EQUAL treatment

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Side effects and adherence

Difficulties with adherence in Africa

Factsheets on common side effects

All you need to know about flu

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Front cover photo: Diana Tsoai's CD4 count was at 11 when she realised that she was frail and sick and started taking medication and since then her state has improved. Photo by Oupa Nkosi/Mail & Guardian.

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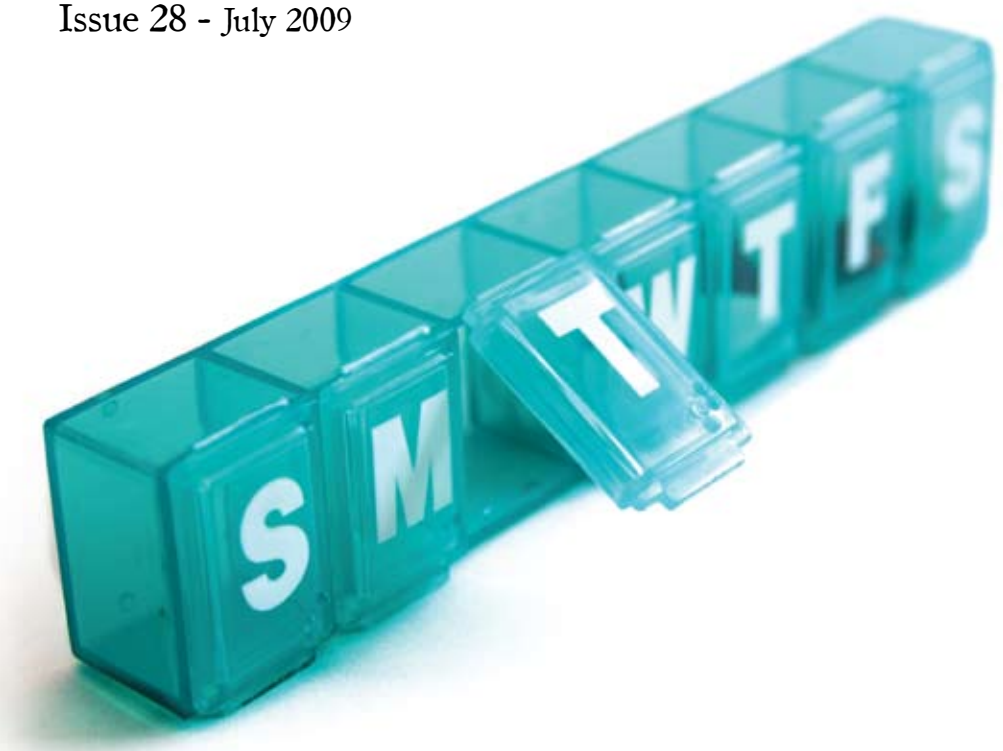

Adherence in Africa
Regularly and correctly taking your medicines is key to your own health and that of your community. In this issue Professor Jean Nachega writes on the various barriers to antiretroviral treatment adherence.

Side effect factsheets
Side effects are a reality for many people taking ARVs, but they are not a reason to stop treatment. We bring you factsheets on diarrhoea, nausea, facial wasting, lactic acidosis, lipodystrophy and neuropathy.

All about flu
Every winter, millions of people get the flu. A few hundred thousand of them will die. We take an in-depth look at all you need to know about flu and particularly how it relates to HIV.

EDITORIAL

In recent months many of our comrades in South Africa and the region have faced antiretroviral (ARV) stock-outs and inadequate medicine supplies, making it difficult for many people living with HIV to get the treatment they need. In light of this, we need to continue to campaign for greater access to medicines, and also remind ourselves why we each need to adhere to our own ARV regimens.

Adherence is how you take your treatment and can be seen as a measure of whether you can take your medication as advised by your healthcare worker. Adherence is important because it is the only way that you are going to know whether or not a certain medicine works for you. If you don't adhere properly and take your ARVs at the same time every day, then you will not know how those medicines are affecting your body. This is important to know so that you can tell your doctor if something is wrong, and be treated early and be treated properly. By adhering, you are taking control of your own body and your own life, and have the power to decide what is best for you.

Adherence is important because it reduces the risk of resistance and will help you stay longer on your current regimen. Second line drugs are expensive and sometimes hard to take. While we must campaign for cheaper second line drugs, we must also make sure that each of us stays on first line drugs for as long as possible. If you develop resistance to first line drugs, then you may get sick more easily and need to go to the doctor more often, and will probably need access to new, more expensive drugs, which may result in more side effects.

Being openly positive about your status can help you to adhere. If you tell your friends, family, and co-workers that you are taking ARVs, then you will not have to take them in private. These people can also help to remind you to take them. Unfortunately, stigma is a major factor that restricts adherence, and we must continue to fight discrimination against people living with HIV.

Adherence is a lifelong commitment that can help you live happily and healthily. Speak to your doctor, friends, and other people living with HIV about methods like cell phone reminders and treatment buddies that will help you to adhere.

Vuyiseka Dubula
TAC General Secretary

Antiretroviral therapy Adherence in africa

WHAT ARE THE MAIN BARRIERS AND HOW DO WE ADDRESS THEM?

Once patients begin antiretrovirals (ARVs), non-adherence to treatment regimens can have important implications for the community. Non-adherence is a powerful predictor of virus replication, disease progression, emergence of drug resistance and death for people with HIV. Indeed, concerns about poor ART adherence and development of widespread drug-resistant HIV have been a major consideration in the effort to expand ART access in Africa.

By Jean B. Nachega, MD, PhD Professor of Medicine and Epidemiology, Stellenbosch University, Tygerberg Campus, Cape Town, South Africa

Good **adherence** is taking your medicines exactly as your doctor says you should. This includes taking your pills at the right time.

Non adherence is not taking your medicines as you should.

Fortunately, studies have shown that high adherence rates are possible in Africa. For example, a meta-analysis conducted by Mills and colleagues examined adherence to antiretrovirals (ARVs) in sub-Saharan Africa (27 studies) and North America (31 studies) and found that 77% of African populations achieved optimal adherence compared to 55% in the North American studies. A study completed in Cape Town found a median adherence rate of 93.5% over a 48 week period, using patient pill returns to measure adherence. Another study in Soweto found 58 patients (88% of those being studied) self-reporting adherence above 95% for the previous month.

While encouraging, these initial ART adherence rates in Africa should not make us complacent. Most of the earlier studies had short-term follow-up. They also used adherence figures self-reported by patients, who tend to overestimate their own adherence levels. Some studies were from highly selected populations involving clinical trials and/or tertiary treatment centers, and had potential reporting bias. In Senegal, notable declines have begun to be reported among people on more long-term therapy . Poor adherence selects for drug-resistant HIV, potentially complicating future ART in settings where resources are limited, so working to maintain high ART adherence in Africa is critical. When monitoring and evaluating ART roll-out programmes in Africa, non-adherence for structural reasons, such as pharmacies being out of stock, should be clearly differentiated from behavioural reasons for non-adherence.

Factors influencing adherence

In the recent studies, factors reported to reduce ART adherence in Africa were cost, not disclosing HIV status to a loved one, fear of being stigmatised, alcohol abuse, and lack of transport to attend clinic for medicine refills. The main reasons given in the Soweto study for missing doses were being away from home (30%), difficulty with the dosing schedules (23%), and running out of pills (12%). A study in Blantyre, Malawi, found that among patients receiving ART, the most common reasons for non-adherence were financial difficulties and a shortage of drugs.

Support from friends, family and co-workers can help patients to remember to take their ARVs and to deal with side effects. Photo by Samantha Reinders.

adherence barrier 1

Revealing HIV status

Good social support (i.e. practical and emotional) has been shown to be an important factor in maintaining ART adherence. However, in order to receive direct social support, people must disclose their HIV-positive status to others. Greater disclosure predicts higher social support. As a result, patients who report greater openness about their HIV status are likely to have higher rates of adherence.

A qualitative study in South Africa found that ensuring ART adherence depends on patients revealing their HIV status. Doing so means they will not hide their tablets from their loved ones. While HIV status disclosure is an important step towards getting social support and improving adherence, it can also lead to stigma and discrimination. In the latter study, some female patients were afraid that family members would spread information about their status when drunk. Some had expected that family members would support them, but in fact they were rejected. The social status of women has an impact on their access to medication and their ability to adhere. More importantly, there is a need to provide patients with skills to maintain adherence in situations where disclosing their status is not safe.

Patients may also need help to make informed choices about selective disclosure. A recent study in the KwaZulu-Natal province of South Africa assessed how participants thought HIV-positive individuals were treated in their communities and families. Participants felt that it was important for individuals to let the community know their status in order to reduce ambiguity about who is positive and who is not. However, questions later arose about who this disclosure benefits, and about the possibility of stigma. A study in Johannesburg found no link between being on ART and disclosure of HIV status. It also found no link between status disclosure and access to support groups or to different levels of counselling.

adherence barrier 2

HIV stigma and fear of stigma

Although studies from Soweto and from KwaZulu-Natal province suggested that people should admit their HIV status, those who had done so often reported fear, as well as the likelihood of missing ART doses or being isolated from their communities. This revealed the importance of stigma and the fear of stigma in getting and adhering to ART.

In the latter study, men were more likely to say that their isolation was imposed by others. Women were more likely to say that their isolation was self-inflicted. Participants said that issues linked to stigma included ignorance of the disease, denial, fear of infection, and the use of frightening language and negative comparisons to describe HIV infection.

adherence barrier 3

Alcohol and substance abuse

Few studies in Africa have examined the effect of alcohol abuse in HIV-positive people. No studies to date have examined the effect of substance abuse on ART adherence. While a few reports found that heroin, cocaine and alcohol users were not more likely to report non-adherence, many other reports in developed and developing countries found that both alcohol and other substance abuse are probably important barriers to ART adherence. For example, in the townships of South Africa, 78% of men and 30% of women being treated for sexually transmitted infections report current alcohol use. Preliminary data from our group show that overall, alcohol dependence as evaluated by the CAGE screening questionnaire occurred in 32% of HIV-infected adults on ART. Males were much more likely than women to have a lifetime history of alcohol abuse. A history of alcohol abuse was linked to increased odds of poor adherence (less than 95%).

adherence barrier 4

Lack of money for food and/or transport to clinic

Unemployment and a lack of food affect ART adherence in Africa. A study conducted in South Africa examining the role of treatment supporters found that patients interviewed mentioned lack of food, transport and money as barriers to medication adherence. These patients often relied on financial support from family members as well as government grant money.

In Uganda, Tanzania, and Botswana, patients reported transport costs, user fees, and lost wages from clinic appointments as barriers to adherence. They also reported increased hunger during their initial treatment phase. Lack of money for transport can cause treatment interruptions that contribute to the development of drug resistance.

Possible interventions

There is not enough data on the impact of alcohol abuse and substance abuse on ART adherence in sub-Saharan Africa. The available data, however, suggest that alcohol use is emerging as a major risk factor for poor adherence, especially in males. Furthermore, there are few or no reports of plans to address this problem.

As a result, future investigations should evaluate the impact of alcohol and substance abuse on ART adherence and ultimately on virologic outcomes, drug resistance and disease progression. Targeted interventions seem to benefit from community support groups or a community-nominated peer supporters to address the other causes linked to adherence, such as alcohol or substance abuse. It is interesting that the results of recent randomised clinical trials in Africa do not seem to support the effectiveness of intensive adherence interventions such as directly observed ART.

There is a complex relationship between HIV status disclosure and stigma. Patients can experience both negative and positive outcomes when revealing their status to their families and communities. Studies of counselling and group support sessions, which always lead to a certain degree of disclosure, have found positive results.

Other possible ways to reduce HIV-related stigma still need evaluation. These might be, for example, community mobilisation and education through mass media campaigns, sports activities, opinion leaders including traditional chiefs, churches, etc.

Steady and reliable access to ART is critical, so we need to evaluate the impact of transport assistance to clinics. Help with transport is likely to improve economic productivity at community level.

Conclusion

While adherence to ART in Africa may not be as poor as predicted earlier, there are emerging structural and social barriers. Alcohol abuse, HIV status non-disclosure and stigma, as well as treatment interruptions due to transport costs and drug stock shortages are being identified as important challenges to ART adherence and to efforts to reduce the burden of HIV in sub-Saharan Africa.

There is a need to do both qualitative and quantitative research on these issues. We also need to assess targeted and culturally-sensitive interventions that may help maintain excellent ART adherence rates in Africa, and therefore good clinical and public health outcomes.

The freeze on ARV roll-out in the Free State impacted patients' ability to access treatment. ARV stock-outs should be clearly differentiated from behavioural reasons for non-adherence. Photo by Anso Thom/Health-E News Service.

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Adherence diary

Write the name of the drug and the time you need to take it in the top boxes. Use a different box for each drug. Then tick off the dose and write the time that you actually took the dose in the sections underneath. Use a photocopy or draw a new version yourself to use for the second and third week or if you need a larger table. This diary will help you to remember to take your drugs at the right time each day and you can then tell your doctor how well you are adhering.

	Drug names and times Morning			**Drug names and times Afternoon**		
Time when you should take your medicine						
Monday						
Tuesday						
Wednesday						
Thursday						
Friday						
Saturday						
Sunday						

From the i-Base Guide to Combination Therapy, available free in bulk for use in clinics. i-Base is a registered charity no 1081905

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Obstacles to Adherence

By Sofia Tosolari

Amelia Mfiki talks about why it can be difficult to adhere to ARV regimens. Photo by Klaas Karabo Adilan Monatisi.

We know that it is important to take your medicines as prescribed by the doctor or health worker, but this is not always easy.

According to Amelia Mfiki from the *Ubuntu* Clinic in Khayelitsha, one of the most obvious problems for adherence is the high rate of unemployment in the community.

It creates huge difficulty for patients who need to catch a taxi to the clinic in order to collect their medicines. "There is a 30-40% rate of unemployment [here]", says Amelia. "If people cannot afford to take a taxi, they are made to walk, which becomes extremely dangerous". Another direct consequence of the lack of money is that patients are often unable to afford a proper meal to supplement their medicines. Families often go to sleep having shared only a single loaf of bread.

What about those who *are* employed? Here, the stigma attached to being HIV-positive can affect adherence. Says Amelia, "Employees often keep their status an undisclosed affair". The result: bosses frequently don't give patients leave to get their medicines, simply because they are unaware of the reasons behind a patient's need for time off work.

In schools, adherence problems are also often linked to stigma. "Learners are afraid of peers finding out, especially boyfriends or girlfriends. For young people, it's a difficult thing to accept", says Amelia.

Amelia says that many people refuse to tell even their sexual partners because of fear of stigma. In an attempt to hide their HIV-positive status, patients refuse to take their antiretrovirals (ARVs) in front of their partner, often waiting until they are out of the house. Some may even go so far as to give the medicines to their neighbours for safekeeping. This becomes a problem when the neighbours are unavailable to hand out the medicines.

The stigma is linked to the epidemic still being a taboo subject, even among political leaders. "They don't accommodate for people living with HIV", says Amelia. "We don't see the leadership of any political parties initiating discussion around the area, and when they come to speak to the people, they don't even address the issue!"

One of the simplest problems for adherence lies in the fact that patients simply forget to take their meds. Either that, or they cannot get themselves to the clinics in the first place. "One lady from the RR section was diagnosed with TB and HIV. She came to the clinic once and then became really ill and couldn't walk. She had a problem with her feet. On a house-to-house visit, we eventually arrived at her place, and found her completely bed-ridden. We then took her to the clinic, but she was already delirious. She couldn't even give us her own name."

In this particular case, further problems were created by the fact that the patient was an alcoholic, and wasn't in possession of an ID book, which she would need to get a grant. Says Amelia, "And that's the other problem, patients need to be able to apply for a grant. Without a grant, there's no money. No money… and no food to supplement the meds."

Aside from logistics and the problem of social stigma, there are also side effects to contend with. "In the past, we've had a problem with lactic acidosis and lipodystrophy. To counter this, stavudine (d4T) has in some cases been substituted with Tenofovir. We discuss side effects at the clinics, as well as how clients can manage the effects themselves," says Amelia.

Living with HIV

Sofia Tosolari spoke to Norute Nobolal *and* Noxolo Bunu *about living with HIV and the need for good adherence.*

Norute's story

Norute is 46 years old. She tested positive for HIV in 1999 after being diagnosed with TB in 1991. She started on antiretrovirals (ARVs) in 2002 and has not yet experienced serious side effects, although she suffers from asthma from time to time. She continues to take first line ARVs and has not needed to switch to a second line regimen.

When Norute first got sick she went to a traditional healer. When she didn't get well after taking traditional medicine, she went to the clinic. She hasn't returned to traditional medicine since visiting the clinic.

She emphasises the importance of speaking to her doctor and counsellor. "I like getting new information on ARVs and HIV," she says. She also finds TAC's Treatment Literacy Programme useful because it allows her to find out more about HIV and opportunistic infections such as thrush and pneumonia.

Norute Nobolal makes sure she stays informed about HIV and ARVs, and is a member of a support club. Photo by Sofia Tosolari.

"I have hope in the new drugs," says Norute. "I also want to learn more about HIV, and of how not to get full-blown AIDS. I want to be able to share this information with other people." Norute is a member of a support club, which allows her to help other people living with HIV and to receive support herself. Those in the club help each other to lead healthy lives, for example by giving support to stop smoking, and drink less alcohol.

"I feel strong," Norute said. "I hope to make it another ten years."

Noxolo's story

After a sudden illness and a visit to the doctor, Noxolo (now aged 35) went for a voluntary HIV test and was diagnosed in 2003. "From there, I went onto ARVs... on the 10th of August 2004," she says.

Noxolo experienced a surge in her lactic acid levels (see the lactic acidosis article on page 18). This improved once her ARV regimen was changed. "My CD4 count is now sitting at 900," she says.

"Consult the clinic early, as soon as you experience any problems," she advises to anyone experiencing side effects.

To help herself to live positively and continue taking her ARVs, Noxolo gets advice and support from colleagues, friends and people in her support club. In this way she makes sure that she doesn't forget to take her medication.

"I feel well," she says, smiling broadly.

Noxolo Bunu experienced fewer side effects when she switched ARVs. Photo by Sofia Tosolari.

Alcohol and HIV

By Poppy Riddle

Should you stop drinking alcohol when you test HIV-positive?

There is no evidence that *moderate drinking* harms people with HIV. For most HIV-positive people, enjoying a beer or a glass of wine a few times a week should not cause health problems. So if you test positive for HIV, you do not have to cut out alcohol from your diet altogether.

However, there is an exception to this: if an HIV-positive person has hepatitis or high levels of blood fats, he or she may have to stop drinking alcohol, or keep alcohol consumption to an absolute minimum.

Heavy drinking not advised

Heavy drinking is not advised for people who have HIV as it can cause a number of serious problems:

- Heavy alcohol use affects the immune system and may slow down recovery from HIV-related infections.
- A study has shown that HIV-positive people who are heavy drinkers are four times more likely to have a high amount of HIV in their bodies than HIV-positive people who are moderate drinkers.
- Heavy drinking may cause antiretroviral medicines (ARVs) to work less effectively. This is because both alcohol and medicines are processed by the liver. Drinking too much alcohol makes the liver less healthy and therefore less able to process ARVs. Effective use of ARVs is important if a person with HIV is to stay healthy.
- Some ARVs cause an increase in blood fats, and this can be made worse by heavy drinking. An increase in blood fat levels raises the risk of heart attack and pancreatitis (a condition that can be fatal and involves the inflammation of the pancreas, an organ which produces essential hormones).
- People whose livers have been damaged by drinking too much alcohol, especially those who have hepatitis, are more likely to experience ARV side effects such as diabetes.
- Alcohol can react badly with certain medicines (e.g. rifampicin, rifabutin, metronidazole) so it is always good to ask a pharmacist or health worker if it is safe to drink alcohol with any new medicines that are prescribed.
- Heavy drinking can cause vomiting. If an HIV-positive person vomits within an hour of taking anti-HIV drugs, or any other medicine, then he or she should retake the dose.
- Alcohol use may stop an HIV-positive person from taking their ARVs. A study in Uganda showed that for 6% of people, heavy drinking was the main reason for non-adherence to ARV treatment. Adherence is vital if an HIV-positive person is to stay in good health.

Sources: This factsheet is based on an original copyright publication by NAM, an independent HIV information charity based in the UK. Permission for this translation has been granted by NAM. The original publication can be viewed at www.aidsmap.com. NAM cannot be held responsible for the accuracy nor the local relevance of the text. • Reviewed by Dr Francois Venter of the Southern African HIV Clinicians Society.

Side Effects

Side effects can make it hard for some people to keep taking their medicines. This is not just an issue for people living with HIV, but also for people with cancer, diabetes and many other diseases. It is important to remember though, that when the doctor prescribes a treatment, he or she does so knowing that the benefit of the treatment is greater than the side effects it may cause.

We know that antiretroviral (ARV) drugs keep people healthy and save lives. We also know that they sometimes cause side effects. As scientists develop new drugs, they will hopefully find better ones with fewer side effects. In fact, some drugs with fewer side effects are already available; they are just not yet widely used in the public health system, and we must continue to campaign for greater access. TAC's future campaigns on access to essential medicines will tackle this problem.

Getting real about side effects

On the following pages we will look at some of the most common side effects associated with HIV and ARVs. It is important to remember that most of these side effects are quite rare. The fact that you are taking ARVs does not mean you will necessarily experience any of them.

And, even if you do start experiencing serious side effects, your regimen can be changed so that you no longer have to take the pill that causes the side effect. The important thing is not to stop taking your medicines when you experience side effects, but to go to the clinic and to get advice from a health worker. There is no reason to suffer unnecessarily. Side effects can be managed.

Because of access to ART, healthcare and good nutrition, Lusikisiki patient Avelile is now strong and healthy. Photo by Nick Fletcher, courtesy SING.

The health benefits outweigh the side effects of ARVs. Side effects can be managed!

Diarrhoea

Diarrhoea is common amongst people living with HIV. Some ARVs may cause diarrhoea, as may medicines used to treat other infections. In people with a low CD4 count, diarrhoea may be directly caused by opportunistic infections.

Diarrhoea can take the form of a semi-loose to completely liquid stool, and may result in having to go to the toilet more frequently and urgently. It is often accompanied by stomach pains, bloating, nausea, vomiting, fever, feelings of weakness and loss of appetite.

Diarrhoea as a drug-related side effect

Diarrhoea has been reported as a widespread side effect of all the protease inhibitors, as well as **didanosine (ddI)** and to a lesser extent **zidovudine (AZT)** and **abacavir** in the NRTI class. It is occasionally reported with **efavirenz**.

Diarrhoea typically goes away after the first few weeks or months of treatment. For some people, however, it becomes a permanent feature of living with their ARV treatment regimen.

The severity of diarrhoea also varies. Severe diarrhoea – involving multiple toilet trips every day, large, uncontrollable liquid bowel movements, and feelings of weakness and dizziness due to the loss of fluids and salts – is experienced by about one in twenty people on **lopinavir/ritonavir** (branded as Kaletra).

Many other people with HIV taking protease inhibitors experience less serious problems. After a few weeks or months on their pills, the diarrhoea improves and becomes more manageable. General changes in diet alone have a small effect on diarrhoea related to protease inhibitors and other drugs.

However, in South Africa high fibre is sometimes used for the treatment of diarrhoea. A high-fibre diet and some bulk medication can be effective against protease inhibitor-related diarrhoea. They work by absorbing fluid, making stools larger and slowing the movement of stools through the intestines. **Loperamide**, a drug which acts by slowing down the movement of the bowel, is available in the South African public health system. It can help to reduce the feeling of urgency that often accompanies diarrhoea.

What are the causes?

Diarrhoea is very common amongst people with HIV, particularly those with a low CD4 count. Often no specific cause can be found.

In people with advanced HIV disease, infections such as cryptosporidium, clostridium difficile, microsporidium, CMV (cytomegalovirus), MAI (mycobacterium avium intracellulare), giardia, salmonella and shigella can cause very serious diarrhoea.

What can I do if I have diarrhoea?

Usually diarrhoea will settle down after a few days. If it persists it is important to see your doctor.

As diarrhoea may cause you to lose large amounts of salts and water from the body, it is important to drink plenty of fluids or special rehydration drinks. Eating foods like bananas, potatoes, chicken and fish will help you to replace potassium, a mineral which is typically depleted by severe diarrhoea. Soluble fibre from natural sources like pulses, oats, bananas, apples and pears is also effective against diarrhoea.

Diarrhoea can also cause soreness around the anus. Over-the-counter remedies for piles may prove soothing.

Recipe No 2

Recipe for a great rehydration drink

Diarrhoea can cause you to dehydrate. Here is an easy recipe to make a drink that will help you replace lost water, salts and minerals.

Ingredients:

1 level teaspoon of salt

8 level teaspoons of sugar

1 litre of clean drinking water (boil & cool the water if it is not clean)

Preparation method:

Stir the mixture until the salt and sugar dissolve.

For children give the following amount after each diarrhoeal episode:

- Children under 2 years: ¼ to ½ of a large cup (slowly and with a teaspoon).
- Older children: ½ to 1 large cup.

Adults and large children: try to drink about 3 litres a day. You should discuss exact dosages with your doctor.

Source: Rehydration project. http://rehydrate.org/

Drink lots of fluids and eat foods like bananas, potatoes, chicken and fish which are high in potassium.

Nausea

Nausea is the feeling of wanting to vomit or be sick. It is a common symptom that most people with HIV experience at some time.

Nausea and vomiting have many different causes. These include common stomach problems such as diarrhoea, acute infections, pregnancy, travel sickness or emotional problems such as anxiety. They are also common side effects of ARVs used to treat HIV.

Nausea as a drug side effect

Many ARVs are linked to nausea. It is most often reported as a side effect of **zidovudine (AZT), stavudine (d4T)** and especially **didanosine** from the NRTI class. Protease inhibitors also commonly cause nausea. Some of the drugs used to treat infections often found in people with HIV also cause nausea. These include **ganciclovir**, **co-trimoxazole** and **clarithromycin**.

If you have nausea that is accompanied by other symptoms, the underlying cause needs to be investigated and treated. If the nausea is due to drug side effects, your ARV dosage may need to be reduced or your regimen changed. Do not alter the dose of your treatments without discussing it with your doctor first.

Some drugs, such as AZT, can be taken with food in order to limit nausea.

Is there any medication I can take?

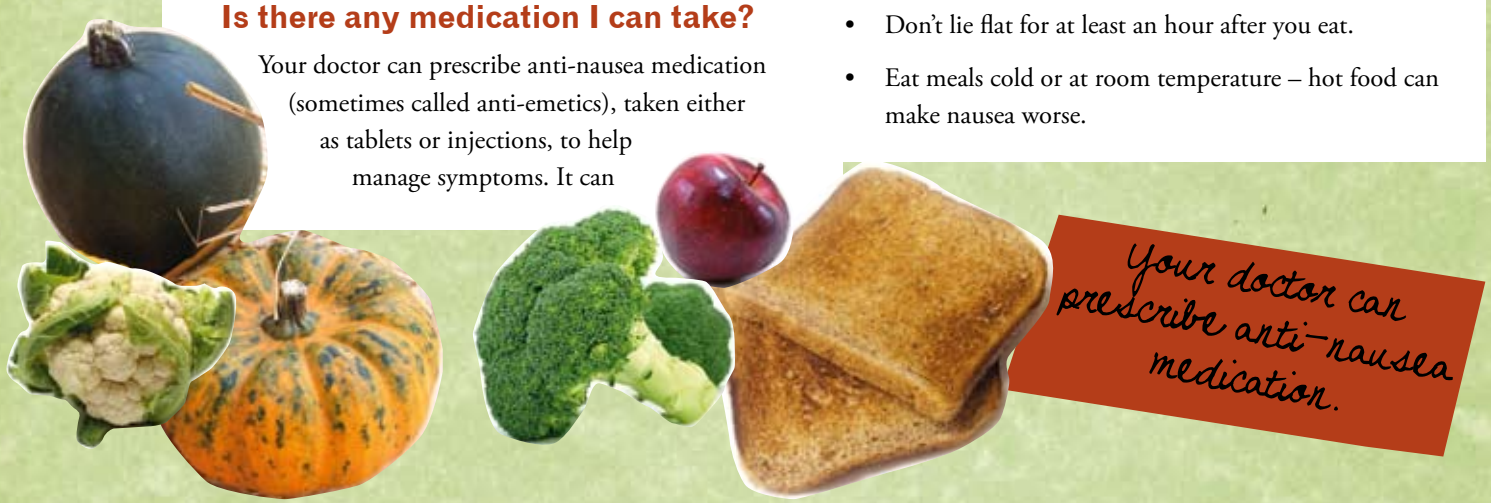
Your doctor can prescribe anti-nausea medication (sometimes called anti-emetics), taken either as tablets or injections, to help manage symptoms. It can be particularly important when starting ARVs, which are associated with a high risk of nausea and vomiting during the first few weeks. Taking anti-nausea medication can help you to adjust to your new regimen, and make this initial period easier.

Is there anything else I can do to reduce nausea?

For some people, especially those who have a strong tendency to gag, having to swallow large tablets or large numbers of tablets can itself bring on feelings of nausea.

Whatever the cause, do not feel obliged to "grin and bear it" – nausea and vomiting can prevent you from getting enough food and nutrients and from sticking to your treatment regimen. As well as asking your doctor about anti-emetic medication, the following practical tips may be helpful. You can discuss these with a health worker:

- Eat small, frequent meals throughout the day rather than two or three large meals. This helps to keep your blood sugar levels fairly constant, making you less likely to feel sick.
- Avoid eating greasy, fatty, fried or spicy food. Instead choose bland tasting food.
- Try eating dry food such as toast, crackers, cereal, and fruit and vegetables that are bland or soft.
- Don't lie flat for at least an hour after you eat.
- Eat meals cold or at room temperature – hot food can make nausea worse.



Your doctor can prescribe anti-nausea medication.

Facial wasting

Facial wasting (fat loss from the face) is one of the symptoms of lipodystrophy, the term used to describe a syndrome seen in people taking ARVs that involves fat accumulation and/or fat loss in various parts of the body. Wasting of fat from the face some times occurs with other changes in body shape and with an increase in the amount of fat in the blood. It can, however, be the only aspect of lipodystrophy which a person experiences.

What causes it?

Loss of fat in the face, arms, legs and buttocks is a familiar problem when taking ARVs. Fat loss is caused by nucleoside analogue medicines particularly **stavudine (d4T)**, and to a lesser extent, **zidovudine (AZT)**. Facial wasting can also be a side effect of protease inhibitors. In one study, lipodystrophic body changes resulted in nine percent of patients stopping d4T within three years on antiretroviral treatment (ART).

Other factors have been suggested as possible causes of fat wasting from the face. These include severe immune system damage before starting ARV treatment, low body weight, being male, or being over 50 years of age. In one study, those at highest risk were women weighing more than 75kg who had been on therapy for more than six months.

What are the characteristics of facial wasting?

In some people, facial wasting can occur rapidly after starting ARV therapy, often within three months. Fat wastes away from the fat pad in the cheek, below the cheekbone and beside the nose. This can make a person look very hollow-cheeked, gaunt, or ill. Fat is also often lost from the small fat deposits in the temples.

What does it mean for my health?

Facial wasting itself is not dangerous. If it is accompanied by increases in blood fat, these can increase the risk of problems such as heart disease, stroke and pancreatitis (inflammation of the pancreas, an organ which produces vital hormones).

Facial wasting can have a very serious impact on emotional and mental health. Many people with facial wasting feel stigmatised. They feel that their body fat changes reveal that they are HIV-positive, and they lose self-confidence.

It has also been suggested that some people do not take their ARV treatments properly either in the hope that their facial wasting will recede, or to stop it developing in the first place.

How can I avoid facial wasting?

Ways to prevent fat loss from the face are not well understood. Starting ARV treatment before your CD4 cell count drops too low may reduce your likelihood of experiencing facial wasting. Two drugs have been particularly associated with fat loss: stavudine (d4T), and to a lesser extent, AZT. Your genes may play a role, too, meaning that you are naturally more or less likely to experience body shape changes.

Can facial wasting be reversed?

Facial wasting rarely reverses after switching drugs. One study has, however, found that people who switched from d4T to tenofovir experienced very slow fat gain over three years.

Lipodystrophy

Lipodystrophy is the name for changes in body shape first reported in 1997 among people taking ARVs. The cause was thought to be protease inhibitors, but we now know that any combination ARV regimen can cause lipodystrophy.

What does it look like?

Lipodystrophy includes both fat gain and fat loss. It may result in increased waist size (without rolls of fat), increased breast size, fat gain around the back of the neck and upper back, fat gain around the neck and jaw, facial wasting (especially of the cheeks), buttock wasting, and prominent veins in the arms and legs due to fat loss.

The abdominal fat gained in lipodystrophy is made up of visceral fat. This builds up around the internal organs, causing the belly to feel taut and pushed out. It is different to the squeezable fat people gain when they put on weight through over-eating or lack of exercise.

How common is lipodystrophy?

Lipodystrophy becomes more common the longer people take ART. One study found that lipodystrophic body changes resulted in nine percent of patients stopping **stavudine (d4T)** within three years on ART. Switching from d4T or AZT to Tenofovir helps fat loss, although it is a very slow recovery. No switch strategy has been shown to reduce fat gain.

Tenovovir has fewer side effects

Metabolic disorders and lipodystrophy

The term metabolism refers to the many processes which maintain the body. These include converting fats and sugars into energy. People with lipodystrophy often have metabolic disorders, such as raised fat levels in their blood. However, the link between body fat changes and metabolic disorders is unclear. Some of these disorders include: high levels of blood fats called triglycerides or cholesterol; high blood sugar; diabetes (an inability to use sugar); insulin resistance (an inability to respond to insulin, which is needed for processing sugar); and raised liver enzymes.

What causes lipodystrophy?

As previously noted, d4T and AZT are associated with fat loss, while all ART regimens are linked to fat gain.

Many factors have been linked to body fat changes. These include how long a person has been HIV-positive, how much damage their immune system suffered before they began taking ARVs, the type and length of their treatment, gender, age, family history, diet, and their body mass and body fat before treatment. However, none of these have been directly proven to cause lipodystrophy.

What does this mean for me if I have lipodystrophy?

Body fat changes alone do not necessarily mean poor health in the future. But they may be stigmatising. Research has shown that they can be a source of stress for people on ART.

High levels of blood fats are associated with heart disease, stroke and pancreatitis (inflammation of the pancreas). There is concern that the metabolic disorders linked to combination therapy may raise the risk of heart disease.

But it is important to note that HIV itself increases the risk of heart disease. This is a greater risk than any connected with HIV treatment.

The risk is probably highest in people with other factors like high blood pressure, diabetes, obesity, smoking, or a family history of heart disease.

Don't forget - the chances of heart disease can be lowered with exercise, diet and by stopping smoking.

What are the treatment options?

D4T is associated with more serious side effects, including lipodystrophy, than any other ARV. New treatment guidelines for the public health system need to be published which replace d4T with Tenofovir wherever possible.

You can help to control fat gain and reduce your risk of heart disease with a change in lifestyle. Regular exercise four or five times a week is recommended, plus a healthy diet that includes plenty of fresh fruit and vegetables. Stopping smoking also helps.

High blood fats may be treated with drugs such as statins (but beware of drug interactions). Anti-diabetes drugs can control insulin resistance. Statins can interact with some ARVs, so the health care worker will advise on the best options.

Looking out for body fat changes

Once you start HIV treatment you'll have regular blood tests to monitor fat and sugar levels in your blood.

Be aware of changes in your appearance, or of your clothes becoming too tight or too big. Remember, though, that body fat changes due to ARVs aren't like normal weight loss or weight gain. Don't assume that changes are automatically caused by your treatment. It's a good idea to tell your doctor about them so that you can discuss the possible causes.

Lactic acidosis

Lactic acidosis is a condition in which high levels of a substance called lactate build up in the blood. Lactate is a by-product of sugar processing within the body.

Lactic acidosis is a serious side effect of the nucleoside reverse transcriptase inhibitor (NRTI) class of ARVs. This class includes **zidovudine (AZT)**, **lamivudine (3TC)**, **stavudine (d4T)**, **didadosine (ddI)**, **abacavir**, and **emtricitabine** (FTC). The drugs most linked with lactic acidosis are d4T and didadosine, which should never be used together.

Lactic acidosis is rare, but elevated lactate levels without acidosis are common. Nevertheless, it is an important subject to understand and be aware of because people who develop the condition can become dangerously ill. It is critically important to go to the clinic as soon as you experience any symptoms.

What causes lactic acidosis?

Lactic acidosis is one of several conditions thought to be caused by damage to mitochondria. Mitochondria are found in all human cells and are involved in producing energy. Other side effects of NRTIs which may also be linked to damage to mitochondria include peripheral neuropathy (numbness or pain in the feet and hands); bone marrow suppression; pancreatitis (inflammation of the pancreas); hepatic steatosis (accumulation of fat in the liver); and myopathy (muscle damage).

As well as attacking HIV, nucleoside analogue drugs disrupt an enzyme (polymerase gamma). Mitochondria need this enzyme to reproduce. Without it, the number of functioning mitochondria falls. Long-term use of nucleoside analogues therefore increases some people's risk of getting lactic acidosis. Obesity is another risk factor and women are at greater risk than men.

Lactic acidosis may occur at any time during HIV treatment. It tends to develop after several months of treatment, typically between 6 and 18 months on therapy. It is rare – but elevated lactate with symptoms occurs more often.

What are the signs and symptoms?

Initial signs and symptoms of lactic acidosis include general stomach symptoms such as nausea (feeling sick), vomiting, bloating, abdominal pain and lack of appetite, as well as malaise (feeling generally unwell), and difficulty breathing. Of course, these symptoms can also occur for many other reasons. In people who have lactic acidosis, the liver may be swollen and tender (called hepatomegaly). Liver enzymes, which are measured by a liver function test, may be abnormally high. Other signs which may be found in laboratory tests include low bicarbonate levels, raised lactate levels, and poor kidney function.

How do I monitor the condition?

You will be monitored at your HIV clinic to see if you have a risk of lactic acidosis. All ART clinics in South Africa have been supplied with hand-held devices to measure lactate on site. If tests are not being conducted, TAC's treatment literacy practitioners (TLP) must be informed. They are stationed at clinics. If no TLPs are available at your clinic, contact your closest TAC branch.

What are the treatments for lactic acidosis?

The best treatment for raised lactate levels is uncertain. In severe cases all the NRTIs are stopped until lactate levels recover. This may take weeks, or even months. After that, patients may try safer NRTIs, e.g. tenofovir plus either lamivudine or FTC emtricitabine.

Neuropathy

Neuropathy means damage to nerves. Nerves transmit signals in the brain and spinal cord (the central nervous system, or CNS), extending from the CNS to the muscles, skin and organs. Nerves outside the CNS are called the peripheral nervous system (PNS). They detect sensations, such as pain, and control movement.

Some of the peripheral nerves control body functions over which we have no conscious control, such as blood flow to the organs or the movement of food through the intestines. This is called the autonomic nervous system (ANS).

How do I know if I have neuropathy?

Peripheral neuropathy usually involves damage to the nerves in the feet or, less often, the hands. The symptoms can range from mild tingling and numbness to pain so bad that it is impossible even to wear a pair of socks. Usually both sides of the body are affected equally.

Occasionally the ANS can be affected. This causes symptoms like dizziness, diarrhoea and male sexual dysfunction (inability to obtain or sustain an erection).

What are the causes and how is it treated?

There are different causes of nerve damage among people with HIV. The most common ones are HIV itself and some ARVs.

Some causes are not linked to HIV. For example, anyone who consumes large amounts of alcohol or certain recreational drugs can develop neuropathy. The best treatment is to stop or reduce your intake of these substances. Neuropathy due to alcohol needs specific treatment from a doctor.

Neuropathy can also be caused by a lack of vitamin B12, but this is rare in South Africa.

Some infections can cause neuropathy directly, such as cytomegalovirus (CMV) or HIV itself. These cases are best treated by tackling the underlying cause, using anti-CMV drugs or ARVs.

Drug-related neuropathy

Among people with HIV, neuropathy is commonly caused by certain medicines. It is an important side effect with several ARVs – in particular, didadosine (ddI), and stavudine (d4T). In one study, the few drug switches that were due to peripheral neuropathy happened soon after starting ART. Only six percent of patients changed their regimen for this reason within two years. The rate of drug switches due to peripheral neuropathy increases slightly after six months on therapy.

It can also be caused by other drugs prescribed for people with HIV, such as the antibiotic dapsone, the anti-TB drug isoniazid, and the anti-Kaposi's Sarcoma drugs, vinblastine and vincristine.

If you take more than one of these drugs, your risk of neuropathy may increase. If you have previously had neuropathy caused by something else, such as HIV itself, you may also be more likely to develop neuropathy from taking one or more of these drugs.

Your doctor can prescribe treatments to reduce the pain. In severe cases you may need strong painkillers. Neuropathy is generally not reversible and there are no effective treatments. At the first sign of neuropathy drugs should be switched, if possible.

Sources: These side effect factsheets are based on an original copyright publication by NAM, an independent HIV information charity based in the UK. Permission for this translation has been granted by NAM. The original publication can be viewed at www.aidsmap.com. NAM cannot be held responsible for the accuracy nor for the local relevance of the text.

The factsheets were localised for the South African context by Marcus Low and Pouya Gharavi and reviewed by Professor Gary Maartens of the Division of Clinical Pharmacology at the University of Cape Town.

A drug with fewer side effects

Tenofovir: Treating HIV with one pill a day - and reduced side effects

By Catherine Tomlinson

Tenofovir should replace stavudine (d4T) in first-line HIV treatment regimens, because it has fewer negative side effects, is easier to adhere to, and has a much lower chance than d4T of meeting viral resistance. The Department of Health's guidelines, last updated in 2004, should now be revised to include tenofovir for HIV treatment.

Over 90% of HIV-positive South Africans are on antiretroviral (ARV) regimens that include d4T. In a study done in Khayelitsha, most of the treatment changes made were due to the serious side effects of d4T. These side effects were also one of the main reasons for patients interrupting treatment. d4T has been linked to lipoatrophy (localised fat loss) and lactic acidosis (a condition in which lactic acid builds up in the blood faster than it can be removed). Tenofovir is easier for people to adhere to than d4T because it has fewer negative side effects and a lower pill burden - just one pill a day can be taken with or without a meal. A combination therapy including tenofovir can require as little as two pills a day.

Tenofovir is not under patent in South Africa, where it is currently produced by generic pharmaceutical companies. Aspen Pharmacare makes tenofovir under a voluntary license from the pharmaceutical company, Gilead. Another drugs company, Cipla, is in the process of registering a generic version of tenofovir with the Medicines Control Council (MCC).

Government has resisted providing tenofovir in the public sector because it is about ten times more expensive than d4T. Tenofovir is available in the private sector for R397.71 per month. In April 2009 the Clinton Foundation and UNITAID made a deal with pharmaceutical companies to make tenofovir available for R145.80 per month. The drug's health benefits for HIV-positive people mean that it is essential that government includes tenofovir in its ARV tender. It must also ensure that South Africans get the lower prices that are now available.

Sources: Clayden, P. "Regimen durability and toxicity in 36 month follow-up on ART in Khayelitsha, South Africa" (2006), available at http://www.i-base.info/htb/v7/htb7-5/Regimen.html (Site accessed 26 May 2009) • Tenofovir prices calculated at prevailing exchange rates on 26 May 2009, and subject to change.

Overcoming side effects

Equal Treatment *writer Adam Malapa spoke to Doreen Ramaselela about struggling with side effects.*

Thobela. My name is Doreen Ramaselela and I live at Kgapane, Mopani District in Limpopo Province. I am HIV-Positive and I am taking antiretrovirals (ARVs). I collect my ARVs at Kgapane Hospital, which is just a walking distance from my home. I started taking treatment in 2004 and experienced minor side effects such as vomiting and dizziness. Sometimes I thought of stopping treatment because of these side effects, but I thought of a family member who had died because of defaulting from treatment.

In 2007, I started to experience a major side effect. I developed a big tummy while my buttocks became flat. At first I didn't understand what was happening because I didn't get any proper education about these ARV drugs. When I attended treatment education sessions, I learned that it is a condition called lipodystrophy (redistribution of body fats). This condition took my confidence away as I feel out of shape, and sometimes people say that I look like a man. I think health workers must speak more about side effects in their adherence education. I also think that it is important to have a treatment supporter who will encourage you to take your treatment, in case you feel like giving up.

The condition is getting better now as I was switched from stavudine (d4T) to AZT, I also exercise every day so that I can get back to my normal shape. I am now taking AZT, nevirapine and lamivudine (3TC) as opposed to 3TC, d4T and Efavirenz.

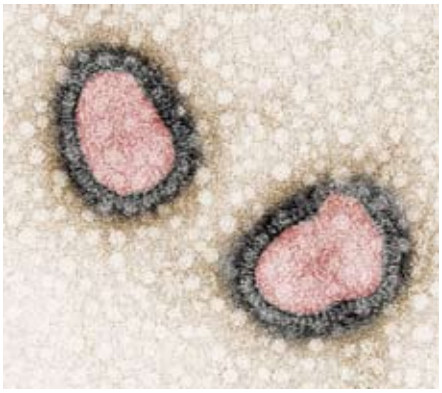
I would like to encourage other people who are experiencing major side effects to ask their doctors to switch them as soon as possible to other, better drugs. Don't be like me: I stayed for a long time on drugs which caused a serious side effect. This gave me a hard time because I was always thinking about it.

Doreen Ramaselela has experienced lipodystrophy as an ARV side effect. She has now switched ARVs and exercises daily to regain her shape. Photo by Adam Malapa.

Understanding FLU

World Health Organisation (WHO) researchers describe how serious influenza (or flu) is and yet how strangely unconcerned we are about it:

> *Influenza has long been the neglected child in the infectious disease family. Every winter, tens of millions of people get the flu. Most are home, sick and miserable, for about a week. Some—mostly the elderly—die. We know the worldwide death toll exceeds a few hundred thousand people a year, but even in developed countries the numbers are uncertain, because medical authorities don't usually verify who actually died of influenza and who died of a 'flu-like illness.' People think of the flu as a minor nuisance.*
>
> *The annual flu is a perfect [example] ... of a risk that ... kills people but doesn't much upset them. It is familiar rather than exotic, and anything but memorable.*
>
> *[There] aren't very many flu controversies in a typical year—no battles over control or fairness, no issues of morality or trust or responsiveness. It is very, very difficult to get people really worried about influenza.*



Pseudo-colored electron microscope image of H1N1 influenza. Copyright: Dr Paul Digard, University of Cambridge.

It is not the aim of this fact sheet to make you panic about flu. But it will explain why we should be concerned about it. Nearly all of us have gotten sick with flu a few times in our lives and then gotten better. Yet flu kills a lot of people, and over the last decade flu deaths in South Africa have risen because of HIV.

Flu pandemics

An epidemic is an infectious disease in a region. A pandemic is bigger than an epidemic. It is an infectious disease, usually deadly, that spreads across a wide region of the world.

In 1918 influenza probably killed between 20 and 40 million people. It became known as the Spanish Flu and it was the worst pandemic in history. AIDS may have killed as many or more people, but it has done so over a much longer period of time.

There have been three flu pandemics in the last 100 years. Pandemics can occur when a new flu strain develops, one that the human immune system cannot cope with. These usually originate in birds or pigs, and then change into a form that can be transmitted easily between humans. Sometimes scientists expect a certain strain of flu to become a pandemic, but then it does not. This happened in 1976 in the United States.

Years	*Deaths*	*Influenza A sub-type involved*
1918-20	Unknown, but probably 20 to 40 million	H1N1
1957-58	Unknown, but probably more than a million	H2N2
1968-69	Unknown, but probably less than one million	H3N2

Statistics about Flu

- Worldwide, three to five million people become severely ill from flu every year.
- About 250,000 to 500,000 people die from flu every year across the world.
- Fewer than 1 in 1,000 people who are infected with flu die from it during normal times.
- In the 1918 flu pandemic, about 25 in every 1,000 people who were infected died. This is still only 2.5%. Yet because so many people were infected, a very large number died, probably more than were killed in World War 1.
- In the United States every year, on average 5% to 20% of the population gets flu. More than 200,000 people are hospitalised and about 36,000 people die from flu.
- In wealthy countries, most people who die from flu are over the age of 65.
- In South African records, flu and pneumonia deaths are grouped together. This is unfortunate because it is difficult to know how many deaths flu is responsible for. Also, flu often causes pneumonia.
- The number of deaths in which doctors record flu and pneumonia as the underlying cause has risen from 11,500 in 1997, 4th place, to 53,000 in 2006, 2nd place after TB. This massive rise is mainly due to HIV, which increases the chance of people getting pneumonia or dying of flu.
- Most of these deaths are, however, probably PCP (pneumocystis pneumonia), which almost only occurs in people with AIDS and is unrelated to flu. But many people with HIV who have died of flu are likely to have been in a category that Statistics South Africa calls “Ill-defined and unknown causes of mortality”.
- Flu in South Africa kills young as well as older adults and children.

A global swine flu epidemic struck earlier this year. We do not know yet if it will become more dangerous and it is worth being cautious. Photo by Faizel Slamang.

The WHO is concerned that a deadly strain of flu in birds might mutate (change) and become a human pandemic. This is known as avian influenza. There is reason to be concerned: the 1918 pandemic was caused by a bird flu that mutated into a form easily transmitted between humans. At the moment, the WHO is concerned that an outbreak of flu in Mexico that originated in pigs might turn into a pandemic. Most experts agree that the virus is likely to spread worldwide, but so far it seems not to be much more lethal than annual influenza. We simply do not know yet if it will become more dangerous, and it is worth being cautious. But it is safe to eat pigs, farm them or keep them as pets. The same goes for birds. It is unlikely that in today’s conditions a pandemic as deadly as the one in 1918 could occur.

What is flu?

Influenza is a virus. Like HIV it is made of RNA instead of DNA. But unlike HIV, you are not infected with it for life. When you are infected with a virus, your immune system creates antibodies that try to destroy it. In the case of HIV, our antibodies do a very poor job, but our antibodies against influenza are usually successful.

There are three species of flu: A, B and C. They belong to the orthomyxovirus family of viruses. The flu that we usually get is from the A and B species, but children also get mildly ill from C.

The most serious flu is usually from species A. Like HIV, it has many types. The different types are identified by differences in two proteins, hemagglutinin (H) and neuraminidase (N), on the surface of the virus. Each type is named based on the first letter of these proteins, e.g. H1N1, H1N2, H2N2, H3N2, H5N1. There are ten known influenza A types.

The symptoms of being sick from flu are usually these: chills, a high temperature (about 38C to 40C), headache, tiredness, dry cough, sore throat, runny or stuffy nose and muscle aches. Many of these symptoms are caused by your immune system's reaction to flu.

Sometimes adults, but more often children, also get nausea, vomiting and diarrhoea.

People get very sick or die from flu for a variety of reasons. Sometimes they get another infection, like pneumonia, because the flu has weakened their immune system. In other cases, the body's immune system overreacts to the infection, causing death. It is thought that this is why many young and otherwise healthy adults die during flu pandemics.

What flu is not

Flu is often mistaken for the common cold. But colds are caused by different viruses and they are much less serious than flu. However, they have some symptoms in common with flu and both diseases can make you ill for over a week. The table below gives some of the differences between the common cold and flu.

Many people often confuse gastric flu, or gastroenteritis, with influenza. Although it has similar symptoms, it is not caused by the influenza virus. It can be caused by a wide variety of bacteria and viruses. It usually lasts a day or two and includes nausea, vomiting and diarrhoea. Gastroenteritis is a big cause of death in young children.

Differences between the common cold and flu

Flu	*Common Cold*
Caused by influenza virus	Usually caused by rhinoviruses
Infects people often, but seldom more than once a year	The most common infection in humans. Some people get sick with colds many times a year.
Much more severe than a cold. Can be deadly, though not often.	Usually mild. Very seldom deadly.
Almost always causes a fever.	Seldom causes a fever.
There are medicines that treat flu and vaccines to reduce the risk of getting it.	There are no effective medicines that treat the common cold, or vaccines that protect against it.
Difficult and unwise to go to work or school when you have flu.	Not usually severe enough to justify taking time off work or school.
It is dangerous to exercise when you have a fever. (But older people who do moderate exercise when they are well have a lower risk of dying from flu than those who don't exercise.)	Mild to moderate exercise is ok if you have a cold.

How flu spreads

Flu is spread between people through the air, by coughing, sneezing and touching. You can also become infected by touching surfaces that have the flu virus on them.

Most adults can infect other people from one day before their symptoms develop, and up to five days after becoming sick. You can pass flu on before you know you are sick and also while you are sick.

There are several flu virus strains circulating in the world at any one time. And they mutate constantly. When you get sick, your body develops antibodies against the particular strain that you are infected with. But your antibodies do not protect you from mutated versions of the virus that have not infected you previously.

Flu peaks during autumn and winter. It is a seasonal epidemic. Scientists do not yet know the main reasons for this, although many theories have been proposed. In some tropical countries, flu peaks during rainy seasons.

Preventing flu

It is easy to spread flu and difficult to avoid getting it. Washing your hands regularly, keeping rooms well ventilated and keeping surfaces clean can help. It is important to cover your mouth and nose when you sneeze and cough to prevent other people getting your flu.

Vaccinations

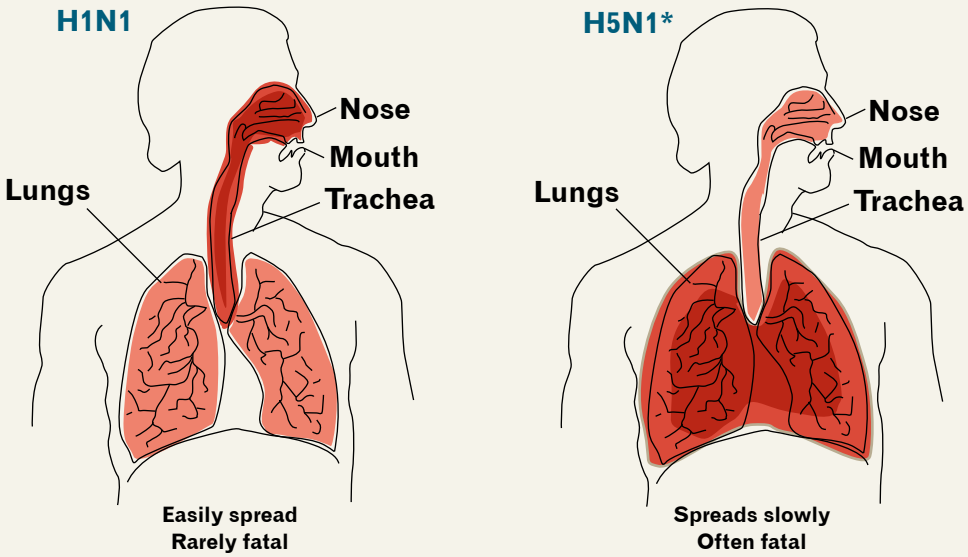
The most effective way to avoid getting seasonal flu is to be vaccinated. Each year, the WHO works with scientific institutions across the world to determine how the flu vaccine should be made. A different vaccine is made each year to deal with the most widespread flu strains of that season. The vaccine is only effective for a few months, before a new, mutated strain becomes prevalent. So you should to be vaccinated against flu every year.

There are actually two different vaccines:

- A flu shot is an injection, and is the usual way flu vaccine is administered in South Africa. This vaccine contains dead flu virus.

How flu makes you ill

The flu virus mainly attacks cells in the lungs, nose, throat and mouth, particularly the cells making up the membrane of the bronchial tubes and trachea. The neuraminidase protein allows the virus to travel between human cells. The hemagglutinin protein enables the virus to invade cells. Image: Wikipedia.



* Virus not adapted for human-to-human spread.

Even if the vaccine fails to stop you getting flu, it can still reduce the severity of your infection.

- A nasal spray, developed in 2003, contains a very weak live strain of the virus. Only healthy people aged 2 to 49 should take this.

Both vaccines protect against three strains of influenza that are prevalent in any given year: one species A type H3N2 virus, one species A type H1N1 virus, and one species B virus. A vaccinated person will develop antibodies against these three strains of flu and therefore not become ill when exposed to the virus. It takes two to three weeks for these antibodies to develop. This means you should get vaccinated well before the flu season, preferably late February to early May in South Africa, depending on when the vaccine becomes available. Even in late May or early June it is worth getting vaccinated.

The vaccine is effective if you have been vaccinated against the strains of flu currently circulating. This can be different across communities, and sometimes scientists predict the wrong strains of flu to vaccinate against. The US Centers for Disease Control explains, "In years when the vaccine strains and the virus strains are well-matched, the vaccine can reduce the chances of getting the flu by 70%-90% in healthy adults. The vaccine may be somewhat less effective in elderly persons and very young children, but vaccination can still prevent serious complications from the flu." The vaccine can also be less effective if your immune system is compromised because, for example, you have AIDS.

Even if the vaccine fails to stop you getting flu, it can still reduce the severity of your infection.

Who should be vaccinated?

The number of vaccinations produced every year is far short of the world's human population. Yet it is probably the people who least require vaccination—well-off healthy adults—who have easiest access to it. This is certainly the case in South Africa where the vaccination is usually only available in the private sector for about R60 a shot.

The vaccination should be prioritised for the elderly (especially for people in old-age homes), people with heart or lung disease (including asthma), health workers, pregnant women and people with HIV and other immune-compromising conditions. School is a place where children easily contract flu and then spread it to their families. The vaccination should therefore also be prioritised for children who go to school, and for teachers. Children under three years old easily get complications from flu, so those between the ages of six months and three years should be prioritised too.

Who should not be vaccinated?

The injection vaccine is produced in chicken eggs. Anyone who has a severe allergy to chicken eggs should not be vaccinated. Also, the flu vaccine might cause a dangerous illness called Guillain-Barré Syndrome (GBS) in less than one in a million people. This is an extremely rare side effect. Anyone who has had GBS should not be vaccinated. Infants less than six months old should also not be vaccinated.

The nasal spray has not been tested in a wide variety of people, including pregnant women. A doctor can tell you whether or not it is safe for you to have this form of the vaccine.

How to treat flu

Four antiviral drugs have been developed that are effective against flu. Amantadine and rimantadine are older drugs and there is already some resistance to them. Two newer drugs, developed in the 1990s, prevent the viral protein neuraminidase from operating properly. They are oseltamivir (better known by its brand name, Tamiflu) and zanamivir.

If you do take flu drugs, then take them within 2 days after becoming sick. They can reduce the severity of your symptoms and shorten the time you are sick by one or two days. Flu drugs can have serious side effects and should be taken only if prescribed by a health worker.

There are limited stocks of flu drugs. They should be prioritised in the same way as the vaccine. Young adults who have standard seasonal flu but are otherwise healthy do not

need to take them unless they really cannot afford the extra day or two off work or become extremely ill.

Paracetamol and ibuprofen also help relieve the symptoms of flu. You can buy these over the counter at a pharmacy or get them from your local clinic. If you buy them, ask for generic versions; they are much cheaper. Check with the pharmacist if you have a condition which prevents you from taking them. Also, be sure to read the package insert so that you know if you are getting a serious side effect. But most people tolerate these drugs easily.

You should rest and make sure you drink enough water when you have flu.

How NOT to treat flu

- Do not ask your doctor for antibiotics when you have flu. Antibiotics kill bacteria. They are ineffective against viruses, and influenza is a virus.
- Children under 19 should not take aspirin if they have flu, because it could cause a potentially fatal illness called Reye's syndrome.

Sources: Wikipedia influenza entry (21/5/2009); Encyclopaedia Brittanica influenza entry (21/5/2009); Centers for Disease Control; World Health Organisation; Stanford University 1918 flu pandemic web page; Stats South Africa; American College of Sport Medicine; http://www.influenzareport.com/; Liverpool HIV Pharmacology Group; Pubmed abstracts: 18461130, 16369798, 7689017

You should rest and make sure you drink enough water when you have flu.

Flu and HIV

People with HIV are at greater risk of complications from flu. As the statistics in this fact sheet suggest, HIV-positive people are also at greater risk of dying from flu. This is confirmed by studies of people with HIV.

It is important if you have HIV to get vaccinated against flu every year. People with CD4 counts above 200 have been shown to have a good response to vaccination. But it is critical that you get the injection vaccine and NOT the nasal spray. The nasal spray has not been tested in people with HIV. It is also important that health workers who treat people with HIV get vaccinated.

People with HIV should consider taking influenza drugs, but there may be interactions with ARVs. Use this chart as a guide.

	Protease Inhibitors									NNRTIs				NRTIs							Other	
	ATV	DRV	FRV	IDV	LPV	NFV	RTV	SQV	TPV	DVL	EFV	ETR	NVP	ABC	ddI	FTC	3TC	d4T	TDF	ZDV	MVC	RAL
Neuraminidase Inhibitors																						
Oseltamivir	■	■	■	■	■	■	■	■	■	◆	◆	◆	◆	◆	◆	■	■	◆	■	◆	◆	◆
Zanamivir	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
M2 Proton Channel Inhibitors																						
Amantadine	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	■	■	◆	■	◆	◆	◆
Rimantadine	■	■	■	■	■	■	■	■	■	■	■	■	■	◆	◆	◆	◆	◆	◆	◆	■	■

Key to symbols: ■ Potential interaction - may require close monitoring alteration of drug dosage or timing of administration.
◆ No clinically significant interaction expected.

Source: Liverpool HIV Pharmacology Group

The human cost of denialism

The lost benefit of ARVs in South Africa

Two recent studies show that roughly 225,000 to 510,000 HIV/AIDS-related deaths could have been avoided if government had been faster to roll out highly active antiretroviral treatment (HAART) and mother-to-child transmission prevention (MTCTP) programmes.

By Nathan Geffen

Photo: Despite changes in political leadership and HIV policy shortages of essential medicines still occur, and South Africa must continue to scale-up prevention and treatment services. Photo by Anso Thom/ Health-E News Service.

Professor Nicoli Nattrass analysed what would have happened if MTCTP had been rolled out from 1998 instead of 2001. She also looked at what would have happened if HAART had been rolled out across the whole country at the same rate as in the Western Cape. Of all the provinces, Western Cape made HAART available the fastest; from 10% of patients in 2000, rising to 65% in 2007. She concluded that 343,000 HIV/AIDS-related deaths could have been avoided.

Another recent study, by Pride Chigwedere and colleagues at Harvard School of Public Health also shows the high number of deaths due to government's delay in making HAART and MTCTP treatment widely available.

They argued that government could have acted earlier, taking advantage of reduced drug prices as well as programmes like the Global Fund. According to the World Health Organisation and UNAIDS, South Africa scaled up HAART from less than 3% in 2000 to 23% in 2005. The authors considered the number of life-years that could have been saved had the state begun its ARV programme at 5% coverage in 2000, and increased it to 50% by the end of 2005. This would still have been lower than the 85% achieved by Botswana or 71% by Namibia in 2005.

For MTCTP, they used Department of Health figures showing that coverage rose from less than 3% in 2000 to 30% in 2005. The authors compared this to a programme that started with 5% coverage in 2000, rising to 55% in 2005.

They calculated that the delayed HAART rollout resulted in 2.2 million lost person-years and over 330,000 deaths. Delayed MTCTP resulted in over 35,000 excess infections and 1.6 million lost person-years. This is a total of 3.8 million lost person-years.

When Chigwedere and her team compared South Africa's peak HAART coverage of 40% to Namibia's 71%, excess deaths varied from about 226,000 to 503,000. They concluded: "Access to appropriate public health practice is often determined by a small number of political leaders. In[…]South Africa, many lives were lost because of a failure to accept the use of available ARVs[…]in a timely manner."

Both studies chose not to take into account deaths due to the promotion of non-scientific methods, such as using herbs or vitamins alone to treat HIV. They also did not calculate infections due to poor state condom messaging and to government denial that HIV causes AIDS.

Even though these studies used different methods, they both arrived at very similar estimates for the number of lives lost due to the delayed rollout of HAART and MTCTP.

Their calculations confirm that the policies of President Thabo Mbeki and Minister of Health Manto Tshabalala-Msimang led to hundreds of thousands of avoidable deaths. Mbeki and Tshabalala-Msimang also created long-term problems, such as the spread of unscientific approaches to treating HIV, and a loss of public confidence in scientific medicine.

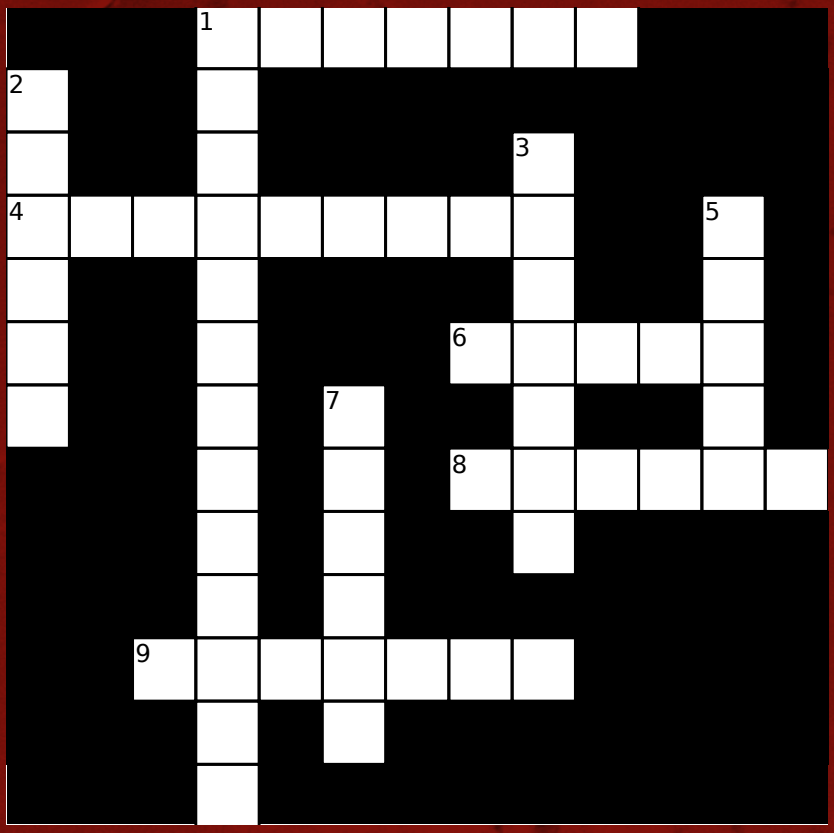
Sources: Actuarial Society of South Africa. "ASSA2003" (2008), http://actuarialsociety.co.za/Models-274.aspx (Site accessed 2009); Chigwedere P, Seage G, Gruskin S, Lee T, Essex M. "Estimating the Lost Benefits of Antiretroviral Drug Use in South Africa." J Acquir Immune Defic Syndr. (2008) • http://www.ncbi.nlm.nih.gov/pubmed/18931626 (Site accessed 2009); Nattrass N. "AIDS and the Scientific Governance of Medicine in Post-Apartheid South Africa". African Affairs (2008) http://afraf.oxfordjournals.org/cgi/content/abstract/107/427/157 (Site accessed 2009)

Equal Treatment's Crossword Puzzle

We will give a R200 Pick n' Pay gift voucher to the first crossword drawn from a hat with all the correct answers. The answers can be found in this issue of *Equal Treatment*.

Last month's winner will be announced in a future issue.

Fax or post your completed crossword, with your name, address and contact number.
Address: Equal Treatment, PO Box 2069, Cape Town 8001
Fax: 021 422 1720



Across

1 Substance related to lactic acidosis.

4 TAC is campaigning for __ to replace d4T in first line HIV treatment regimens

6 Diarrhoea may cause you to lose large amounts of salts and __ from your body.

8 Peripheral neuropathy usually involves damage to the__ in the feet or, less often, the hands.

9 The 1918 flu was known as the __ flu.

Down

1 Changes in the body shape of people taking HIV medicines.

2 Flu peaks during __and winter

3 People with HIV are at __ risk of complications from flu.

5 How many species of flu are there?

7 Heavy alcohol use affects the __ system and may slow down recovery from HIV-related infections.

NO REFUGE

"25% percent of the entire Zimbabwean population has fled Zimbabwe to neighbouring countries, especially South Africa, as a matter of survival. They are raped, beaten, and robbed while crossing the border, they struggle to find basic shelter and other assistance in South Africa, and they are subjected to xenophobic violence, abuse, and neglect, even when trying to access health care. There have been some positive developments regarding the legal status of Zimbabweans seeking refuge in South Africa, but the jury is still out on whether these new policies will improve the deplorable conditions in which they live."

- Rachel Cohen, MSF Head of Mission in South Africa

"We see thousands of sick, wounded, psychologically scarred, and marginalised Zimbabweans in both Johannesburg and Musina every month. They come to us because they have nowhere else to turn."

– Dr Eric Goemaere, Medical Coordinator for MSF in South Africa.

Each month MSF medical teams perform between 4,000-5,000 consultations for Zimbabweans who have fled to South Africa. Since 2007, MSF has been providing basic primary health care, in Musina, along the Zimbabwean border and Johannesburg referring victims of violence and epidemic outbreaks to emergency medical treatment and assisting patients to find specialised care.

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