

DIAGNOSTICS UPDATE .COM

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Editor's Note



Hello all and welcome to 2010!

For our cover we have decided to go with a picture of little children. This is not to get some ooh-aah response from you, the reader. We are just trying to highlight what a new represents, which is, the future. In essence the message is: *the children are the future*, let's protect them. We have also included some articles that deal with the future and those things that may affect our children: Substance abuse in Botswana, a growing problem for us, and BOTSWANA-A risky combination of alcohol and sex. We need to effectively deal with these issues and also realize that they are inter-connected into one vicious circle for our children to have a chance in this world and become productive members of society.

It's the beginning of the year and finally it's 2010. As a soccer fan, I should say it's been a long time coming. Aside from looking ahead to the world cup, and all those running around after a leather ball all in the name of national pride, the start of a new year marks a milestone that many people - try as they may not to - find themselves making resolutions, new starts and re-evaluating themselves.

We as Diagnostics-Update.com have evaluated ourselves and we find ourselves a little lacking in delivery. Yes, that 5th and most recent D that His Excellency, the President of our Republic, espoused at his inauguration. I feel we have not lived up to our potential and to all who look forward to this publication and all its informative and yet vibrant articles, my most sincere apologies for this hiatus that saw us miss two issues last year. I hope we shall be able to make it up to you.

We have a lot going on, page through and I am sure you will find something that tickles your fancy. We encourage feedback, so please read and stay informed and give us ideas on how to keep you better informed.

As we are coming from the festive season or end of year madness, I hope you have not lost focus on all that you hoped to achieve last year and have not fallen back to those same old habits that got you into that rut that you were in last year. If you made plans for 2010, stick to them, and if you had a hard time of it last year, try new things. Like a wise man said, you can't expect different results whilst employing the same methods, so go ahead and make a change for 2010 it might just be what the doctor ordered.

Look forward to the next issue in April.

All the best for 2010



“Welcome to 2010!
Happy New Year”

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World Heart Day Commemoration

This year the Heart Foundation of Botswana commemorated World Heart Day in Maun on the 26th of September. This was the first time that an event of this nature was held in Maun and the support shown was extremely encouraging.

Assistant Minister of Transport, Honorable Frank Ramsden was the Guest of Honour and Paramount Chief Kgosi Tawana Moremi was the Master of Ceremonies for the day. The event was also attended by the district commissioner for Maun, Mma Malala, Kgosi Mokgalakwe, Kgosi Labane Meno and Dr Mulomba and Mma Anna Sebogodi from the new Letsolathebe Memorial Hospital (LMH).

This event was a success in sensitizing the Maun residents and those who attended from surrounding areas about the dangers of heart disease and its associated ailments. Those with remarkable blood pressures and glucoses were to be followed up at LMH.



Diagnofirm receives World Quality Award

Diagnofirm represented by Emang Molojwane and Samantha Stoneham recently collected an international quality award in London in the Platinum category. This is further testimony to the laboratory's pursuit of diagnostic quality and to its growing international reputation.

World Diabetes Day Commemoration

World Diabetes Day was recently commemorated in Mochudi. This was the first time that this commemoration had been marked by the Diabetes Association of Botswana outside of Gaborone. The guest of honour was the Assistant Minister of Health, Honorable Maxwell Motowane, who gave the keynote address. In his speech at this event, he noted that "Diabetes is said to contribute to about five percent of deaths globally each year, and is likely to increase if no urgent intervention is in place." This makes diabetes the number two cause of death in the world. In developing countries like Botswana, greater awareness campaigns need to be undertaken.

Dr Nyarko, Country Representative for the World Health Organization who was also present, underlined that: "When it comes to dealing with chronic non-communicable diseases like diabetes, we are not yet there, and we really need to accelerate and increase our efforts as this disease is rapidly increasing in our populations."

The turnout at this event was not as expected but it was a landmark in that statistics were being collected by Dr. Onen and the Diabetes Association to be used to evaluate the risk factors for diabetes versus the presence of high blood glucose.

UB donation to the heart foundation

On the 5th of November, the University of Botswana handed out a cheque of P20 000.00 to the Heart Foundation Botswana. The funds were raised through the efforts of Health Education and Promotion students and the overall staff of the Department of Environmental Health, who organized a 15 km sponsored walk early this year to educate the general public on several key health issues, including heart health, under the theme: "Walk for your Heart".

The donation is a result of our commitment to community service and strongly supports the University's strategic goal of "Strengthening Engagement". This initiative further enabled the students to exhibit their interactive, practical and intellectual abilities in social health issues.

Those who sponsored the walk and health fair included the Commissioner of Police, Mr Tsimako as the 'Chief Walker', students and staff, members of the general public, and health professionals from within our community, such as, Diagnofirm, World Health Organisation and Ministry of Health.

Donation to Olebogeng

Diagnofirm Medical Laboratories recently donated money to Olebogeng Sankutha, an employee of the company, to help her re-build her family home which was destroyed by the flash floods that hit Mahalapye in mid-December 2009. The cheque of P15 000 was handed over to Olebogeng by the Diagnofirm Accountant, Mr. Senthil Maran at the Diagnofirm headquarters in Gaborone. The Managing Director of Diagnofirm then took the time to stress the company's commitment towards social responsibility.

The flash floods that hit Mahalapye left in their wake collapsed power lines, damaged houses felled trees and other forms of devastation, but most importantly it left people in urgent need of humanitarian assistance. Diagnofirm has historically been a company that is in the heart of the Botswana community and variously gives towards several social concerns throughout the country. This time it was met with a disaster affecting one of its own and has stood up to show that charity really does begin at home.



Differential Anemia Diagnosis

What's the Best Marker of Iron Status?

By Genna Rollins

Anemia compromises quality of life through fatigue and impaired cognitive function and has been linked to cardiovascular disease morbidity, increased hospitalization, and mortality. Despite the significant health consequences associated with the condition, anemia remains one of the most prevalent conditions worldwide and is the most common nutritional deficiency, affecting an estimated one-quarter of the world's population. Even with such a profound disease burden, iron deficiency anemia (IDA) and anemia of chronic disease (ACD) often receive sub-optimal clinical management. Strategies to definitively diagnose and treat the conditions have not been widely implemented, and there is disagreement about the best combination of tests and cutoff points to distinguish between the two. At the same time, research advances have enhanced the field's understanding of iron homeostasis, and ushered in a new generation of analytical tools with their own set of challenges.

“There needs to be some kind of better systematic approach to differentiating between IDA and ACD. We need evidence-based guidelines to help direct diagnosis and treatment, but they just don't exist right now,” said Susan Clark, RD, PhD, associate professor of human nutrition, foods and exercise at Virginia Tech University in Blacksburg. “Until we do that we're not going to help patients as much as possible and their outcomes will be more negative than positive.”

Lacking Attention to Anemia

The prevalence of anemia and iron deficiency varies according to demographic groups, but it is most common in young children, women of childbearing age, racial and ethnic minorities, and in individuals with various chronic conditions.

Prevalence increases with age and is quite common in chronic diseases like cancer and autoimmune disorders. For example, anemia occurs in an estimated 30% to 60% of rheumatoid arthritis patients and anywhere from 30% to 80% of patients with inflammatory bowel disease (IBD).

IDA is the most common form of anemia, accounting for about half of all cases, while ACD is the second most common type with about 30% of all cases. Although they originate from different pathways, IDA and ACD both are readily treatable. Yet both tend to receive short shrift by clinicians.

“The management of IDA is often sub-optimal with most patients being incompletely investigated, if not at all,” according to the British Society of Gastroenterology guidelines for the management of IDA. Essentially the same has been said of ACD.

Some experts have argued that clinicians paradoxically may be less likely to intervene in patients with chronic diseases who are the most likely to have both IDA and ACD. “Gastroenterologists tend to tolerate reduced hemoglobin levels better than their patients. It is important to consider that anemia impairs quality of life even in the absence of specific symptoms and that its treatment leads to improvement in the quality of life. These simple facts are often unrecognized or neglected by gastroenterologists caring for patients with IBD,” according to recently

published guidelines on the diagnosis and management of iron deficiency and anemia in IBD (*Inflamm Bowel Dis* 2007;13:1545–1553).

Christophe Gasche, MD, leads the guideline effort because of the lack of attention to anemia in IBD patients. In the many extant IBD-related guidelines, “I'm not aware of a single word on anemia in any of them,” he explained. “So this is a huge problem that's not being considered as a problem. Our goal was to make an awakening among our peers.” Gasche is professor of medicine and director of the Christian Doppler Laboratory on Molecular Cancer Chemoprevention at the Medical University of Vienna in Austria.

Gasche is not alone in advocating for better recognition and treatment of IDA and ACD. “There's a sentiment that we think we can treat anemia by using the old standards, but if that's the case, then why do we still have the problem?” said Clark. “It can take quite a while for someone with iron deficiency to become blatantly anemic. If the anemia is compounded by a chronic disease, then by the time you're trying to discern what's going on, you've got a really sick person on your hands, and sometimes that can be a comorbidity in their outcome.” Conversely, others have argued that ACD is a “beneficial and adaptive response to an underlying disease state” and that treatment of it poses distinct risks (*CMAJ* 2008;179:333–337).

A Tightly Regulated System

Iron homeostasis is a complicated, tightly regulated system centered around the rate of erythropoiesis and the level of iron stores. Iron absorbed through the intestine binds to transferrin, a blood protein

“iron deficiency anemia (IDA) and anemia of chronic disease (ACD) often receive sub-optimal clinical management”



“IDA is the most common form of anemia, accounting for about half of all cases, while ACD is the second most common type with about 30% of all cases”

“There needs to be some kind of better systematic approach to differentiating between IDA and ACD. We need evidence-based guidelines to help direct diagnosis and treatment, but they just don't exist right now”

that transports iron to target cells, attaching to those cells via transferrin receptors (see figure, below). In healthy adults, most transferrin receptors are connected to erythroid progenitor cells in bone marrow, and this is where most iron is used as a component of hemoglobin. When cells need iron, transferrin receptor production rises, making more iron uptake possible. At the end of their typical 120 day life, red blood cells are destroyed by macrophages that recycle iron from hemoglobin. In non-erythroid cells, iron is stored as ferritin in hepatocytes and macrophages as part of the reticuloendothelial system.

With discovery of the peptide hormone hepcidin in 2000, a more nuanced understanding of iron homeostasis has emerged. Secreted primarily by hepatocytes, hepcidin negatively regulates two essential aspects of iron homeostasis, intestinal absorption and macrophage recycling. The level of iron stores influences the release of hepcidin: when stores are low, hepcidin expression decreases to facilitate iron absorption, and when they are replete, it increases to forestall iron overload. Hepcidin expression also is influenced by inflammatory cytokines, and its increase has been implicated in the development of ACD.

IDA occurs when there is not enough iron to maintain normal physiological functions, and is manifested on a continuum from negative iron balance to iron depletion, iron-deficiency erythropoiesis, and finally, full-blown anemia. Serum iron levels fall only when iron stores become depleted. As this happens, transferrin levels rise and transferrin saturation declines. Iron depletion exists when iron stores are low or empty but the tissues that need iron are maintaining normal function. The causes of IDA are increased iron demand, such as in pregnancy or lactation, inadequate dietary intake—most commonly through malabsorption—or as a result of intestinal bleeding.

In contrast, ACD involves immune and inflammatory mechanisms that cause disruptions in iron metabolism, erythropoiesis, and erythrocyte survival. Iron may be retained in the reticuloendothelial cells, there may be inadequate erythropoietin production, or inhibited proliferation of erythroid progenitor cells in bone marrow.

In ACD, the iron supply depends on its rate of mobilization, so if the mechanisms for transporting iron to tissue are disrupted there can be a functional iron deficiency even though iron stores are adequate.

The Diagnostic Work-up

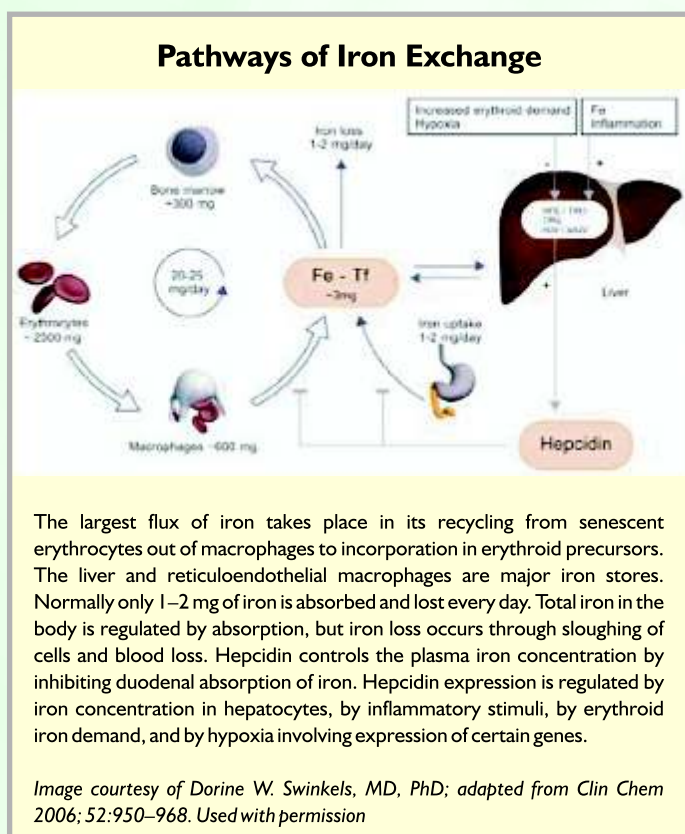
Regardless of the type of anemia involved, labs play an essential role in pinpointing the exact problem. “It is unusual for patients to present with anemia so advanced that the clinical manifestations predominate,” according to a monograph by the National Anemia Action Council. “Anemia is almost always discovered through abnormal laboratory screening test results.” The first tip-off often is a low hemoglobin level. The World Health Organization (WHO) defines anemia as hemoglobin <13 g/dL for men, <12 g/dL for women, and <11 g/dL in pregnant women.

The conventional work-up for IDA is fairly clear-cut and typically involves assessing erythrocyte morphology along with serum ferritin, serum iron, and total iron binding capacity (see table, below). IDA morphology is microcytic, hypochromic, and all three serum markers are low. However, the picture is murkier when it comes to diagnosing ACD or the combined state of IDA and ACD, which occurs in an estimated 20% to 30% of patients who also have ACD. One of the key issues is that ferritin is an acute phase reactant with levels determined not only by iron stores but also by the degree of cytokine activation. So values can rise in the presence of inflammation, even when iron stores are depleted from IDA. Most clinicians would agree that high and low ferritin values argue for inflammation and iron deficiency, respectively, but the middle ground leaves room for confusion and misinterpretation.

“In a person who is healthy with no active inflammation, diagnosing iron deficiency is pretty straightforward,” explained Robert Means, Jr., MD, a hematologist, professor and senior associate chair of internal medicine at the University of Kentucky College of Medicine in Lexington. “The difficulty is in a person who is sick from other reasons. Their iron and transferrin levels may be depressed as a result of the inflammation, and the ferritin may be falsely elevated.” While ferritin concentrations of $\leq 15 \mu\text{g/L}$ are indicative of iron deficiency, when inflammation is present, levels can rise to as much as $100 \mu\text{g/L}$ even when iron stores are depleted. In the IBD guidelines, Gasche and his colleagues recommended serum ferritin $<30 \mu\text{g/L}$ as an indicator of depleted iron stores in patients with inactive IBD, and $<100 \mu\text{g/L}$ in patients with active disease.

Since ferritin can confound a clear diagnosis in the presence of inflammation, many clinicians simply interpret ferritin levels in the context of inflammatory markers like C-reactive protein (CRP) or erythrocyte sedimentation rate. WHO has suggested that α -1-antichymotrypsin may better reflect change in ferritin concentration during infection (Assessing the Iron Status of Populations, WHO, 2007, Second Edition).

Another way around equivocal ferritin results in the presence of inflammation is measurement of soluble transferrin receptor (sTfR), a truncated fragment of transferrin receptor that reflects erythropoiesis and is not affected by inflammation. sTfR is increased in patients with either IDA or both IDA and ACD but not ACD alone. Recent unpublished research found that the combination of ferritin, sTfR and the sTfR/log ferritin index (sTfR index) improved the detection of IDA and aided in the differential diagnosis of IDA and ACD in comparison to ferritin or sTfR alone. However, one of the study's authors, Kari Punnonen, MD, PhD, cautioned about the instrumentation used with these biomarkers. “In order to use both sTfR and the sTfR index, one needs both assays run on the same platform. Otherwise, because of the different reference units one might not be able to determine proper cut-off values,” he explained, adding that the study in question used the



Selected Biochemical Indicators of Iron Status

Measurement	Commonly Used Methods	Indicator of
Reticulocyte hemoglobin concentration	Automated flow cytometry	Concentration of hemoglobin in new RBCs
Serum or plasma iron	Colorimetry	Iron bound to transferrin in blood
Ferritin	Immunoassay, e.g. ELISA or immunoturbidometry	Size of iron stores
Total iron binding capacity (TIBC)	Colorimetric assay of amount of iron that can be bound to unsaturated transferrin in vitro; determination from transferrin concentration measured immunologically	Total capacity of circulating transferrin bound to iron
Transferrin saturation	Calculated from: Serum iron/TIBC	Saturation of < 15% with high TIBC indicates iron deficiency
Transferrin receptor	Immunoassay, e.g. ELISA or immunoturbidometry	Reflects balance between cellular iron requirements and iron supply
Body iron stores	Ratio of transferrin receptor to ferritin $-\log(TfR/ferritin \text{ ratio}) - 2.8229 / 0.1207$	Measure of body iron status including iron deficits, status of storage iron and iron overload
Hepcidin	Immunoassay; mass spectrometry	Regulator of iron absorption from gut

Adapted from "Assessing the Iron Status of Populations," WHO/CDC Technical Consultation, 2007, Second Edition.

Beckman Coulter automated Access sTfR assay. Punnonen is general manager and medical director of Eastern Finland Laboratory Center in Kuopio.

sTfR assays have not been standardized, and that may be one reason why the test has not been implemented widely, even though it has been available for a decade or more. However, a standardization effort is underway. Scientists at the British Health Protection Agency (HPA) have evaluated a lyophilized preparation of recombinant sTfR (rsTfR) in a sTfR-depleted serum matrix, coded 07/202, and in October were expected to present to the WHO Expert Committee on Biological Standardisation a study that had been carried out with manufacturers of sTfR kits. The study suggested that use of rsTfR 07/202 as a reference reagent would significantly reduce inter-method variability if manufacturers would adopt it, according to Susan Thorpe, PhD, principal scientist in the parenterals section of the biotherapeutics group at HPA.

Whether standardization will boost the use of sTfR remains to be seen. Although Punnonen has been a leading researcher in the field and his lab now performs about 6,000 sTfR assays per year versus 8,000 of ferritin, getting to that point has been a slow process. "I'm happy to see that sTfR is ordered in almost the same numbers as ferritin, but it's taken 10 years. It takes a long time to change any clinical process," he observed. An algorithm incorporating the use of transferrin, ferritin, sTfR and sTfR index has been proposed (NEJM 2005;352:1011–23).

Newer Measures of Iron Status

Still other researchers argue that better measures of IDA and ACD are the reticulocyte hemoglobin content (CHr) and proportion of hypochromic red cells (HYPO) in combination with the sTfR index. "Typical biomarkers are only indicators of iron supply but not of iron demand. These markers give no information about whether the cell really uses the iron for the synthesis of hemoglobin or enzymes of the

respiratory chain," explained Lothar Thomas, MD, professor of medicine at University Hospital Nordwest in Frankfurt, Germany. "The only proof is an increase in the hemoglobin value in the CBC. But this will last several weeks. The CHr is a real time parameter that indicates changes in iron demand of the cell within a week. Therefore I feel that CHr and HYPO are better parameters than the typical biomarkers of iron metabolism." Thomas reported in 2002 that use of a diagnostic plot of CHr and sTfR index demonstrates the progressive stages of iron deficiency, regardless of whether inflammation is present (Clin Chem 2002;48:1066–1076). His lab uses the plot and an accompanying explanation to guide physicians in diagnosing and treating anemia.

While Punnonen agreed that use of CHr and HYPO is a viable strategy for assessing iron demand, he cautioned that the two parameters can be produced only by one type of analyzer, the Siemens Advia 120. "There are other systems which provide what they call comparable measures, but they're based on more or less different concepts. So there's no way one could compare the results between manufacturers or analyzers," he said.

Even as researchers and laboratorians debate the merits of various iron status biomarkers, they are in agreement that development of robust and reliable commercial hepcidin assays could transform the diagnostic landscape. "The field is moving to hepcidin. It may be as popular in three to five years as ferritin is now," predicted Thomas. However, he cautioned that values reported by immunoassay and mass spectrometry methods vary considerably. A recent review article bore this out: the seven methods examined used a wide range of normal values and had variable intra-assay precision and lower limits of detection (J Prot 2009 doi:10.1916/j.jprot.2009.08.003). Meanwhile, Dutch researchers have proposed an algorithm using transferrin saturation, sTfR and CRP to predict measured hepcidin levels (Blood Cells Mol Dis 2008;40:339–346).

Whether or not hepcidin assays hit the mainstream, experts suggested that laboratorians can do much to improve the work-up of anemia. Clark would like to see overall evidence-based guidelines for the diagnosis and treatment of IDA, ACD, and concomitant IDA and ACD. Means suggested that lab directors put on their educator hats. "Labs could be helpful by explaining that low serum iron is not necessarily diagnostic of iron deficiency and by indicating that in the setting of inflammation ferritin can be raised even in the absence of iron," he said. "They could also help when clinicians come to them with cases they believe may be iron deficient but with indeterminate results. In such cases, the clinician needs help deciding what additional tests to do."

Both Means and Gasche urged labs to re-evaluate the normal values reported for ferritin. "There's no reason why women should have lower ferritin levels than men, but in most labs there is a difference in the normal ranges for men and women," Gasche explained. For his part, Punnonen worked to reduce the use of iron and transferrin measurements in the differential diagnosis between IDA and ACD, and saw the number of tests drop by about one-third. "It used to be routine here to measure serum transferrin and iron in patients who had anemia, but iron is low in both IDA and ACD, so it's of no use to measure iron," he explained. "When someone has to decide if a patient has iron deficiency, one should use sTfR and ferritin and forget iron and transferrin."

The many indicators of iron status, combined with changing analytical challenges, underscore the need for laboratorians to keep abreast of new developments and maintain an active dialogue with clinicians.



Diagnostic Tests Remain Undervalued

With strong opinions on both sides about whether healthcare reform will reduce costs, a new report prepared by the Lewin Group underscores why diagnostic screening tests are essential to reducing costs in the U.S healthcare system. Commissioned by the American Clinical Laboratory Association and the Advanced Medical Technology

Association, the report describes how specific screening tests provide opportunities for cost savings, as well as improved healthcare quality and patient outcomes.

The comprehensive report analyzes four case studies: methicillin-resistant Staphylococcus aureus testing for indentifying healthcare-acquired infections; HbA1c

testing for screening diabetes; KRAS gene mutation testing for targeted treatment of colorectal cancer; and human papillomavirus DNA testing for the diagnosis of cervical cancer. These case studies highlight different health problems, risk groups, and testing technologies valuable to many aspects of patient care. Overall,

testing programs for these conditions have resulted in better health outcomes for patients while providing cost savings and efficiencies to the healthcare system, according to the report.

However, the report also stresses that several barriers currently limit the full benefits of laboratory testing from being realized. Examples include: healthcare providers' ignorance of when to use tests; insufficient evidence regarding clinical utility of tests for specific subgroups of patients; inconsistencies in clinical practice guidelines; conflicting or inadequate coverage and payment policies; and the need for additional evidence to determine the full economic impact of laboratory testing.

The Lewin Group, a health care research and consulting firm, provides analyses to public agencies, nonprofit organizations, industry associations, and private companies, has previously conducted analyses of the value of lab testing. The firm is based in Falls Church, Va., and is an Ingenix company, a wholly-owned subsidiary of UnitedHealth Group.

Contribution of Selected Diagnostic Tests to Avoidable Costs

Disease	Diagnostic Test	Avoidable Costs
Diabetes	HbA1c level	\$573 million
Colorectal cancer	Fecal occult blood test	\$191 million
Heart disease	Cholesterol test	\$87 million

Source: The Lewin Group. The value of diagnostics, innovation, adoption and diffusion into health care. July 2005.

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Diagnofirm staff Samantha Stoneham and Emang Molojwane receiving the quality award from Mr. Jose E. Prieto the Chairman and CEO of B.I.D. in London



Olebogeng S



Dr. Nayarko the WHO country representative and Assistant Minister of Health Mr. Maxwell Motowane during World Diabetes Day Commemoration



Emang Molojwane of Diagnofirm addressing a press gathering at the welcoming reception.



The District Commissioner for Ngamiland, Ms. Bernadette, also having her blood pressure checked.

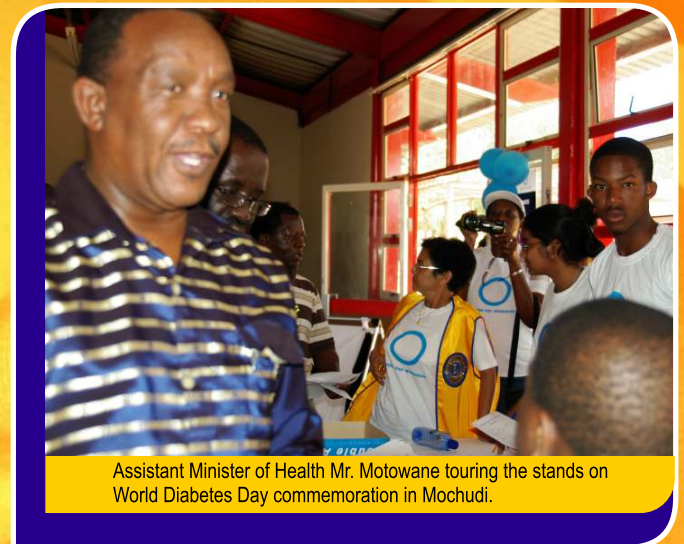
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Olebogeng receiving a donation cheque from Diagnofirm accountant Mr. Maran



ankutha with her colleagues from Diagnofirm.



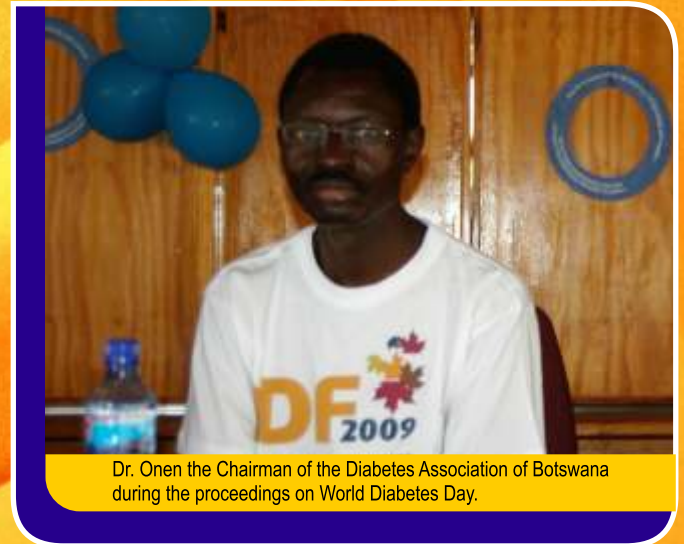
Assistant Minister of Health Mr. Motowane touring the stands on World Diabetes Day commemoration in Mochudi.



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emoration.



Diagnofirm nurse Manyanya getting ready to draw a blood sample from Dr. Nyarko.



Dr. Onen the Chairman of the Diabetes Association of Botswana during the proceedings on World Diabetes Day.



tte Malala



Prof Bhagat checking a very enthusiastic Chief Tawana's blood pressure.



Hon. Frank Ramsden preparing to get tested on World Heart Day in Maun.



Substance abuse in Botswana is a growing problem. According to statistics currently available, more and more younger people are indulging in drugs and alcohol. Alcohol abuse is still a problem even in the older population.

The nation will not achieve the objectives of vision 2016 if the current trends are not reversed. Alcohol is the most heavily used Substance in Botswana. Dagga (Pot) is second but the ratio of use is about 95% Alcohol and 4% Pot with Other Drugs like Ecstasy & Glue at about 1%.

One approach to prevention in Botswana begins by targeting gateway behaviors like Cigarette smoking. Prevention and treatment efforts must also address a severe lack of life skills and a high degree of emotional immaturity in both youth and adults alike. There are several dysfunctional behaviours such as alcohol and drug abuse to HIV infection that can be addressed by enhanced teaching efforts in early and later formal educational all the way to work seminars.

As mentioned, alcohol is the most widely used form of substance abuse. It is available as commercially produced beers, wines and spirits. It is also available as or known as Nyola, Khadi, Chibuku, Tho-tho, O lala fa, Chechisa, Mokoko o nchebile, Laela mmago, Motse o teng godimo.

Many studies have been done and have shown that alcohol abuse does have a strong correlation to road traffic accidents, violent unruly behaviour and financial ruin, indiscriminate sexual behaviour leading to HIV/AIDS and STI infections, unwanted pregnancies and domestic violence. In terms of health-related consequences, it is claimed by medical staff in local government clinics that habitual drinkers suffer from general self-neglect, particularly poor personal hygiene and a tendency to 'forget' to eat when drinking, which can lead to malnutrition. Physical side effects reported include pale skin, red eyes and weight loss with more serious cases developing symptoms of alcohol psychosis, particularly regularly hallucinations and incoherence of thought.

Socially, alcohol is seen as a contributing factor to an increasing number of traumatic events and injuries reported at health facilities. Many of the injuries are sustained in violent physical fights or attacks in which sticks, knives and other weapons are commonly used. Wife beating is also claimed to be a more regular occurrence as is the beating of children by adults. The economic consequences of

habitual alcohol use are devastating and act as distinct barriers to any sense of development. Some people have stated that since a significant proportion of household income in addicts' homes is spent on liquor, less cash is available for food, clothing and other essential items. As one person has succinctly stated: 'alcohol makes poor people poorer'. A person who is regularly under the influence of alcohol will have little motivation or interest in working, unless it is to obtain money to buy more alcohol. One particular problem is that a regular drinker can easily become economically tied and indebted to alcohol vendors who are only too pleased to provide alcohol 'on credit'.

Other drugs of abuse common in the country are tobacco (cigarettes, cigars, snuff) Inhalants (glue, petrol, spray, etc), marijuana (motokwane, dope, ganja, grass, skunk, weed, mary jane, pot etc), ecstasy (X, XTC) and cocaine/crack (snow, rock, coke etc). It is essential to remember that brain damage from chemical usage is a proven reality, so the dangerous effects or let alone fatal effects of these drugs should not be underestimated. The cognitive process is as a result impaired. The ability to reason and to make sound judgments is impaired and it takes time to heal. Research indicates that the brain damage healing can take up to 11 years with most of that healing occurring in the first 1-2 years. These drugs like alcohol come with their busload of problems which are either personal or social. Help for any substance abuse-related problem is available, but the first step towards making use of this help is acceptance and acknowledgement that one has such a problem. Recovering persons must learn the fundamental truth that each of us is responsible for our feelings not others.

In general, people in recovery report an improved quality of life 12 months after getting abstinent and beginning recovery:

- More than 70 percent of individuals in recovery report having improved relationships with their spouse or significant other.
- Eighty percent report better family relationships and an ability to better handle problems.
- More than 80 percent report an improvement in their mental health.

Also available for these abstaining substance abusers is support groups such as alcoholics anonymous and such. These help participants learn to re-integrate into society and not let the pressures of being assimilated into general society lead to a relapse.

“ Drugs of abuse common in the country are:

- Tobacco (cigarettes, cigars, snuff) Inhalants (glue, petrol, spray, etc)
- Marijuana (motokwane, dope, ganja, grass, skunk, weed, mary jane, pot etc)
- Ecstasy (X, XTC)
- Cocaine/crack (snow, rock, coke etc). ”





Botswana:

A risky combination of alcohol and sex



SELEBI-PHIKWE, 5 November 2009 (PlusNews) - Recently, Gillian Otsile, a volunteer at a local NGO, Men Sex and AIDS, approached a group of young men drinking cartons of traditional sorghum beer at a tavern in Selebi-Phikwe, a mining town in northeastern Botswana. In a country where nearly one in four

adults is infected with HIV, Otsile's focus is talking to the patrons about the risks of combining alcohol with sex.

Most of the group are unemployed and rely on occasional piece-work to buy beers for themselves and any girls they meet. Tato confirmed that after buying a girl beers all night, he expected to go home with her. Using a condom depended on how drunk he was. Findings of several studies show that heavy drinking is associated with an increased likelihood of engaging in sexual behaviours that put individuals at risk of HIV infection.

A 2006 study in Botswana found that both male and female heavy drinkers were above three times more likely to have unprotected sex than non-drinkers; their odds of having multiple partners and paying for or selling sex were also much higher. Alcohol use as a driver of HIV infections is evident throughout southern Africa, the region worst hit by the global HIV/AIDS pandemic, but few governments have implemented policies to address the problem. However, in 2008 Botswana President Ian Khama's government acknowledged the link by legislating shortened hours for bars and slapping a 30 percent levy on alcohol.

Sex for booze

Government figures from 2008 show that HIV infections in Selebi-Phikwe, as in most of Botswana and across southern Africa, are highest among young women and older men, demographics that tend to be replicated in the bars. Dikgang Keabetswe, a project leader at Men Sex and AIDS, said, "Some [young women] go [to the bars] without a cent; they look for males to buy them something to drink, and even for transport money. Men mostly expect sex in return.

The guys - those who have more money - are

mostly over 25. Employment opportunities for women in Selebi-Phikwe have shrunk since several textile factories closed in the late 1990s, and some have turned to commercial sex work, while others occasionally exchange sex for drinks or small amounts of cash. Elizabeth, 27, has stopped at the tavern where Tato and his friends are drinking. She said, admitting that some men expected sexual favours in return for beer. "If I want, I go with him. Sometimes I use a condom, but if he says, 'I don't have a condom', and I see he has a lot of money, I'll agree ... In life, we need money." She recently tested negative for HIV, but believes it is only a matter of time before she contracts the virus. Tato and his friends have similarly fatalistic attitudes and a reluctance to change risky sexual behaviours; several said they slept with sex workers whenever they had money. "I'm not afraid of HIV because there are ARVs [antiretrovirals] for free," said one, referring to the government ARV programme which reaches nearly 100 percent of those in need of the medication. "I'm afraid of it ... when I'm sober," laughed Tato.

Changing behaviours not easy

Persuading people to reduce their alcohol consumption will have little effect on Botswana's HIV infection rates unless it is accompanied by fundamental changes in attitudes and behaviours. The young volunteers doing the PSI-funded interventions at bars are trained to strike up conversations with people not only about drinking responsibly, but also about the common practice of having multiple concurrent partners (MCPs) - perhaps the biggest and most neglected driver of HIV infections in southern Africa, according to recent research. PSI is providing technical assistance to Botswana's National AIDS Coordinating Agency (NACA) in an initiative launched earlier this year to raise awareness and eventually change behaviour.

The first phase is a mass media campaign featuring the slogan "o icheke" (check yourself), to get people to recognize the risks of having MCPs. Starting in December, a second phase will target demographic groups most likely to have MCPs with tailored messages, said Richard Matlhare, head of behaviour change at NACA. "We looked at alcohol as one of the predisposing factors, and that's why the President has taken a stance on responsible drinking," Matlhare said. "We know people can't make informed judgements when they're drunk."

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Laboratory Test Preparation



An inaccurate test result, based on a patient's poor preparation, could lead to misinterpretation of the illness and ultimately delay proper treatment.

Working in a laboratory I have on several occasions encountered situations whereby the client has come all way from home or work to the laboratory only to be told to come back after they have complied with certain

prerequisites for the test to be performed. It is very frustrating, but it is something that can be avoided by empowering the patient or client with more information about their tests and the preparations required.

This empowerment does not just end there, it also involves the patients understanding their condition and the whole process of diagnosis, because all too often I am confronted by clients at the lab wanting to know what their results mean and why the tests were requested and they are not too happy when I have to tell them that that question is best answered by their physician as they can correlate the laboratory results with the clinical presentation.

According to some medical evaluators, 85% of decisions about diagnosis and treatment are based upon laboratory results, so it is in the patients' best interest to ensure they are adequately prepared for their lab tests and thus ensure accurate results.

Questions that a patient can ask the clinician prior to doing a lab test are:

- Why is this test requested?
- What kind of information will the test provide?
- Is this test the only way to find out this information?
- Should I stop taking my medication (prescription, non-prescription, herbal) before the test?

They can also obtain the following information from either the clinician or the laboratory services provider:

- Can I drink before the test? What and how long prior?
- Can I smoke before the test?
- Can I eat before the test?
- Can I exercise before the test?
- What time is best for collection?
- How long does the test take?
- How long will the collection of the sample take?

I have also noted that during wellness campaigns carried out at various companies and public areas you will find people comparing results. The problem is that test results are very variable and depend on the individual being tested.

The reference ranges give just an outline for the clinician to interpret the results but do not cover the entirety of the population and also there are variables that affect the outcome of results, these include:

- exercise, diet, age, sex, circadian variation, posture, obesity, stress, smoking and medication
- the kind of food eaten the night before the test. It is generally advised to avoid high fat foods and alcohol the night before a test.

“85% of decisions about diagnosis and treatment are based upon laboratory results”



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Things To Know

When Given A New Medical Prescription

Know the Name of the Drug and Directions

When your doctor prescribes a new medication for you, have the doctor clearly pronounce the name of the drug and spell it. Write it down on a notepad in your own handwriting. Write down the strength and directions for using the drug in your own handwriting as well.

Repeat the Directions

Before you leave your doctor's office, repeat the directions for using the new medication back to your doctor. By stating how often you should take it, with food or no food, or any other special directions, you can feel certain you understand.

Reason for the Prescription

Do you know specifically why your doctor is prescribing this particular medication for you? It's the right time to ask why the doctor chose this drug for you and how the doctor expects you will benefit by using it. By knowing the expected benefit, it will help you remain compliant with the medication schedule.

Establish a Time Frame

Discuss a time frame with your doctor. How long before you should expect to notice improvement? What is a reasonable time to wait before giving up on the drug and trying something else? By establishing a plan and real goals, you will be inclined to be compliant with taking the new medication and give it a chance to work.

Ask for Samples

Ask your doctor if he has samples of the drug. Trial samples will help you decide if the drug is one you want to continue with before laying out your cash.

List of All of Your Medications

Make a complete list of all medications and supplements which you are currently taking. Update your list when medication changes are made. Be sure that all of your doctors and your pharmacist have the most current list of your medications so they can be alert to any possible drug interactions or important details about your medications.

Monitoring Drug Effectiveness

Ask your doctor to explain how the effectiveness of the new medication will be monitored. How will your doctor know it is working? Will you need periodic blood tests?

Keep a Symptom Diary

In a journal, write down the date, times of day you take your medications, how you feel before and after you take them, and make notes of other pertinent details or questions you have formulated. Show your journal/symptom diary to your doctor at your next appointment.

Learn About Your Medications

Learn about your medications from excellent drug resources on the Internet. You can look up indications, side effects, interactions, warnings and more.

Be Realistic About Your Expectations

Even after you know what the medication is expected to do and how long it might take for noticeable improvement to occur, don't expect a miracle. Arthritis cannot be cured but it can be managed. Realize that there are benefits and risks associated with every medication or treatment. Prepare for the next step, along with your doctor, in case you fail this medication. Be compliant with treatment but be open to adapting your treatment plan as needed.



“When your doctor hands you a new prescription, it becomes your responsibility to know what the medication is for, how to take it, and what possible side effects might occur. Here are 10 tips for what you should do when given a new prescription that will help to ensure your safety and understanding.”



Sodium Sensibility

Sodium is an essential mineral, found in table salt and many other foods that perform many vital functions in the body. Although sodium is required for good health, too much may raise blood pressure in certain people. Since high blood pressure is a risk factor for heart disease and stroke, it is important to keep a track record of your blood pressure level with your doctor.

It is recommended that you do not exceed 2.3 mg of sodium a day. This is about a level of sodium containing one teaspoon of salt.

Keep in mind that sodium is only one of many risk factors that affect blood pressure. Other factors include being overweight or obese, lack of physical activity, excessive alcohol intake, age, family history of high blood pressure and being of African descent.

Food sources of sodium

Batswana consume excess sodium from a variety of foods including salt added to the cooking, dried meat (biltong), fast foods particularly in urban areas (such as pizzas, sandwiches, hamburgers, hotdogs and soup). A “salty” taste does not necessarily mean that a food is high in sodium and foods that do not taste salty may contain deceptively high levels of sodium. For example lightly salted potato chips contain less than 7% of the daily value of sodium.

Simple sodium solutions:

Fast food outlets and restaurant meals generally contain high level of sodium. Aim to prepare home cooked meals more often using fresh foods where possible.

- When eating out, order dressings and sauces on the side and use sparingly.
- Don't reach for the salt shaker. Instead enhance flavour with seasonings such as crushed garlic, herbs, ground spices and toasted sesame seeds.
- Eat fresh foods and vegetables. They are generally low in sodium and many such as bananas and potatoes, are rich sources of potassium.

When food shopping, look for the products with claims such as;

- Salt-free
- Low in sodium
- Lightly salted
- Reduced in sodium.

Reduce the sodium in your diet gradually because it can take time for your taste buds to adjust to lower sodium products.



Are you taking
**SMART
STEPS**
for your health?

CONSIDER THESE CHALLENGES

Restroom Challenge

Every time you need to use the restroom, take the stairs to another floor.

Three or Less Challenge

Take the stairs if you are travelling three floors or less.

Calorie Challenge

You burn 10 calories taking the stairs vs. 1.5 calories waiting on or for an elevator.

One or Two Challenge

Get off the elevator one or two floors before your destination and take the stairs

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Cholesterol Quiz



How much do you know about cholesterol? Take our quiz to test your knowledge, and get invaluable tips on how to improve your diet and other lifestyle factors that can affect your risk of heart disease.

Scramblers

Unscramble each of the clue words

SSERGRPO

LLEECCG

ZZPEUL

FFIICUDLT

IITTNESC

- What can I do to reduce my high blood cholesterol?**
 - Follow a low saturated-fat, low cholesterol diet
 - Be more physically active
 - Lose weight if I am overweight
 - Take my cholesterol lowering medication if prescribed
 - All of the above
- I'm young, so I don't really have to worry about high cholesterol.**
 - True
 - False
- Which of the following is a desirable total cholesterol level?**
 - Less than 5.5mmol/L
 - 10-15mmol/L
 - 20-25mmol/L
- If a product's package reads "low cholesterol", it's also low in fat.**
 - True
 - False
- High cholesterol is always dangerous.**
 - True
 - False
- Which of these foods is lowest in saturated fat?**
 - Coconut oil
 - Whole milk
 - Chicken, with skin
 - Butter
 - Wholemeal bread
- Since I don't have heart disease, I don't need to be concerned about my cholesterol level.**
 - True
 - False
- Which of these foods does not have a lot of cholesterol?**
 - Steak
 - Bananas
 - Prawns
 - Butter
 - Eggs
- If I follow a low-fat diet and exercise a lot, my cholesterol levels will go down.**
 - True
 - False
- Cutting out cholesterol-containing foods is not a sure-fire way to lower my blood cholesterol levels.**
 - True
 - False

