen-carrying capacity of the blood is reduced, will cause increased breathlessness on effort. And any loss of heart efficiency, from any cause, will interfere with the efficient circulation of the blood and cause breathlessness.

Diagnosis

Abnormal breathlessness may be a sign of some other medical problem and should be investigated by a doctor.

Breathlessness can be linked to so many different diseases that a diagnosis can really only be made after careful questioning and examination by a doctor. If the doctor needs more information to make a diagnosis, they may suggest blood tests, a chest x-ray or breathing tests.

Treatment

Treatment varies according to the cause of breathlessness.

Prevention

Breathlessness from lack of fitness can be reduced by regular exercise.

You can find out if your weight may be causing breathlessness by referring to the Body Mass Index (BMI). This works by taking into account your weight and height to find out if your body mass may be contributing to poor health. You can calculate your BMI by following these steps:

Work out your height in metres (for example, 1.6 metres), and multiply the figure by itself (for example 1.6 x 1.6 = 2.56)

Measure your weight in kilograms (for example, 65kg)

Divide your weight in kilograms by the answer to step 1 (for example, 65 divided by 2.56 = 25.39).

A healthy BMI is between 20 and 25. A BMI over 25 may mean that your health could suffer in the future.

Stopping smoking is the best things you can do to reduce common breathlessness and increase blood oxygen levels and lung efficiency.

Simple truths of exercise

Regular exercise can help to combat obesity and improve circulation, reducing the risk of many health problems such as heart attack and stroke. During exercise, body tissue receives an oxygen boost, which helps to improve muscle definition and the appearance of the skin. Exercise can also improve posture, suppleness and mobility.

Exercise triggers the release of chemicals such as endorphins and serotonin, which improve your mood and enable you to better cope with pain.

How do I get the confidence to start exercising regularly?

Many people find it hard to take the plunge and start exercising regularly. The good news is that its easier to keep up once you get into it. You'll notice the benefits right away and you'll start to look and feel better.

If you're always too tired to exercise, you'll find that it actually gives you more energy. It really will change your life.

Start by becoming more active in your everyday life. Take the stairs instead of the lift, cycle to work or go for a walk at lunchtime little bits of exercise throughout the day soon add up! The great thing is, you can vary your activities according to your mood or the weather.

Find a friend to do exercise with - its more fun. Go for a walk with a friend or family member, play in the park with the children or the dog or go for a swim with a friend.

You don't have to join a gym to get regular exercise. Lots of people enjoy gardening, dancing or team sports like football. If you feel self-conscious about exercise, find out if there are any single-sex gyms or swimming pools near you, or any local walking clubs you can join. You can always take a friend with you for support.

Don't make excuses! Keep reminding yourself what your goals are and reward yourself when achieve them.

How should I warm up before exercise? Warm up

It is important to warm up your muscles before you exercise to reduce the risk of injury. Warming up prepares your body for exercise by increasing blood flow around the body. This means that your muscles will be able to move more easily.

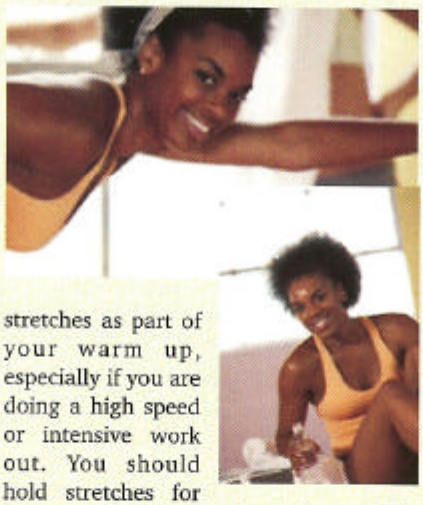
Warm ups should involve gentle activity. Make sure you are warming up the muscles that you will be using during your work out or sports training. For example if you are a runner, warm up your leg muscles. If you lift weights, warm up your arms, shoulders and upper body.

Here are some warm up tips:

Skip gently for 1- 5 minutes. This is a great way to warm up as you use lots of different muscle groups.

Go for a gentle walk or jog. It's a great way to warm up your muscles and prepare your body for exercise. Do this with friends as you can socialise while you walk or jog, and encourage each other.

Make sure you do some gentle muscle



stretches as part of your warm up, especially if you are doing a high speed or intensive work out. You should hold stretches for between 10 -15 seconds, as long as this feels comfortable for you. Start by holding stretches for five seconds and progress as your body gets more used to exercise. Don't bounce as you stretch, as this can cause an injury.

If you're unsure how to do stretches correctly, try joining a sports club or visiting your local gym for advice.

Cool down

You should also make sure you cool down after your exercise session by stretching your muscles again, and doing light aerobic exercise (walking, gently jogging on the spot etc.). This will ensure that you keep aches, pains and stiffness to a minimum later.

What is the best type of exercise?

To maintain fitness and lead a healthy lifestyle, most people should do about 30 minutes of moderate physical exercise every day. This could be anything from a dedicated, structured exercise routine, to half an hour of brisk walking, housework or active gardening (such as mowing the lawn or raking leaves). The best type of exercise is one that you enjoy doing, because you're more likely to keep it up. As long as you choose an activity that gets you slightly out of breath and sweaty, you're making your heart and lungs work.

Find out how many calories you can burn doing the activities you enjoy. There are many different ways to exercise. Dancing is an aerobic/cardiovascular exercise, jogging helps with endurance and yoga helps keep you supple. Swimming and walking are low-impact aerobic exercises but are still really good for you. Some people prefer team sports like football, others like to play badminton or squash with a partner, and some go it alone at the gym.

You can vary your activities according to your mood and the weather. Remember that as well as helping you to lose weight, regular exercise can increase your energy levels, lift your mood and help you sleep better.

If you are trying to lose weight, you should build up to about 60 minutes of moderate exercise on most days of the week. Remember to eat a healthy, well-balanced diet as well.

If you have high blood pressure, heart disease or joint problems, or you are over 60 and haven't exercised for a while, check with your doctor before you start any new exercise plan. You should also check with your doctor if you are taking any prescription medication, if you are pregnant, or if you think there may be any other reason you shouldn't exercise.

HIV Status Update

According to the Joint United Nations Programme on HIV/AIDS (UNAIDS) AIDS Epidemic

Update of December 2007 an estimated 33.2 million people are living with HIV globally.

The bulk of the epidemic is in Sub-Saharan Africa where about 22.5 million adults and children are living with the virus. An estimated 1.7 million people were infected during that year. The scale and trends of the epidemic in the region vary considerably, with Southern Africa most seriously affected. This sub-region accounted for 35% of all people living with HIV and almost one third (32%) of all new HIV infections and AIDS deaths globally in 2007. In 2005, national adult HIV prevalence exceeded 15% in eight countries of the sub-region (Botswana, Lesotho, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe).

The Government of Botswana has commissioned the implementation of periodic nationally representative behavioural surveys known as Botswana AIDS Impact Surveys (BAIS). Two such surveys have been conducted, one in 2001 and another in 2004 and their results were reported in the 2003 and 2005 UNGASS progress reports, respectively. Another such study, the third, has been undertaken in 2008.

Based on the results of the 2004 survey, the national HIV prevalence in the country was estimated at 17.1%. Preliminary country estimates indicate that approximately 113 000 people had advanced HIV infection in Botswana in 2007. 91 780 persons (81.2%) were on treatment as of 30th November 2007. This included 74 273 patients in the public sector, 7 993 patients out-sourced to the private sector and 9 514 were enrolled directly in the private sector.

These results indicate that HIV prevalence has significantly declined, from 37.4% in 2003 to 32.4% in 2006. Also encouraging are notable declines in HIV prevalence among 15-19 and 20-24 year age groups. Results from the latest surveillance show that HIV prevalence among pregnant women aged 15-49 years had dropped from 33.4% in 2005 to32.4% in 2006 and down from 36.2% in 2001 when the first comprehensive study was commissioned.

Results of the 2006 Sentinel Surveillance survey also show that HIV prevalence differs widely by geographical location. According to the results, the adjusted HIV prevalence rate (which takes into account the total population of women in the reproductive age group of 15-49 years regardless of pregnancy status) in the country is 32.4%. Chobe District had the highest rate of 42% whereas Kgalagadi had the lowest at 19.1%. In general, HIV prevalence is still highest in the northern and eastern parts of the country (35.4% in Ngami, 41.1% in Selebi-Phikwe and 42% in Chobe).

Botswana's response has focused on policy development and implementation, public sector response, civil society response and private sector response.

The policy development has been implemented under the auspices of the National AIDS Coordinating Agency which has formulated the National Strategic Framework (NSF) for HIV/AIDS (2003-2009) which has undertaken to "document key themes and emerging issues, and to recommend appropriate action aimed at greater achievement of the National response over the remainder of the plan period"

On the public sector front, programmes and strategies have focused on National Blood Transfusion Services (NTBS) blood screening, youth HIV prevention, sexually transmitted infections (STI) control, condom procurement and distribution, national orphan care, community home based care and HIV in the workplace. These have been highly successful and seen the positive progress in Botswana's HIV fight. The other programmes that have been successfully implemented by the Botswana government have been the prevention of mother to child transmission (PMTCT), routine HIV testing and anti-retroviral therapy (ART).

The main goal of the PMTCT programme is to improve child survival and development through the reduction of HIV related morbidity and mortality. Its main achievements for the current reporting period include an increase in the uptake of the programme from 60.3% at the end of 2004 to 89.9% in March 2007. This achievement, together with the increase in the PMTCT testing uptake from 49% in 2002 to 83% in March 2007, has led to the reduction of mother-to-child transmission of HIV from 40% in 2001 to 4% in 2007. The countrywide introduction of the Routine HIV Testing (RHT) using the rapid test kit in January 2004 has particularly ensured rapid increase in the program uptake because more pregnant women are able to test and know their HIV status early, which maximizes programme benefits. This has been in line with the RHT objectives to make more people aware of their status, facilitate supportive counselling, behavioural change, early assessment for ART, early access to home based care and stigma reduction. The ART programme is now available in 32 sites (government referral and primary hospitals, as well as clinics) in the country. According to the Ministry of Health, as of November 30th 2007, 91 780 persons (82.3% of those with advanced HIV infection) were on treatment. This consists of 74 273 patients in the public sector, 7 993 patients out-sourced to the private sector and 9 514 were enrolled directly in the private sector. According to UNGASS this is a very good improvement considering that the percentage of people receiving ART has increased from 7.3% in 2001 to 62.7% in 2005 then to the current percentage of 82.3%.

According to the statistics stated above, it can be seen that major strides have been made by Botswana in its fight against HIV/AIDS, but it has also become very clear that not enough efforts have been put into behaviour change and that a major thrust is needed to scale up prevention towards universal access, both by sustaining and improving upon the achievements and by increased focus on behavior change and addressing the key drivers of the epidemic. Until such a time that behaviour change is effected, the country shall still have to focus a lot of attention and economic resources towards the fight against HIV/AIDS.