CMScript

complete

2017 collection

CMS
Council for Medical Schemes

Member of a medical scheme? Know your guaranteed benefits!

· Tuberculosis · Corneal Ulcers · Colorectal Cancer · Myasthenia Gravis
· Acute Otitis Media · Early Gastric Cancer · Diabetes Mellitus Type 1
· Human Immunodeficiency Virus · Age Related Macular Degeneration

information@medicalschemes.com
Hotline: 0861 123 267
Fax: 012 430 7644

Contents

Foreword

It is with great delight that we bring you this annual edition comprising all the CMScripts published in 2017 by the Council for Medical Schemes (CMS).

These articles are aimed at providing clear and concise health information for the use of members and beneficiaries of medical schemes. The healthcare sector is a dynamic one as advancements in medical knowledge and healthcare technologies are ever evolving.

The regulatory role of the CMS is to ensure that medical Schemes are managed in accordance with the Medical Schemes Act, and that the interests of the members and beneficiaries of medical schemes are protected.

The publication of up to date medical information on the various medical conditions covered under the prescribed minimum benefits (PMBs) regulations of the Medical Schemes Act, No. 131 of 1998, is one of the several ways in which the CMS carries out its mandate to ensure that members are aware of their entitlements and obligations regarding the PMBs. Each CMscript is arranged in a format that covers the medical condition under discussion, the symptoms and signs, complications, and more importantly, what medical scheme members can expect to be covered or excluded as benefits from their Medical Schemes.

Topics are decided upon based on the complaints trends and clinical enquires received via email and telephone by the CMS. Medical conditions that are in the news headlines are also prioritized for CMScript publications.

The conditions discussed in the CMScripts are presented in a simple manner to provide information regarding member entitlements under the PMBs, in order to help them navigate this complex terrain.

We look forward to yet another exciting year of the series, as well as feedback from members, on all CMS platforms.

CMScript Team

Clinical Unit

Dr Olurotimi Modupe (Senior Manager: Clinical) - Contributor
Dr Helen Nel (Medical Advisor) - Contributor
Kate Kgasi (Clinical Analyst) - Contributor
Ronelle Smit (Clinical Analyst) - Contributor
Evelyn Thsehla (Clinical Researcher) - Contributor
Esnath Maramba (Health Economist) - Contributor

Stakeholder Relations Unit

Pulane Molefe (Communications Manager) - Editing
Silindubuhle Mnqeta (Customer Relations Officer) - Concept, Layout and Design
Bontle Ntsoane (Communications Intern) - Proofreading

Prescribed Minimum Benefits

Prescribed Minimum Benefits (PMBs) were established under the Medical Schemes Act, 131 of 1998 (the Act) to ensure that members have access to certain minimum health services, regardless of the benefit option they have chosen. The regulations to the Act provide details regarding the application of the PMBs.

The Act facilitates access to healthcare by creating a framework for non-discriminatory access to medical schemes. The right to access healthcare, in its preventive and curative forms, is enshrined in the constitution of South Africa. The introduction of legislated PMBs was to satisfy the constitutional obligation of ensuring that every South African has access to basic and adequate healthcare.

PMBs refer to the benefits contemplated in section 29 (1) (o) of the Act, and cover the diagnosis, treatment and cost of care. PMB benefits include emergency medical conditions.

Emergency medical condition means the sudden and, at the time, unexpected onset of a health condition that requires immediate medical or surgical treatment, where failure to provide medical or surgical treatment would result in serious impairment to bodily functions or serious dysfunction of a bodily organ or part, or would place the person's life in serious jeopardy.

Diagnostic Treatement Pairs (DTPs) are an exclusive list of 270 conditions / groups of conditions, listed by organ-system chapter, in the form of diagnosis and treatment pairs that medical schemes are compelled to pay for, without any limitations, as part of PMB benefits.

Chronic Disease List (CDL) entitlements includes the diagnosis, medical management and medication, to the extent that this is provided for by way of a treatment algorithm for the specified condition. Examples of CDL conditions are Asthma, Diabetes Mellitus and Hypertension.

Identification of PMBs

In isolation, ICD-10 (diagnosis) codes are seldom enough to correctly identify PMB claims. The PMB regulations define PMB benefits as a diagnosis with specified severity, in relation to specified treatment. Where additional information is required to validate a PMB diagnosis, the onus is on the treating provider to provide a discharge summary that could be used as additional information to assist in identifying PMB claims.

Registration for PMB benefits

The PMB Code of Conduct published in 2010 explains that considering that many PMB claims cannot be correctly identified as PMB benefits merely based on ICD-10, procedure or medicine codes; a pre-registration, application or authorisation process may be required by medical schemes. Such pre-registration, application or authorisation process must not place an unnecessary burden on, and must be readily accessible to patients and providers.

The registration for PMB benefits is applicable to benefits which require once-off registration such as CDLs, the chronic elements of DTPs (such as post-transplantation care) and pregnancy. Registration prevents repeat application for benefits in cases where conditions are of a chronic nature or where treatment interventions are spread over a longer period.

Where pre-registrations and authorisations are neither possible nor practical, (as with certain DTPs such as Otitis Media), medical schemes may establish an application process. In the case of emergencies, medical schemes may not deny benefits because authorisation or registration was not obtained prior to the diagnosis, treatment or care intervention.

Payment of PMBs

Any benefit option that is offered by a medical scheme must be paid in full, without co-payment or the use of deductibles, for the diagnosis, treatment and care costs of the prescribed minimum benefits conditions. Medical schemes are allowed to have managed care protocols and formularies to manage their financial risk.

PMB benefits should be provided subject to the application of these protocols and formularies, Designated Service Provider (DSP) arrangements, evidence based medicine, cost-effectiveness and affordability of the required interventions.

Diabetes Mellitus Type 1

Diabetes Mellitus is caused by defects in insulin secretion, insulin action or both. The condition is regarded as one of the increasing health problems in the world, including South Africa. It is estimated that in 2011, a total of 366 million people worldwide had diabetes, and as many as 4.6 million deaths were attributable to the disease. In South Africa, eight out of a hundred people are living with the disease. There are mainly 2 types of Diabetes Mellitus, namely, Type 1 Diabetes Mellitus and Type 2 Diabetes Mellitus. The focus of this article will be on Type 1 Diabetes Mellitus. It is estimated that 76 000 children aged between 0 and 14 years are developing this condition worldwide, each year.

What is Diabetes Mellitus Type 1?

Type 1 Diabetes Mellitus occurs at any age but is commonly diagnosed in children, adolescents and young adults. In this condition, the body produces little or no insulin because the cells in the pancreas that are responsible for producing insulin are destroyed. Insulin helps keeps the blood sugar level from getting too high or too low. When the insulin is not enough, glucose (sugar) builds up in the bloodstream instead of going into the cells where it is used for energy.

Causes

The exact cause of the condition is not clear. It is however attributed to the autoimmune diseases or conditions where the immune system mistakenly attacks and destroys the healthy cells in the pancreas. The tendency to develop autoimmune diseases, including Type 1 Diabetes Mellitus can be passed down through family linage.

What are the signs and symptoms?

The signs and symptoms for Type 1 Diabetes Mellitus are excessive thirst, increased appetite, blurring of vision, weight-loss, feeling tired all the time. In the very young children, symptoms may be subtle and are frequently misjudged.

Diagnosis

It is generally easy to diagnose the condition based on information provided by the patient or the caregiver. Simple tests like urine dipsticks and blood glucose test strips can help in making a diagnosis. The laboratory tests such as a fasting blood sugar, oral glucose tolerance test, random blood sugar and Haemoglobin A1c (HbA1c) can be performed to validate the diagnosis.

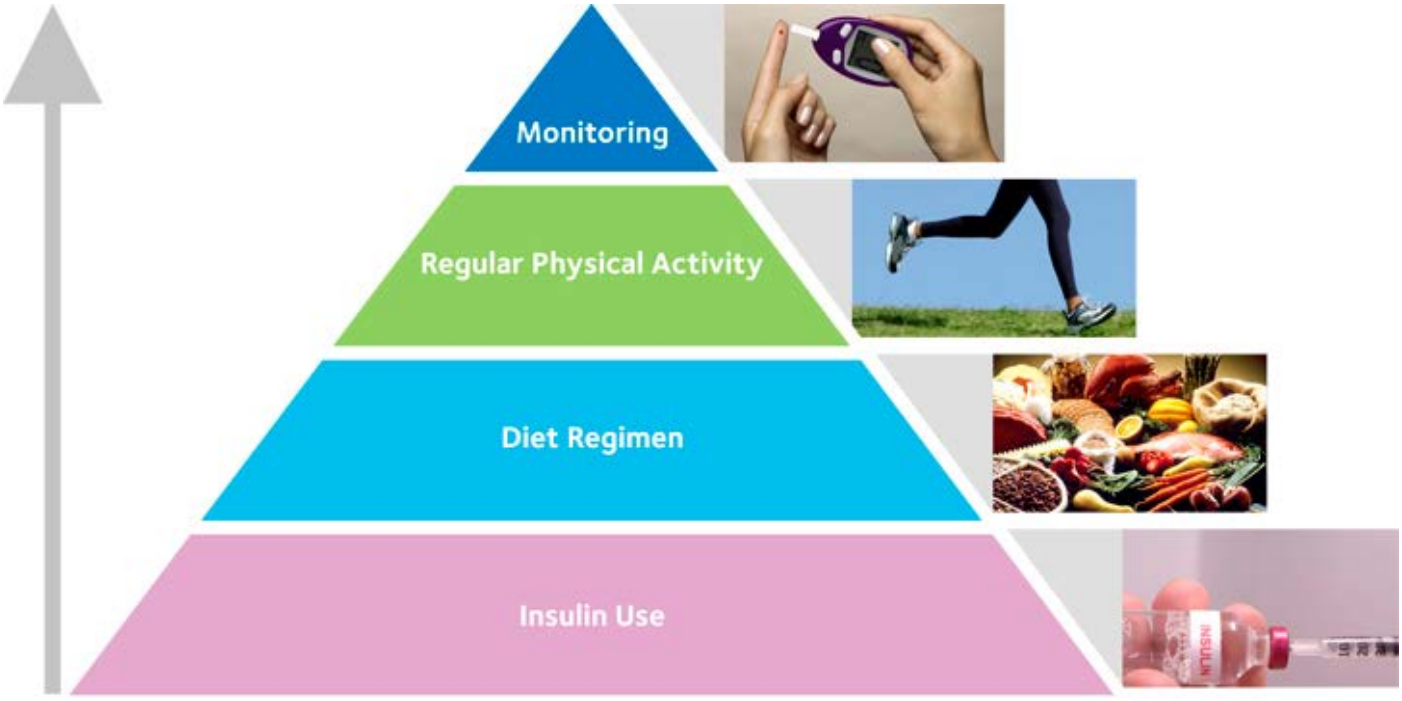

Figure 1: Important elements in the management of type 1 diabetes mellitus

Treatment and lifestyle modification

Patlents who have just been diagnosed with the condition may need to be admitted and stay in the hospital until they are stable. After the discharge from the hospital, regular follow-ups may be needed to ensure that the blood sugar is under control. Once the condition is stable, fewer visits with the doctor will be required. The importance of treatment is to obtain a blood sugar level that is as close to the normal range as possible. Daily self-monitoring of blood glucose, using blood glucose test strips and injections with insulin, are essential. In addition, healthy eating, maintaining a healthy weight and exercising or increasing physical activity can help with the management of the disease as shown in figure 1 on page 2.

Periodic monitoring of long-term concentration of glucose (HbA1c) is required because this test provides an indication of the average blood glucose level of the previous 10-12 weeks. A limitation of HbA1c is that it does not take into account fluctuations in the blood sugar which can play a role in development of complications. Management of this condition requires a multidisciplinary team approach.

Complications

Due to the lack of insulin, patients with Type 1 Diabetes Mellitus are likely to develop diabetic ketoacidosis (DKA) which is a life threatening condition. Signs and symptoms of DKA are deep rapid breathing, dry skin and mouth, flushed face, fruity breath odour, nausea and vomiting, and abdominal pain.

Hypoglycaemia (low blood sugar levels) can occur due to the mismatch between the dose of insulin, food intake, and recent exercise. The signs of low blood sugar include hunger, headache, nervousness, rapid heartbeat, sweating, tremors (shaking) and weakness. A glass of sweet beverage can be taken when a patient who is on treatment experiences these symptoms whilst on the way to consult a healthcare worker.

There are late complications related to the condition which include conditions such as foot ulcers and delay in their healing, diabetic neuropathy (nerve damage commonly in the legs and feet), diabetic retinopathy (diabetic eye disease) and kidney failure.

What is covered under PMBs?

Type 1 Diabetes Mellitus is a PMB condition under the Chronic Disease List. The treatment component specified for this condition according to the PMB Regulations is medical management. The diagnosis, treatment and care of this condition should be funded according to the PMB Regulations. It is important to note that treatment and care include urine tests, blood tests, blood glucose test strips for home testing and other required monitoring services. Therefore, consultations with an eye specialist, a dietician and a podiatrist where necessary constitute PMB level of care. Additionally, acute and chronic medication should also be funded according to the PMB Regulations.

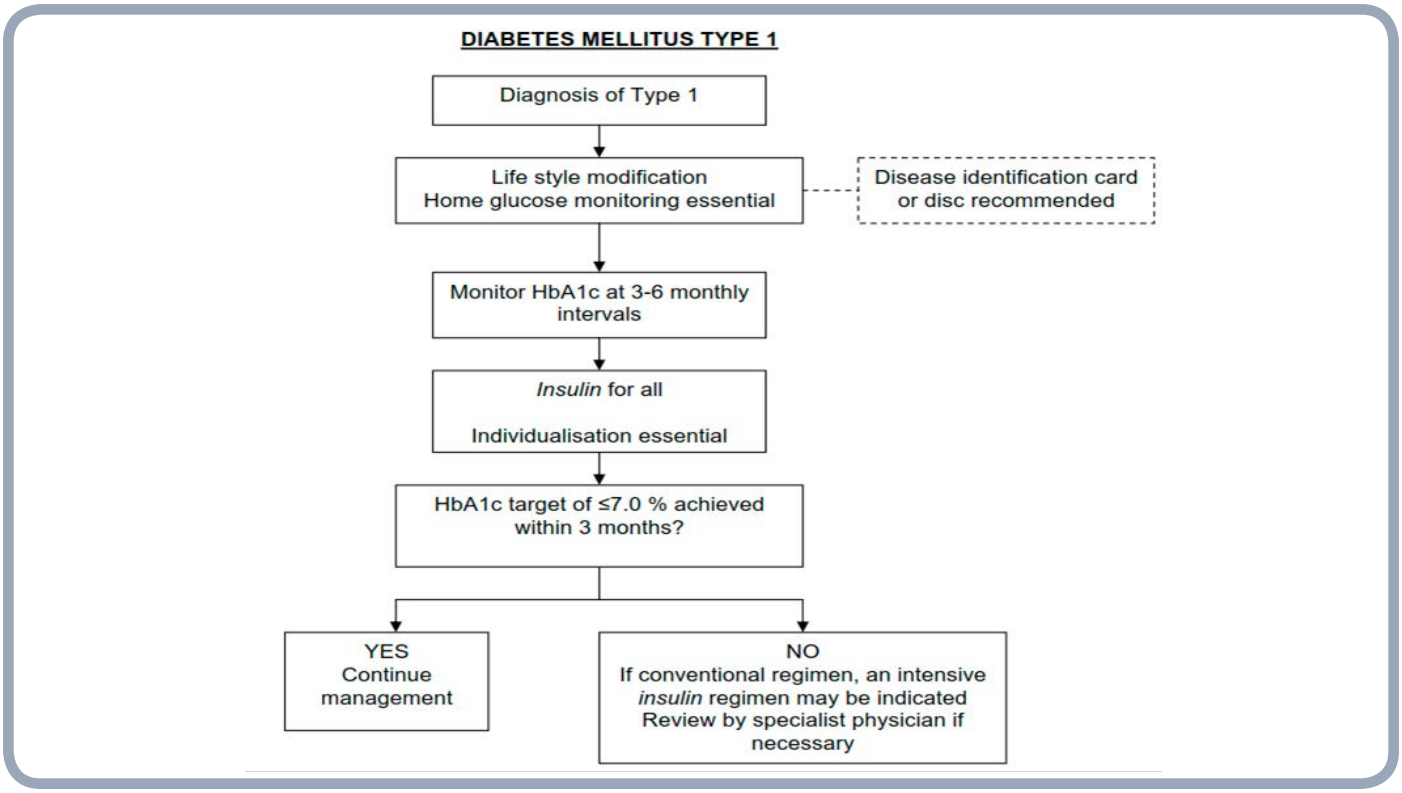

Figure 2: Therapeutic algorithm for Diabetes Mellitus Type 1

Management of this condition according to the PMB CDL algorithm is specified on figure 2 on the next page.

Based on this algorithm, lifestyle modification and home glucose monitoring are important. Insulin therapy for all the patients is vital. Insulin pump therapy and pancreatic transplant do not fall within the scope of this PMB algorithm.
In terms of accessing the PMB benefits, it is important for the doctor to register the member's condition with the medical scheme so that the benefits for the diagnosis, treatment and care can be paid as PMB.

It is always important for the member to confirm with the medical scheme the benefits and diagnostic tests covered per year. This is important because the medical scheme is allowed to limit the number and types of tests covered per year. If the doctor deem it necessary for tests that the medical scheme does not normally fund, to be conducted, he/she should write a clinical motivation to the medical scheme for payment to be considered as PMB.

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UNITE TO END TB

Tuberculosis

Tuberculosis (TB) is one of the top 10 causes of death in the world, ranking above HIV and Malaria. A total number of 1.8 million people died from TB in 2015. An estimated 10.4 million new cases of TB were recorded globally in 2015. Sixty percent (60 %) of these cases were recorded in India, Indonesia, China, Nigeria, Pakistan and South Africa. Tuberculosis is a leading cause of death in South Africa. In 2014, more than 37 000 lives were lost due to Tuberculosis.

What causes TB?

Tuberculosis is an infection that is caused by a germ called mycobacterium tuberculosis, a bacterium (germ) that most often leads to TB of the lungs (pulmonary tuberculosis). Extrapulmonary (outside the lungs) TB is TB that has spread to other parts of the body, such as the digestive and urogenital tracts, the brain, bones, joints, the nervous system, lymph nodes and skin.

There are two types of TB conditions;

- Latent TB: In this condition, you have a TB infection, but the bacteria remains in your body in an inactive state and causes no symptoms.
- Active TB: This condition makes you sick and can spread to others. It can occur in the first few weeks after infection with the TB bacteria, or it might occur years later.

TB germs usually spread through the air when a person infected with TB of the lungs coughs, sneezes or talks.

Who is most at risk?

People who have weak immune systems such as young children, adolescents, the elderly and people who suffer from illness such as cancer, HIV/AIDS, diabetes, and silicosis are at risk of being infected with TB. People who smoke and drink alcohol excessively are also at risk of getting infected with TB.

What are the symptoms of TB?

Symptoms of Active TB of the lungs may include:

- A cough that lasts more than 2 weeks
- Night sweats
- Weight loss
- Chest pain
- Coughing up blood
- Fever and Chills
- Loss of appetite

How is TB diagnosed?

If the signs and symptoms indicate that you could have TB, the treating doctor will conduct the following tests to confirm the diagnosis.

- Medical History: a full history of symptoms and exposure to TB.
- Physical examination: an examination of the body to check general signs and symptoms.
- A sputum examination: this includes direct examination under a microscope of the sputum and the culture of the TB germs, and the testing to establish which medicines would be most effective to treat the

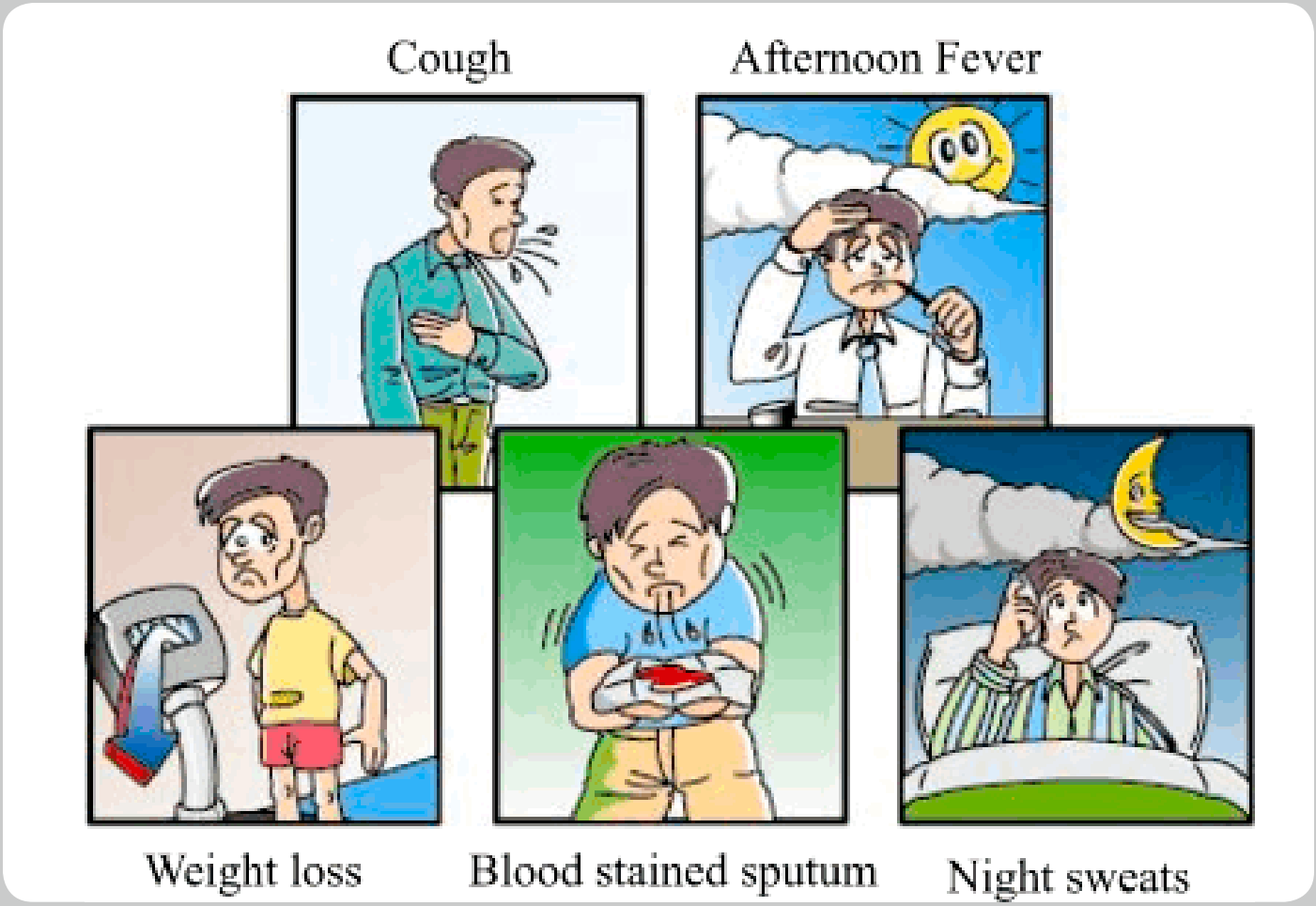

Figure 1: Symptoms of TB

germs.

- Chest x-ray: usually used in patients who cannot produce sputum and where it is suspected that extra pulmonary TB is present.
- Xpert MTB/RIF: this is an automated test that can detect both TB and drug resistance TB within 2 hours.
- Biopsies: In cases where TB occurs outside of the lungs, biopsies may have to be taken and/or body fluids (such as the fluid surrounding the lungs or the fluid around the spinal cord) may have to be examined in a laboratory.

If you have been exposed to, or diagnosed with TB, people living close to you especially children younger than 6 years have to be examined as well.

How is TB treated?

TB is treatable and curable, but requires rigorous unbroken treatment that lasts for at least six months. The aim of the treatment is to get rid of the bacteria/germ that causes TB. These bacteria remain in your body even when you start feeling better. To prevent the development of drug multidrug-resistant bacteria, you need to take the medicines as prescribed and finish the course of treatment. The development of multidrug-resistant TB (MDR-TB) is almost always caused by the irregular, or otherwise improper, use of TB drugs. Drug-resistant TB is much more difficult to cure and requires a range of additional drugs, including regular injections. In addition, the treatment of drug-resistant TB frequently requires prolonged hospitalisation.

Treatment for TB can include a combination of medications for a period of 6-18 months, depending on whether you suffer from non-resistant TB, multi-drug resistant TB or extreme-drug resistant TB. The most common medications used to treat tuberculosis include:

- Isoniazid
- Rifampin
- Ethambutol
- Pyrazinamide

Additional medications such as Pyridoxine (Vitamin B6) and Steroids may be used to prevent side effects caused by the TB medications. Common side effects caused by TB medication include:

- Burning, numbness and tingling sensation in the feet
- Joint pains
- Anorexia
- Nausea

- Abdominal pains
- Skin rash with/ without itching
- Changes in the colour of urine
- Impaired vision
- Yellowing of eyes
- Confusion

Children 6 years of age and younger who live in close contact to a person with TB may be put on treatment to prevent infection.

Complications

Without treatment, tuberculosis can be fatal. Untreated active TB typically affects your lungs, but it can spread to other parts of your body through your bloodstream.

Examples of tuberculosis complications include:

- Spinal pain: tuberculosis can affect the spine causing back pain and stiffness.
- Tuberculous arthritis: usually presents as pain in joints of the hips and knees.
- Meningitis: complications of TB can lead to lasting or intermittent headache that occurs for weeks due to swelling of the membranes that cover the brain and spinal cord. Mental changes also are possible.
- Liver or kidney problems: liver and kidneys can be affected. The liver and kidneys help filter waste and impurities from your bloodstream. These functions become impaired if the liver or kidneys are affected by tuberculosis.
- Heart disorders: in rare cases, tuberculosis can infect the tissues that surround your heart, causing inflammation and fluid collections that may interfere with your heart's ability to pump blood effectively.

What is covered under PMB level of care?

Tuberculosis is a prescribed minimum benefit under diagnosis treatment code 11S as stated in Annexure A of the Medical Schemes Act.

According to the Annexure, the benefits for TB, include the diagnosis, acute medical management thereof, and successful transfer to maintenance therapy in accordance with the guidelines of the Department of Health. PMB entitlement includes the diagnosis, treatment and care costs of the condition. Medical Schemes must therefore provide cover for the consultation(s) and appropriate investigation(s) (radiology and pathology) that are necessary to make the diagnosis as well as medication.

Medical schemes may use designated service providers (DSPs) to provide PMB-related services such as medication, consultations, investigations, and hospitalisation. DSPs could be radiology and pathology practices, doctors, pharmacists, hospitals and other healthcare providers where you can obtain your PMB-related services without having to co-pay for them. However, medical schemes may never indicate that they do not cover the costs of diagnosing, treating and/or the care of TB and that you can only get this cover in the public sector.

Your scheme may refer you to a state facility only if it has DSP arrangements with the state or public facilities. Co-payments may apply if you choose to use a non-DSP. But the medical scheme cannot refuse to cover TB treatment. If a medical scheme initially covered these costs from your savings account, you should ask them to review the claims and allocate the costs to the risk pool since PMB-related services may not be paid from savings accounts. If your funds were depleted and you had to pay for the diagnosis yourself, the medical scheme must once again be notified and requested to re-process the claims and refund you accordingly.

Members who are HIV-positive have additional PMB entitlements for screening and preventative therapy and treatment of TB, regardless of the outcomes of the tests. Hospitalisation for acute TB, TB meningitis and cases where surgery is required, is included in the PMBs for the disease.

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"Every person with tuberculosis has the right to be treated for his or her disease. TB can be cured. This scourge can be defeated. So let us stop denying them this basic human right."
- Archbishop Desmond Tutu

Human Immunodeficiency Virus

South Africa is still heavily affected by Human Immunodeficiency Virus (HIV) infections. More than 15% of the country's population aged 15–49 years are living with the disease. The total number of persons living with HIV in the country has increased from an estimated 4,72 million in 2002 to 7,03 million by 2016. This pattern shows that there has been a steady increase in the number of HIV infections in South Africa. Antiretroviral Therapy (ART) has on the other hand converted HIV infection from an almost universally fatal illness to a chronic manageable disease. This CMScript focuses on HIV infections in adults.

Introduction

There is a need to strengthen HIV prevention and management in line with the National Department of Health's new targets to ensure that 90% of people living with HIV know their status; 90% of people diagnosed with HIV infection have access to Anti-Retroviral Therapy (ART); and 90% of all people receiving ART have suppressed viral loads (VLs). New guidelines have been developed to provide the necessary direction and give impetus towards improved management of HIV infections across different populations.

Types of HIV

HIV 1 is most common in sub-Saharan Africa and throughout the world. HIV 2 is mainly found in West Central Africa, parts of Europe and India. HIV 2 causes a more slowly progressive disease than HIV 1.

How is HIV transmitted?

HIV is transmitted through unprotected sexual contact with an infected partner; exposure of broken skin or wound to infected blood or body fluids; transfusion with HIV-infected blood; injection with contaminated objects; as well as mother to child transmission during pregnancy, birth or breastfeeding.

Prevention

- Abstinence is the only 100 % effective method of not acquiring HIV
- Monogamous relationship by having only one sex partner
- Having protected sexual intercourse by using condoms (female or male) every time during sexual intercourse
- Use of sterile needles

Stages of HIV infection

According to the World Health Organization (WHO), the different stages of infection are as follows:

Stage 1 - Patients are asymptomatic or have persistent generalised swollen lymph nodes (lymphadenopathy for longer than 6 months).

Stage 2 - Patients may have mild symptoms, some may experience unexplained weight loss and recurrent respiratory tract infections such as sinusitis (inflamed sinuses), bronchitis (Inflammation of the lining of your bronchial tubes, which carry air to and from your lungs), middle ear infections and pharyngitis (Inflammation of the throat).

Stage 3 - As the disease progresses, additional clinical signs may appear such as unexplained diarrhoea, pulmonary (lung) tuberculosis, and severe bacterial infections such as pneumonia, meningitis (inflammation of the protective membranes covering the brain and spinal cord known as the meninges), bone and joint infections.

Stage 4 – the stage characterised by opportunistic infections, opportunistic cancers, recurrent pneumonias, severe weight loss, meningitis, memory loss.

How is HIV diagnosed?

Pre-test counselling should be provided to patients before any testing can be done. HIV testing can be done in the providers' rooms using a rapid test kit to diagnose HIV. Blood taken from a finger prick or oral mucous can be used for testing. Results are often available within 20 to 30 minutes. If the test results are positive, another rapid test may be done to confirm the diagnosis. When the initial and the confirmatory test are conflicting, the provider needs to send blood to the laboratory to confirm the diagnosis.

HIV blood test can also be done directly at the laboratory. The most commonly used blood test is an Enzyme Linked Immonosorbent Assay (ELISA). Once the blood result is positive, a second test may be done to confirm the result.

Benefits of knowing one's HIV status

Ability to plan for the future such as making decisions about having children, learning how to protect self and others by using condoms, ability to access care and support including treatment to prevent opportunistic infections such astuberculosis (TB).

Treatment

The CMS published circular (73 of 2016) in support of the new guidelines highlighting the fact that, since 1st September 2016, the following criteria has been specified to start patients on lifelong ART:

- all HIV positive children, adolescents and adults regardless of CD4 count will be offered ART treatment, giving priority to those with CD4 ≤350.
- patients in the Pre-ART and Wellness programme shall be considered for UTT (Universal Test and Treat).
- willingness and readiness to start ART shall be assessed and patients who are not ready for treatment shall be kept in the wellness programme, with continuous counseling at every visit on the importance of early treatment and scheduled CD4 as per SA clinical guidelines.
- baseline monitoring of CD4 count will still be carried out as it is the key factor in determining the need to initiate Opportunistic Infection prophylaxis at CD4 ≤200, identify eligibility for cryptococcal antigen (CrAg) at CD4 ≤100, prioritisation at CD4 ≤350 and fast tracking at CD4 ≤200.

Standard ART consists of the use of at least three medications to maximally suppress HIV and stop the progression of the HIV disease.
ARTs commonly used are:

- Nucleoside Reverse Transcriptase (NRTI) inhibitors such as Zidovudine (AZT), Lamivudine (3TC), Tenofovir (TDF) and Emitricabine (FTC).
- Non-Nucleoside Transcriptase (NNRTI) inhibitors like Nevirapine (NVP) and Efavirenz (EFV)
- Protease Inhibitors (PI) such as Lopinavir/Ritonavir (LPV/r)

Pre-exposure prophylaxis (PrEP)

The new guidelines recommend that people with a substantial risk of HIV infection should be provided with daily Pre-Exposure Prophylaxis (PrEP) as part of a combined HIV prevention strategy. PrEP is defined as the use of antiretroviral drugs by HIV-negative people, before po-

tential exposure to HIV, to block the acquisition of HIV infection. The recommended regimen which is to be taken daily is Tenofovir (TDF) or a combination of Tenofovir and Emtricitabine (Truvada). Healthcare providers should assess and identify the right candidates for PrEP based on their reported risk behaviours.

Post-exposure prophylaxis (PEP)

PEP is treatment used to prevent HIV infection after exposure to blood or bodily fluids such as semen and vaginal fluids. Exposure may be due to needle stick injuries, sexual assault or rape and unprotected sexual intercourse. Pre- and post-test counselling should be offered to all exposed persons at any testing facility.

PEP should be administered as soon as possible, that is within 72 hours of the incident. All PEP ARV medication must be administered for a full 28 days' period. Condom usage for 6 months to protect the partner is very important until the ELISA test is negative. Triple ARV therapy is also used for PEP.

Cotrimoxazole Prophylaxis

Patients with CD4 count of 200 or stage 2, 3 or 4 HIV disease (including TB) need Cotrimoxazole prophylaxis. Dapsone is given to patients who have had a reaction to Cotrimoxazole.

Immunizations

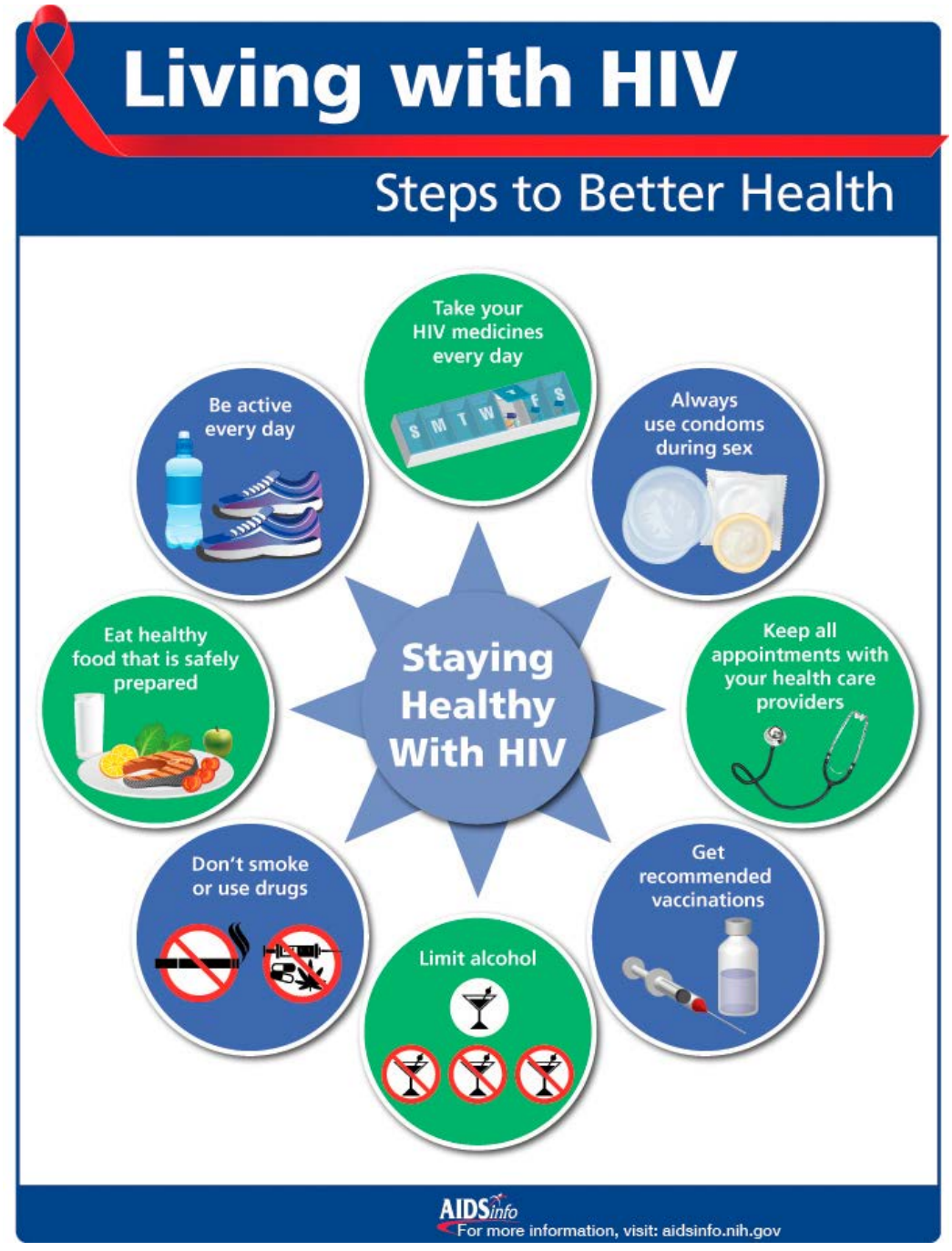
Influenza vaccine is recommended yearly before the influenza season for all HIV infected patients.

Substituting ART

There are times when treatment needs to be changed. This can happen when a patient experiences symptoms of drug toxicity due to immune recovery especially after initiation of ART. This however usually resolves spontaneously. Replacing the medicine which is causing side-effects may be all that is needed to clear the drug toxicity.

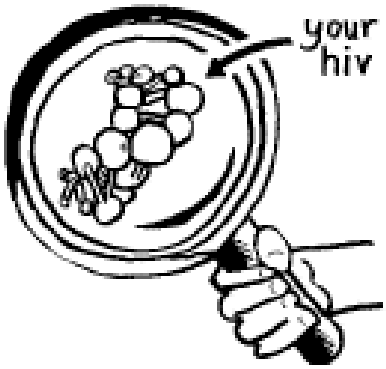
There are also instances when treatment needs to be switched due to virological failure. Virological failure is considered when the viral load is more than 1000 copies/ml on two occasions despite intensive adherence counselling.

Virological failure is almost always related to poor adherence, often due to poor attention by the clinician to drug toxicity, or where social factors have not been addressed.



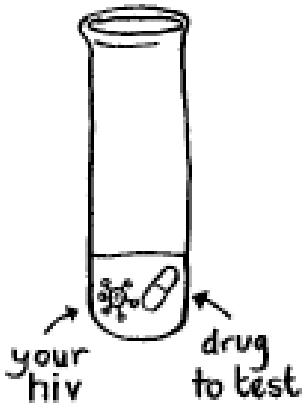
1. genotype

Genotype tests look to see how the structure of a sample of your HIV may have changed.



2. phenotype

Phenotype tests see whether HIV drugs still work to control your type of HIV.



Issues which impact adherence to treatment

Personal, and/or environmental issues may hamper adherence to treatment. Personal issues can be internalised stigma; external discrimination, denial of diagnosis, unresolved grief reaction, lack of disclosure, guilt, alcohol and other substance abuse or addiction, mental illness and dementia.

Environmental issues which can impact adherence relate to pill burden, side-effects of medication, income and food insecurity – underlying starvation, shift work and time off from the workplace to attend appointments. The perceived negative attitude of health workers can also lead to non-adherence.

Ways to promote adherence

Patients need support from the medical team concerning adherence at all points of intervention, including discussing a treatment plan that the patient can understand and commit to. Information needs to be given to patients about undesirable drug-drug interactions than can be caused by the use of herbs and other medications including over-the-counter preparations. These drug-drug interactions may lead to kidney and liver toxicity, and may even weaken the effect of antiretroviral drugs.

In addition, missed appointments for medicine pick-ups are a powerful predictor of poor adherence, and should trigger immediate questions about issues that may affect attendance and adherence. Attendance and participation in a support group, and having a treatment buddy can be beneficial.

Regarding employment, patients should be encouraged to return to the job market as soon as it is possible, or to seek support. Employer support is also crucial for medical check-ups and monthly medication pick-ups.

Follow-up blood tests

Blood tests such as CD4 count and Viral Load will be monitored once treatment is started. Other blood tests such as Full Blood Count (FBC) or Haemoglobin, Creatinine (kidney function) and Alanine transaminase (ALT) for the liver function may need monitoring depending on the treatment regimen that the patient has been put on.

Resistance testing

Resistance occurs when ARTs prescribed cannot stop the virus from multiplying in the body anymore. Resistance testing is recommended for all patients failing first-line NNRTI-based ART regimens, with failure defined as two VL measurements of more than a 1000 RNA copies/ml, with adherence and other issues addressed.

Resistance tests help to provide information about the ARTs that the virus is resistant to and may mean that the patient is not adhering to treatment. This information allows the clinician, if possible together with an expert to decide on the most appropriate second-line regimen. Resistance testing is also suggested for all patients failing second line PI-based ART regimen.

What is covered under PMB level of care?

HIV is a PMB condition. All medical schemes are required by law to pay for the diagnosis, treatment and care costs of the condition in full. The following should therefore be paid according to the PMB regulations:

- HIV voluntary counselling and testing; Co-trimoxazole as preventative therapy; screening and preventative therapy for TB; diagnosis and treatment of sexually transmitted infections; pain management in palliative care; treatment of opportunistic infections; prevention of mother-to-child transmission of HIV; post-exposure prophylaxis following occupational

exposure or sexual assault; medical management and medication, including the provision of anti-retroviral therapy; as well as ongoing monitoring for medicine effectiveness and safety, to the extent provided for in the national guidelines applicable in the public sector.

- If you have been exposed to HIV or diagnosed with the condition, it is important to confirm with your medical scheme about the number and types of tests, consultations and medications covered for the diagnosis. This is important because the medical scheme is allowed to limit the number and types of tests, as well as the number of consultations that will be covered in a calendar year. The medical scheme is also allowed to have a formulary (list of medications) approved for the treatment of HIV according to the PMB regulation.
- However, should the treating doctor see the need for additional tests, consultations or medications which are not normally funded by your medical scheme he/she should write a clinical motivation to your scheme; and the scheme must then pay for the requested services.
- The CMS in line with the requirements of the PMB regulations, has adopted the current national HIV treatment guidelines. The medical schemes should therefore fund the diagnosis, treatment and care of HIV according to the recently adopted National Guidelines.

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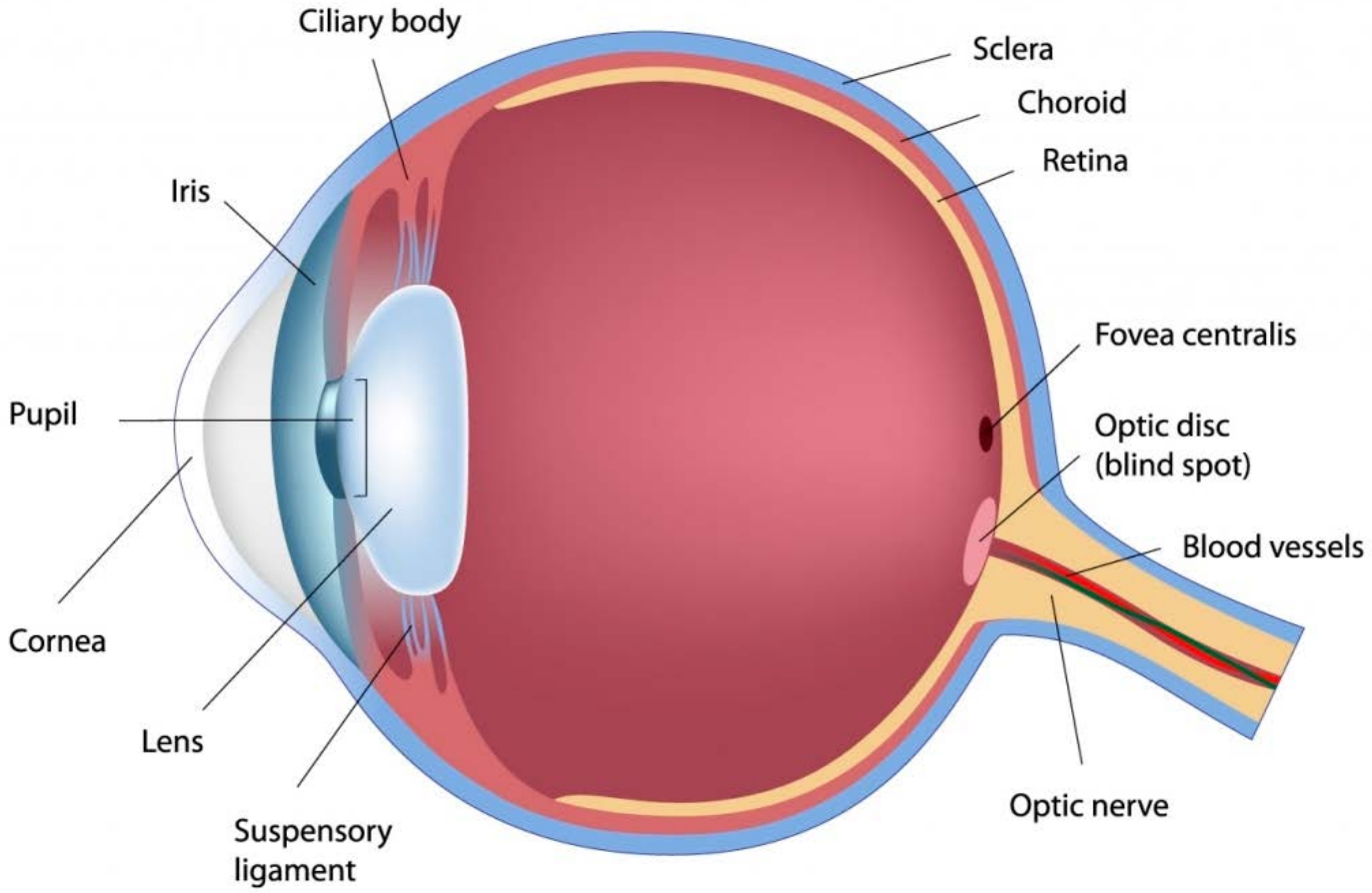

Age Related Macular Degeneration

According to the World Health Organisation (WHO) age related macular degeneration is the third cause of blindness globally. This edition of the CMScript will focus on the degeneration of the macula in the eye.

Anatomy of the human eye

The human eye is not completely round and consists of an anterior section (front part that you can see when looking in a mirror) and the posterior section (the area behind the front part that is not visible to the naked eye).

The anterior segment of the eye includes the:

- Iris – the coloured part the eye
- Cornea – a transparent, protective layer over the iris
- Pupil – the round opening that is visible as the black circle and allows light to enter the eye
- Sclera – the white part of the eye
- Conjunctiva – a thin layer of tissue that covers the entire anterior area except the cornea of the eye

Behind the iris, lies the lens which is responsible for focusing light on the back of the eye.

The posterior segment of the eye starts behind the lens and firstly consists of the vitreous gel. The entire inside of the eye is covered by light sensing cells. This layer is called the retina.

The macula is found at the back of the posterior segment. It is a very small, extra-sensitive part of the eye needed for sharp, central vision and the ability to see straight ahead. In this article we focus on the degeneration of this specific area in the eye.

What is Age Related Macular Degeneration (AMD)?

Age related macular degeneration (AMD) is a common eye condition affecting mostly the people older than 50 years. The condition causes damage to the macula.

The exact cause of the condition is not known. It is not inherited in a specific manner although there are genes associated with the condition and family members have a very high risk of developing the condition.

Figure 2: Blank spots develop in the central vision on people with AMD.

Certain factors that may increase the risk of developing the condition have been identified. These include:

- Smoking
- A diet that does not include green, leafy vegetables and fish
- Over exposure to high levels of ultra violet light
- AMD may advance very slowly in certain people and loss of vision does not occur for a long time. In others, the condition progresses faster and may cause loss of vision in one or both eyes. As the condition progresses a blurred area near the center of vision is a common symptom. Straight lines may appear wavy or distorted. The blurred area may grow larger, or blank spots develop in the central vision. Objects also may not be as bright as it used to be.

Types of Age Related Macular Degeneration

There are two types of AMD, namely "dry" or atrophic (destroying or decrease of an organ or tissue in the body) AMD and "wet" AMD.

In this article we are only focusing on "wet" AMD.

"Wet" or Neovascular AMD is the result of the growth of new blood vessels in the choroid (vascular layer in the eye) and as such it causes an accumulation of fluid in the macula which leads to retinal damage.

Age Related Macular Degeneration (AMD) and Prescribed Minimum Benefits

Age Related Macular Degeneration (the formal diagnosis is H35.3 - Degeneration of macula and posterior pole) is a Prescribed Minimum Benefits (PMB) condition under Diagnostic Treatment Pair (DTP) code 904B. This DTP refers to Retinal detachment, tear and other retinal disorders.

Diagnosis

In the early and intermediate stages, Age Related Macular Degeneration (AMD) may be symptom free and can only be detected through a comprehensive eye examination by an Ophthalmologist (eye specialist).

The eye specialist may perform the following tests as part of the diagnosis. Although all the listed tests are included in the PMB level of care, only tests that are clinically necessary should be performed.

- Visual acuity test – this is a test where an eye chart is used to measure how well you see at various distances.
- Fundus contact lens or 90D lens examination / Peripheral fundus examination – the test involves the widening of the pupil by placing specific eye drops in the eye to provide a better view of the back of the eye, specifically the retina and the optical nerves.

- Keratometry – the test measures the anterior corneal curvature of the eye.
- Fundus photography – the test is basically taking a photograph of the retina to document the diagnosis, progress and treatment of the condition.
- Optical Coherent Tomography (OCT) of the Optic nerve or macula – the test uses light waves to achieve very high-resolution, three dimensional images of the eye tissue.
- Fluorescein Angiography - a fluorescent dye is injected into the arm. Pictures are taken as the dye passes through the blood vessels in your eye. This makes it possible to see if there are any leaking blood vessels, which occur in a severe, rapidly progressive type of AMD.

Treatment

Wet AMD is now being treated with anti-vascular endothelial growth factor (anti- VEGF) injections into the retina. These injections are most effective when administered in the early stages of the condition.

The current Prescribed Minimum Benefit (PMB) treatment component specified for this condition, according to the PMB Regulations is Vitrectomy; laser treatment. These procedures are however seldom used. Treatment with anti-VEGF injections into the retina is currently the national standard of care in the state sector and therefore included in the PMB level of care. The anti-VEGF drugs registered for treatment of AMD are Lucentis® (Ranibizumab) and Eylea® (Aflibercept).

The national standard of care for wet AMD in the state sector is the anti-VEGF drug called Avastin ® (Bevacizumab), even though this drug is not actually registered for the treatment of AMD. It is therefore regarded as off-label use for this condition.

Ophthalmologists (eye specialists) prefer to use Lucentis® (Ranibizumab) and Eylea® (Aflibercept), only in advanced cases or cases that do not respond to Avastin ® (Bevacizumab), due to the high cost of these two drugs. Avastin qualifies as PMB level of care due its status as the national standard in the state sector, as well as the cost-effectiveness of this drug.

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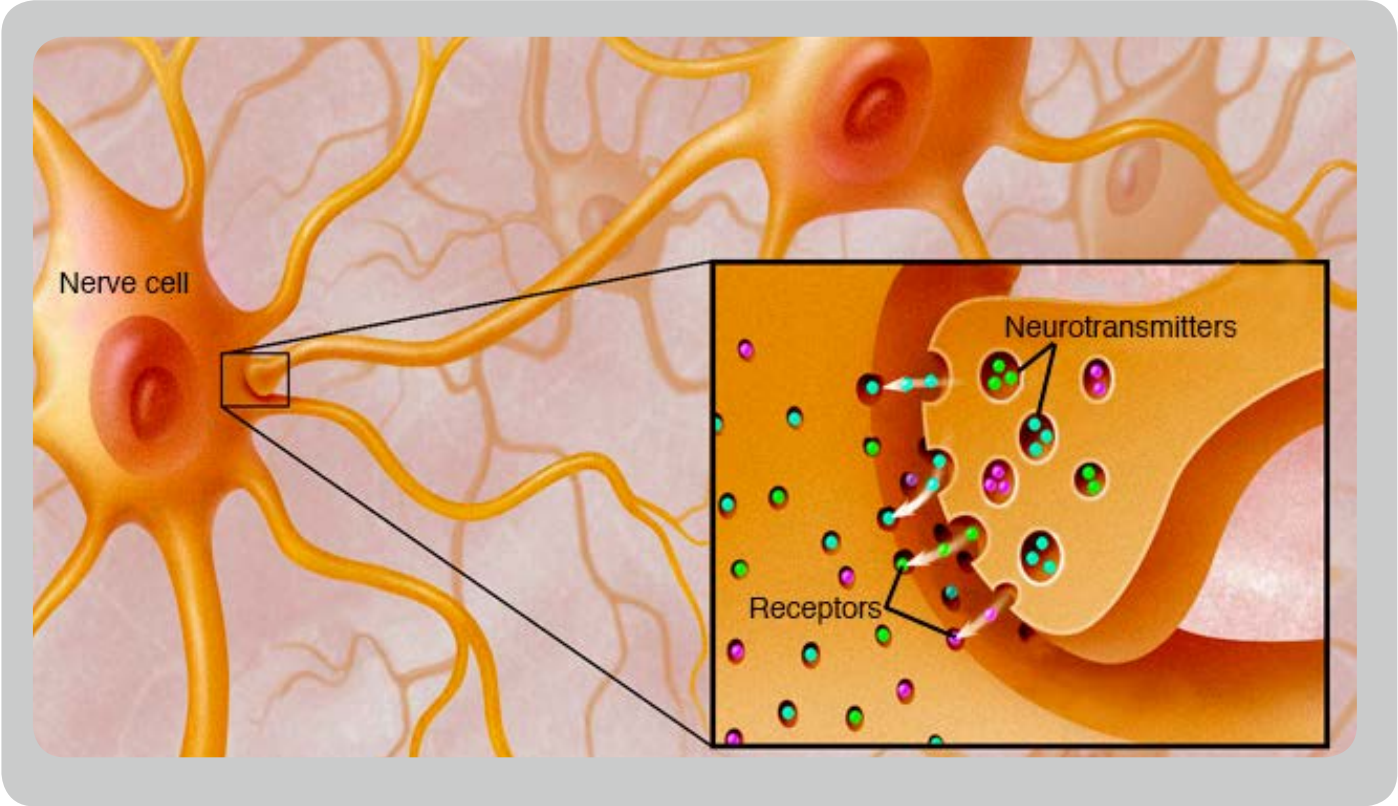

Myasthenia Gravis

Myasthenia Gravis (MG) is a Chronic Autoimmune Neuromuscular condition that causes weakness in certain muscles of the body. MG is caused by an error in the transmission of nerve impulses to the muscles. In MG the immune system makes antibodies that mistakenly attack the connections between nerves and muscles preventing muscles from contracting and resulting in weakness.

What does autoimmune mean?

The immune system (the body's infection-fighting technique) normally makes proteins called "antibodies," which help to prevent or fight infection.

Antibodies are proteins made by the body's immune system when it detects harmful substances. Antibodies may be produced when the immune system mistakenly considers healthy tissue as harmful substance.

What is the neuromuscular junction?

The Neuromuscular junction is the meeting point of a nerve cell and the muscle it controls. Communication happens between the nerve and muscle fibers through the nerve cells called neurons. Due to this communication or transmission of signal, the muscle is able to contract or relax. When the muscles contract, Acetylcholine gets released by the nerve cells. Acetylcholine acts as a chemical messenger that causes our skeletal muscles to contract. The diagram above right shows the neuromuscular junction.

What causes Myasthenia Gravis?

MG is caused by an error in the transmission of nerve impulses to the muscles. In MG the immune system makes antibodies that mistakenly attack the connections between nerves and muscles preventing muscles from contracting and resulting in weakness. The diagram on the next page shows the antibodies attacking the junction between nerves and muscle.

Some people may have Myasthenia Gravis that is not caused by antibodies blocking Acetylcholine or the muscle-specific receptor tyrosine kinase. This type of condition is called antibody-negative Myasthenia Gravis.

The role of thymus gland in myasthenia gravis

The thymus gland, lies in the chest area beneath the breastbone (sternum), and plays an important role in the development of the immune system in early life. Its cells form part of the body's normal immune system. The gland

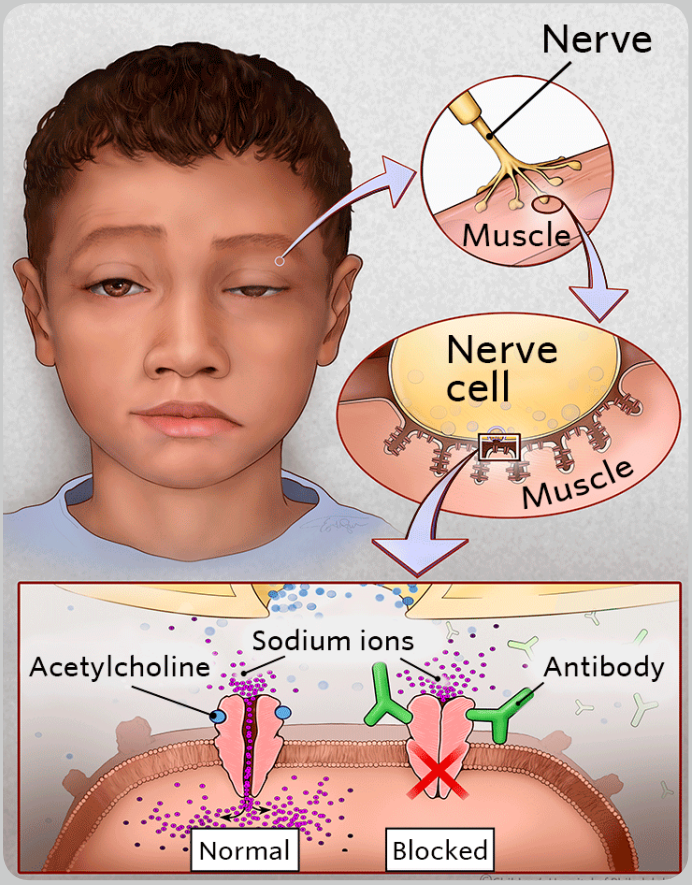

Figure 2: Antibodies attacking the junction between nerves and muscle.

is somewhat larger in infants, grows gradually until puberty, and then gets smaller and is replaced by fat with age. In adults with Myasthenia Gravis, the thymus gland remains large and is abnormal. Some individuals with Myasthenia Gravis develop thymomas (tumors of the thymus gland).

The relationship between the thymus gland and Myasthenia Gravis is not yet fully understood. Scientists believe that the thymus gland may give incorrect instructions to developing immune cells, ultimately resulting in autoimmunity.

What happens if I have Myasthenia Gravis?

The hallmark of Myasthenia Gravis is muscle weakness that increases during periods of activity and improves after periods of rest. Certain muscles such as those that control eye and eyelid movement, facial expression, chewing, talking, and swallowing are often, but not always, involved in the disorder. The muscles that control breathing and neck and limb movements may also be affected.

These include:

- Muscles in the eyelids and around the eyes – If MG only affects these muscles, doctors call it "ocular myasthenia gravis." About half of all people with MG have this type.
- Jaw muscles
- Arm or leg muscles
- Muscles that help with breathing

What are the symptoms of Myasthenia Gravis?

The main symptom is muscle weakness. It can come and go, and is often worse later in the day. This can result in:

- Ptosis (Droopy eyelids).
- Diplopia (Blurry vision or double vision).
- Trouble chewing food - The jaw muscles might feel tired about halfway through a meal.
- Trouble swallowing.
- Dysarthria (Trouble talking) – A person might speak in a lower voice than usual, or sound like he or she has a cold or stuffy nose.
- Loss of expression on the face.
- Head that feels heavy or drops forward.
- Trouble breathing – A person might feel short of breath, take extra breaths, or feel like it takes a lot of effort to breathe.
- Weakness – It might be hard to lift the arms or legs, open the fingers, or lift a foot.

Who gets Myasthenia Gravis?

Myasthenia Gravis occurs in all ethnic groups and both genders. It most commonly affects young adult women (under 40) and older men (over 60), but can also occur at any age. The condition is not directly inherited nor is it contagious.

What is covered under PMB level of care?

PMBs refer to the benefits as stated in Section 29 (1) (o) of the Medical Schemes Act, No. 131 of 1998 (the Act) Myasthenia Gravis is a PMB condition under Diagnosis and Treatment Pair (DTP) code 513A.

This DTP refers to Myasthenia gravis as muscular dystrophy; neuro-myopathies NOS. The treatment component specified for this DTP according to the PMB Regulations is Initial diagnosis; initiation of medical management; therapy for acute complications and exacerbations. The following should therefore be paid according to the PMB Regulations:

Diagnosis

The doctor will record the patient's medical history, do a physical and detailed neurological examination to understand the symptoms. If the doctor suspects Myasthenia Gravis, several tests can be performed to confirm the diagnosis. Not all patients qualify for all the tests mentioned below. The investigations are done subject to the discretion of the treating doctor.

The tests can include:

- Blood tests for certain antibodies that are found in people with MG such as acetylcholine receptor antibodies.
- Electrical tests of nerves and muscles – Repetitive nerve stimulation.This is a nerve conduction study in which doctors attach electrodes to your skin over the muscles to be tested. Doctors send small pulses of electricity through the electrodes to measure the nerve's ability to send a signal to your muscle. To diagnose Myasthenia Gravis, doctors will test the nerve many times to see if its ability to send signals worsens with fatigue.
- Imaging tests, such as Computerized Tomography (CT) or Magnetic Resonance Imaging (MRI) scans – Imaging tests can show changes, including a tumor on the thymus gland.
- Ice pack test – During this test, a doctor puts a cool pack on the eyelids. If the eyelids open better after resting under the cool pack, this could be a sign of MG.
- Pulmonary function testing - which measures breathing strength, helps to predict whether respiration may fail and lead to a Myasthenia crisis.

How is Myasthenia Gravis treated?

Initiation of treatments, which may include:

- Medicines to treat muscle weakness, such as pyridostigmine.
- Medicines that treat the immune system over time, such as prednisone or azathioprine. These medications improve muscle strength by suppressing the production of abnormal antibodies.
- Fast-acting immune system treatments, such as:
    - A medicine called "intravenous immune globulin" (IVIG) – high-dose intravenous immune globulin, which temporarily modifies the immune system by infusing antibodies from donated blood.
    - Plasma exchange (also called "plasmapheresis") –a procedure in which serum containing the abnormal antibodies is removed from the blood while cells are replaced.
- Surgery to remove the thymus gland in patients with thymoma (tumor of the thymus gland / abnormal tissue of the thymus gland) or hyperplasia of the thymus gland.
- Treatment options also include methotrexate, mycophenolate mofetil and cyclosporine.

As the PMB Regulations stipulate initiation of treatment, the chronic use of the abovementioned treatments is not included and the medical scheme does not have to fund the chronic medicine in full.

Therapy for exacerbations and acute complications such as pneumonia and respiratory failure must however be funded as PMB level of care by the medical scheme.

These therapies may be used to help individuals during especially difficult periods of weakness. A Neurologist will determine which treatment option is best for each individual depending on the severity of the weakness, the kind of muscles are affected, as well as the individual's age and other associated medical problems.

If MG attacks the muscles that help with breathing, it can cause severe breathing problems. These patients are usually treated in the Intensive Care Unit (also called the "ICU") and may require assisted ventilation.

Children with MG can take some of the same medicines prescribed for adults, at age appropriate doses. However, some medicines used to treat MG can cause more serious problems in children if used for a long time. Surgery to remove the thymus gland is safe for children and often works well.

What is a Myasthenic crisis?

A Myasthenic Crisis occurs when the muscles that control breathing weaken to the point that ventilation is inadequate, creating a medical emergency and requiring a respirator for assisted breathing. Respiratory failure is included in the PMBs and the medical scheme must fund the medical treatment, oxygen and ventilation in full.

What else should I know about Myasthenia Gravis?

People who have MG that affects more than just the eyes can have serious problems if they get the flu or pneumonia. For this reason, it is especially important that they get the flu vaccination every year and the pneumonia vaccine as per the national vaccination guideline.

Some medicines can make MG worse. Talk to your doctor or nurse before you take any medicines, including over-the-counter medicines. If you get a prescription for a new medicine, ask if it is safe to take when you have MG.

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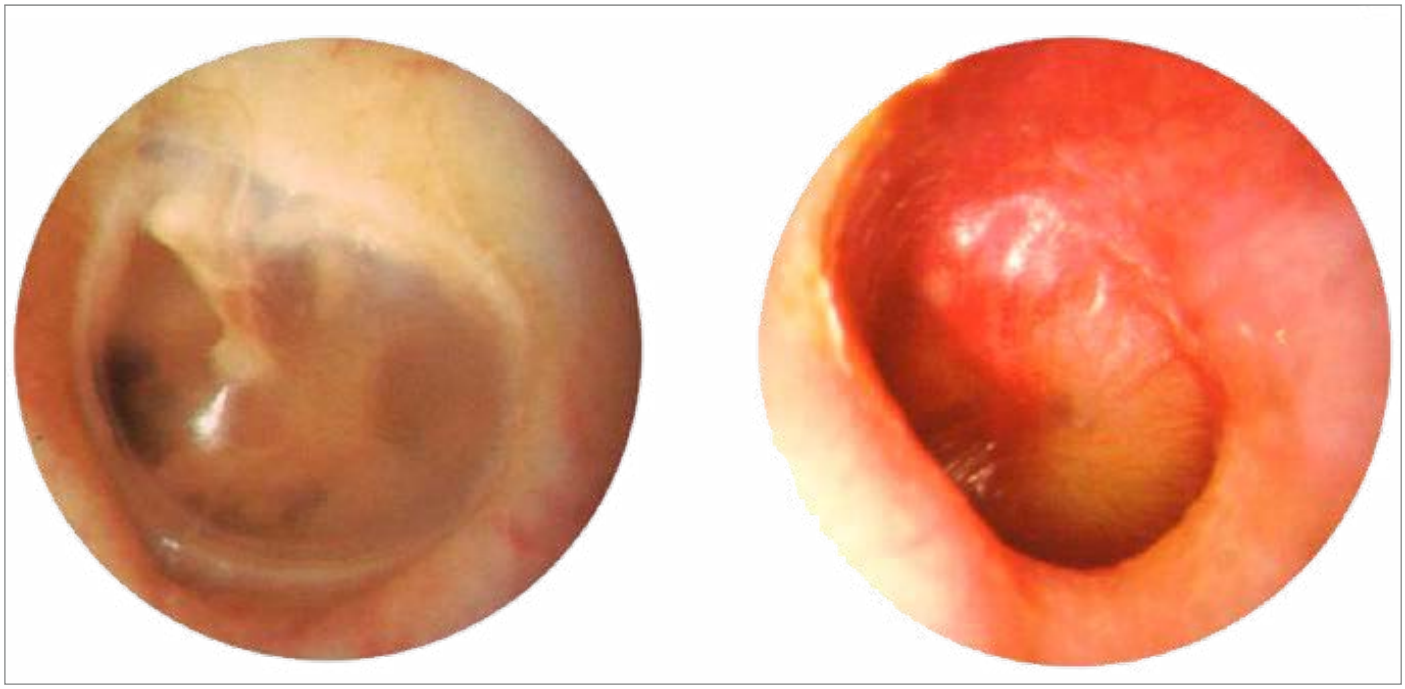

Acute Otitis Media

Ear infections are amongst the most commonly diagnosed conditions by healthcare providers. Roughly half of all infants will have had at least one ear infection by their first birthday. By age three, up to 90 percent of children would have had an ear infection.

What is Acute Otitis Media?

Acute Otitis Media (AOM) is an infection of the middle ear that causes inflammation (redness and swelling) and a build-up of fluid behind the eardrum. An "acute" ear infection is a short-term and painful ear infection that may come on rapidly. This is in contrast to a "chronic" ear infection that may last a longer time, come and go, and may cause permanent hearing damage. Anyone can develop a middle ear infection but infants between six and 15 months old are most commonly affected. Acute otitis media is not so common in school-age children, adolescents, and adults, but can still occur.

What causes Acute Otitis Media?

The condition is mostly caused by either a bacterial or a viral infection of the middle ear. The infection often results from a cold, flu or allergies, causing congestion and swelling of the nasal passages, throat and eustachian tubes. Nasal allergies to pollen, dust, animal dandruff or food can produce the same effect, as can smoke, fumes and other environmental toxins. The Eustachian tubes can also become blocked with mucus.

What are the Eustachian tubes and what are their role?

The eustachian tube is a narrow tube that connects the space behind the eardrum (the middle ear) with the back of the nose. The middle ear is normally filled with air and the air is constantly being absorbed by the cells that line the middle ear. So, fresh supplies of air are needed to get to the middle ear from time to time. The eustachian tube is normally closed but opens when we swallow, yawn or chew. This allows air to flow into the middle ear and any mucus to flow out. The opening of the eustachian tube keeps the air pressure equal on either side of the eardrum. Having equal air pressure on each side of the eardrum and the middle ear free of mucus, helps the eardrum to vibrate. This vibration is needed for us to hear properly.

Swelling, inflammation and mucus in the eustachian tube from an upper respiratory infection or allergy can block the tube, causing the accumulation of fluids in the middle ear. A bacterial or viral infection of this fluid is usually what produces the symptoms of AOM.

What are the Signs and Symptoms of Acute Otitis Media?

The onset of signs and symptoms of AOM is usually rapid. Symptoms usually begin two to seven days after an upper respiratory infection. Infants and children may have one or more of the following symptoms:

- Ear pain - especially when lying down, either a sharp,-

sudden pain or a dull, continuous pain
- Babies tugging or pulling at an ear
- Difficulty sleeping
- Crying more than usual
- Acting more irritable than usual
- Difficulty hearing or responding to sounds
- Fever of 100 F (38 °C) or higher
- Drainage of fluid from the ear
- Headache
- Decreased appetite in children
- A yellow or red and bulging eardrum, visible to a doctor when examining the infected ear
- Dizziness or change in balance
- Common signs and symptoms in adults
- Ear pain
- Drainage of fluid from the ear
- Diminished hearing

When to see a doctor

Signs and symptoms of an ear infection can indicate a number of conditions. It is important to get an accurate diagnosis and prompt treatment. Call your child's doctor if:

- Symptoms last for more than a day.
- Symptoms are present in a child less than 6 months of age.
- Ear pain is severe.
- Your infant or toddler is sleepless or irritable after a cold or other upper respiratory infection.
- You observe a discharge of fluid, pus or bloody discharge from the ear.

An adult with ear pain or discharge should see a doctor as soon as possible.

Who is at risk of developing Acute Otitis Media?

The following groups have a higher than average risk of developing AOM:

- Children three years and younger
- Individuals (children especially) who get recurrent colds and upper respiratory infections
- Children with enlarged adenoids - the swollen adenoid tissue may prevent the Eustachian tube from opening, allowing fluid to build up behind the eardrum
- Males
- Caucasians (higher risk than other ethnic groups)
- Individuals with a family history of ear infections
- Children whose siblings get ear infections
- Children in day-care centers
- People (children especially) living in households with tobacco smokers, or who are frequently exposed to tobacco smoke
- Children who are bottle-fed rather than breast-fed
- Children with Down's syndrome
- Children with cleft palate
- Children who suffer from allergies
- People with poor or weakened immune systems
- Poor socio-economic circumstances

How do I prevent Acute Otitis Media?

- Immunisation is the starting point for preventing AOM. All Children should be immunised at least in accordance with the requirements of the Expanded Programme of Immunisation (EPI).
- Wash hands and toys frequently to reduce chances of getting a cold or other respiratory infections.
- Avoid cigarette smoke.
- Administration of seasonal flu shots and pneumococcal vaccines.
- Breastfeed infants instead of bottle feeding them if possible.
- Health education messages in relation to personal hygiene should target the known risk factors mentioned above.

What is covered under PMBs?

AOM is a Prescribed Minimum Benefit (PMB) condition under Diagnostic Treatment Pair (DTP) code 482C - Acute otitis media. This implies that the medical scheme should fund the costs associated with the diagnosis, treatment and aftercare of AOM. The treatment component specified for this DTP according to the PMB Regulations is medical and surgical management including myringotomy.

Medical schemes may use designated service providers (DSPs) to provide PMB-related services such as medication, consultations, investigations, and hospitalisation.

Using the correct DSP for your PMBs guarantee that your medical scheme will cover your PMB conditions in full.

If you choose to use a non-DSP, you may be liable for a co-payment. Complications of a PMB condition are included for PMB funding as the complication would not have occurred if the original PMB did not exist.

Diagnosis

- Doctors diagnose acute middle ear infections by using a handheld light called an otoscope to look for bulging and redness of the eardrum and for fluid behind the eardrum.
- They may need to clean wax from the ear first so they can see more clearly.
- Doctors may use a rubber bulb and tube attached to the otoscope to squeeze air into the ear to see if the

eardrum moves. If the eardrum does not move or moves only slightly, infection may be present.
- An audiogram (hearing test) is also used to measure how much hearing loss has occurred.

Treatment

Medical management

Most AOM is treated with antibiotics and pain medication.
- Antibiotics, such as amoxicillin / amoxicillin-clavulanate (if there is no allergy to penicillin) or either a
- Macrolide e.g. Erythromycin or the combination of trimethoprim and sulfamethoxazole (in case of allergy to penicillin), may be used.
- Use painkillers such as paracetamol or ibuprofen.
- Place a warm or cold flannel on the ear.
- Preparations that contain decongestants such as oxymetazoline (e.g. Iliadin ®) or antihistamines such as chlorpheniramine (e.g. Allergex®) are not helpful for children.
- If the eardrum is bulging and the patient has severe or persistent pain, fever, vomiting, or diarrhea, a doctor may puncture the eardrum (called tympanic membrane perforation) to allow the infected fluid to drain. After this procedure, symptoms usually resolve quickly, hearing returns, and the eardrum heals on its own.

Surgical management
- For children and adults who keep getting ear infections in spite of using antibiotics, the doctor may recommend surgery to insert small tubes (grommets) into the ears to open airflow and improve drainage. Tubes usually stay in the ears for several months and then fall out on their own. These ear tubes are inserted through surgical procedure called a myringotomy. A myringotomy is a procedure to create a hole in the ear drum to allow fluid that is trapped in the middle ear to drain out.

Complications

AOM rarely leads to more serious complications. The eardrum may rupture, causing blood or fluid to drain from the ear. Nearby structures may also become infected and lead to:
- Infection of the bone surrounding the ear (mastoiditis) which causes pain.
- Infection of the inner ear (labyrinthitis) which causes dizziness and deafness.
- Infection of the tissues surrounding the brain (meningitis) or collections of pus in the brain which causes headache, confusion, seizures (fits), and other neurologic problems.
- Repeated infections may lead to abnormal skin growth in the middle ear behind the eardrum (a cholesteatoma). This cholesteatoma can increase in size over time and can damage the bones of the middle ear and cause hearing loss.
- Rare conditions that can result from continued cholesteatoma growth are permanent hearing loss, dizziness, and facial muscle paralysis.

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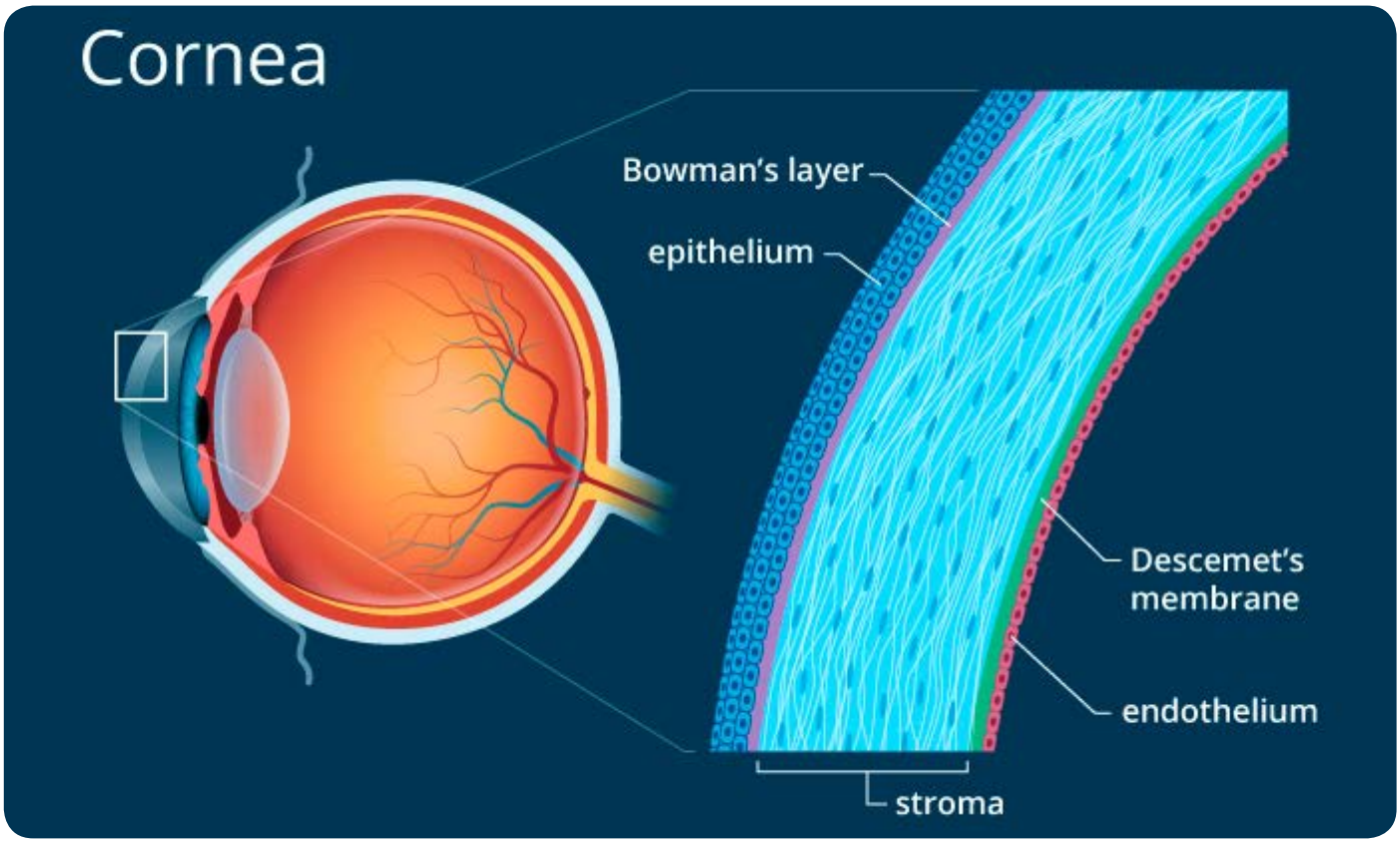

Corneal Ulcers

A corneal ulcer is a painful open sore on the cornea that can cause loss of vision and even blindness. A corneal ulcer appears as a grey to white cloudy or translucent area on the normally transparent cornea. Corneal ulcers may sometimes be too small to see without sufficient magnification and lighting.

What is the cornea?

The human eye consists of an anterior section (the front part that you can see when looking in a mirror) and the posterior section (the area behind the front part that is not visible to the naked eye).

The anterior segment of the eye includes the following:

- Iris – the coloured part the eye
- Cornea – a transparent, protective layer over the iris, pupil and anterior section.
- Pupil – the round opening that is visible as the black circle and allows light to enter the eye
- Sclera – the white part of the eye
- Conjunctiva – a thin layer of tissue that covers the entire anterior area except the cornea of the eye

The cornea is avascular (does not have blood vessels) yet it relies on elements in the blood to remain healthy. These elements are supplied by tiny blood vessels at the outer edge of the cornea and the end branches of the arteries that supply blood to the face and rest of the eye and face.

The cornea consist of five layers, each with a distinct function, namely the epithelium (absorb oxygen and nutrients from tears), Bowman's layer (can form scar tissue if damaged), the stroma (gives the cornea its form, elasticity, and strength), Descemet's membrane (protects against injuries and infection) and the endothelium (serves to defend against fluid build-up in the stroma and keep it transparent). The cornea itself helps protect the eye from harmful dust, germs, or other matter. It does this in conjunction with tears, the eyelid, the eye socket, and the sclera.

The main function of the cornea is to control and focus light that enters the eye. It provides 65 – 75% of the focusing power of the eye. The rest of the eye's focusing power is done by the lens.

What is a corneal ulcer?

A corneal ulcer is a painful open sore on the cornea that can cause loss of vision and even blindness. A corneal ulcer appears as a grey to white cloudy or translucent area on

the normally transparent cornea. Corneal ulcers may sometimes be too small to see without sufficient magnification and lighting.

Types and Causes of corneal ulcers

Corneal ulcers are divided into infectious and non-infectious ulcers.

Infectious corneal ulcers are most frequent and are usually caused by:

- Bacterial infections (infections caused by bacteria) – these are common in contact lens wearers, especially in those using extended-wear lenses
- Viral infections (infections caused by a virus) – Herpes Simplex that causes cold sores and the Varicella virus that causes chickenpox and shingles can cause corneal ulcers. Stress, an impaired immune system and exposure to sunlight often trigger these attacks
- Fungal infections (infections caused by a fungus) – fungal infections can be caused by the incorrect use of contact lenses, steroid eye drops and an injury that let plant substances to enter the eye
- Parasitic infections (infections caused by the parasite Acanthamoeba) – Acanthamoeba (known as amoeba) is a single-cell organism that is most often found in fresh water and soil. The organism can enter the eye and cause (keratitis) a serious infection
- Tiny tears to the cornea may also cause corneal ulcers. These tears can come from direct trauma, scratches, , cuts, or particles such as sand, glass, or small pieces of steel, and burns that become infected by bacteria

Non-infectious corneal ulcers can be caused by:

- Dry eye syndrome – occurs when the tears are not able to provide adequate lubrication for your eyes. This may cause infections, corneal abrasion and subsequently corneal ulcers
- Bell's palsy – the condition causes temporary weakness or paralysis of the facial nerve that controls, among others, facial expressions and eyelid movement. The muscle that opens the eye is controlled by a separate cranial nerve and the eye can easily open. The eyelid can, however, not be closed again. This result in a severe form of dry eye syndrome
- Other conditions – autoimmune diseases, neurotrophic, toxic, allergic keratitis, chemical burns, keratitis caused by entropion and blepharitis

Symptoms of corneal ulcers

If the corneal ulcer is caused by an eye infection you may notice signs of the infection before you are aware of a corneal ulcer. Symptoms of an eye infection include:

- Itchy eye
- Watery eye
- Pus-like discharge from the eye
- Painful eye
- Burning or stinging sensation in the eye
- Red or pink eye
- Sensitivity to light

Symptoms of a corneal ulcer include the following:

- Redness of the eye
- Severe pain of the eye
- Tearing
- Discharge that may include pus
- Blurred or reduced vision
- Sensitivity to light
- Swelling of the eyelids
- A white spot on the cornea that may or may not be visible when looking in a mirror

If you suspect that you may have a corneal ulcer it is critical to visit your doctor right away. A general practitioner will refer you to an ophthalmologist (eye specialist).

Complications of corneal ulcers

Most complications from corneal ulcers occur when the ulcer has been left untreated. Complications that may occur include:

- Loss of vision
- Scarring on the cornea
- Perforated corneal ulcer
- Loss of the affected eye
- Spread of infection to other parts of eye and body

Corneal Ulcer and Prescribed Minimum Benefits

Corneal ulcers are included in the Prescribed Minimum Benefits (PMBs) in the Diagnostic Treatment Pair (DTP) 911B - Corneal ulcer; Superficial injury of eye and adnexa. The treatment component is specified as conjunctival flap and medical management.

The most important part of the management of corneal ulcers is to obtain a diagnosis and treatment as soon as possible.

Diagnosis

The ophthalmologist will perform a test called a fluorescein eye stain. A drop of orange dye is placed on a thin piece of blotting paper which is transferred to your eye by touching the paper to the eye surface. The ophthalmologist use a slit-lamp (microscope with a special violet light) to look for damaged areas on the cornea. If your ophthalmologist

thinks that an infection has caused your corneal ulcer, they may take a tiny tissue sample. Local anaesthetic eye drops are placed in the eye before the ulcer is gently scraped. Examination of this sample by a pathologist will identify if an infection is present and if it is caused by bacteria, a virus or a fungus.

Treatment

Corneal ulcers caused by infections are treated with antibiotic, antiviral or antifungal eye drops. Antifungal tablets may be prescribed as well. If your eye is inflamed and swollen, you may have to use anti-inflammatory or corticosteroid eye drops but this needs to be done under close supervision of the ophthalmologist. Pain medicine (analgesics) are often prescribed as the condition is quite painful.

Conjunctival flap surgery is stated in the PMB treatment component but is currently not the general level of care in the state sector. The conjunctival flap very often becomes opaque (cloudy) and cause vision loss. As such it is used in older patients whom already suffer from vision loss or in blind patients. The conjunctival flap is performed to provide comfort and decrease pain in these patients.

Conjunctival flap surgery is furthermore clinically appropriate in patients who suffer from an infection that does not respond to medicine management. The conjunctiva flap is seldom removed as it may cause damage and there is a high risk of further infection. The opacification and subsequent vision loss are serious complications.

Corneal transplants are clinically the most appropriate surgical treatment as it is done when the corneal ulcer does not respond to treatment, cannot be treated with medication and has perforated the cornea. Corneal transplants restores vision and is the treatment of choice in both the state sector and the private sector even though the procedure is not specified in the PMB regulations.

Regulation 15H (c) states that provision must be made for appropriate exceptions where a protocol has been ineffective or causes or would cause harm to a patient.

Since the stipulated PMB treatment component namely conjunctival flap surgery may cause harm in the form of vision loss, corneal transplants can be considered as PMB level of care.

In cases where the corneal ulcer is severe and already perforated the cornea, emergency transplants are carried out. The rejection rate of donor corneas is fairly slim and chronic anti-rejection medication is not required. Should signs of a possible rejection occur your ophthalmologist will admit you to hospital for 24 hours of high dose, intravenous steroid treatment.

Care after a corneal transplant

People who received a corneal transplant is followed up very closely to ensure that no complications occur and frequent consultations with the ophthalmologist are required. The consultations are of critical importance to prevent cases of further infection and unsuccessful transplants.

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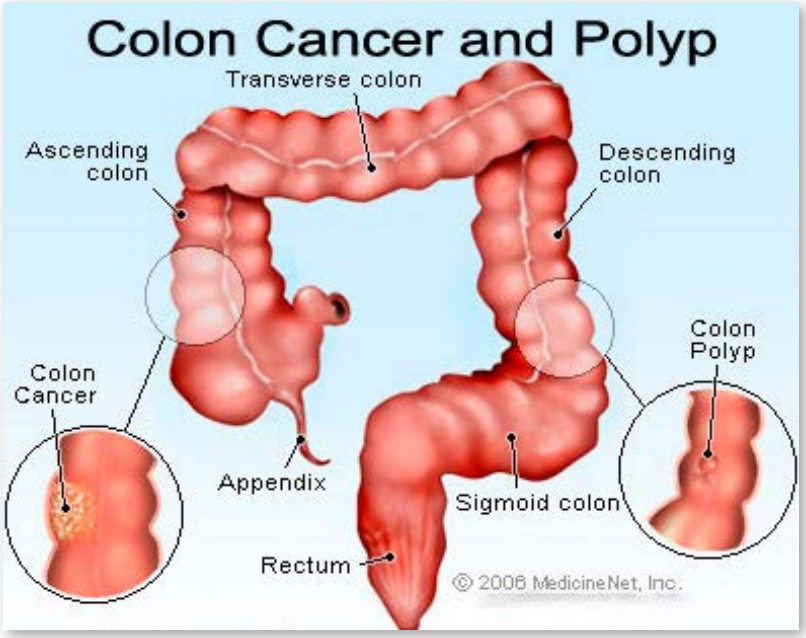

Colorectal Cancer

Colorectal cancer refers to cancer of the colon and the rectum. The colon is the large intestine and the rectum is the lower part of colon. Colorectal cancer is the third most common cancer worldwide and the fourth most common cause of death. It represents 9.4% of all cancers in men and 10.1% of cancers affecting women. In South Africa, colon cancer is ranked as the fifth most common type of cancer.

How does the condition occur?

Cancer of the colon and rectum first affects the epithelial lining of the intestine. It may also start as a benign (non-cancerous) polyp, then become malignant (cancerous), invade and destroy normal tissues and ultimately spread to the surrounding organs Cancer cells may migrate away from the primary area of origin and spread to other parts of the body such as the liver and lungs.

What causes colorectal cancer?

In most cases, it is not clear what causes colon cancer. Researchers have found that colon cancer occurs when healthy cells in the colon develop errors in their DNA (deoxyribonucleic acid). Several factors can however increase a person's risk of colorectal cancer. The following are some of the risk factors:

- A personal history of colorectal cancer or polyps: The risk of colorectal cancer increases in individuals who have had colon cancer or adenomatous polyps (mass of tissue).
- Family history of colon cancer: Individuals with a parent, sibling or child with the disease, are more likely to develop colon cancer.
- Inflammatory intestinal conditions: Chronic inflammatory diseases of the colon, such as ulcerative colitis and crohn's disease, can increase an individual's risk of colon cancer.
- Inherited syndromes: Genetic syndromes passed through generations of your family can increase your risk of colon cancer. These syndromes include familial adenomatous polyposis and hereditary nonpolyposis colorectal cancer, which is also known as Lynch syndrome
- Being overweight: People who are overweight have an increased risk of colon cancer as well as an increased risk of dying of colon cancer.
- Physical inactivity: People who are not active have a greater chance of developing colorectal cancer.
- Certain types of diets: Food that is high in fat and low in fibre can raise a person's risk for developing colorectal cancer.
- Smoking: People who smoke may have an increased risk of colon cancer.
- Alcohol use: Colorectal cancer has been linked to heavy alcohol use.
- Age: Colorectal cancer is much more common after the age of 50 years. Colon cancer can occur in younger people, but it occurs less frequently.
- Having type 2 Diabetes: People with type 2 diabetes have an increased risk of developing colorectal cancer.

Signs and symptoms

Initially, colorectal cancer may not cause any symptoms. When symptoms appear, they will likely vary, depending on

the cancer's size and location in the large intestine. The first signs of colorectal cancer may include the following:

- Persistent abdominal discomfort, such as cramps, gas or pain.
- A change in bowel habits such as alternating diarrhea and constipation that lasts for days. Vomiting may occur in later stages.
- Blood in the stool.
- A feeling that the bowel doesn't empty completely.
- Weakness and fatigue.
- Unexplained weight loss.
- A feeling of needing a bowel movement.

Diagnosis and staging

If the signs and symptoms indicate that you could have colorectal cancer, the treating doctor will conduct a number of tests to confirm the diagnosis. The following tests and procedures may be conducted:

- Medical History: A History of the patient's health habits, past illnesses and treatments.
- Physical examination: An examination of the body to check general signs and symptoms of disease such as lumps or anything else that seems unusual.
- Blood tests: To measure the number of blood cells which are important for the normal functioning of the body and to measure the amounts of certain substances released into the blood.
- Digital rectal exam: An exam of the rectum. The doctor or nurse inserts a lubricated, gloved finger into the rectum to feel for lumps or anything else that seems unusual.
- Fecal occult blood test (FOBT): A test to check stool (solid waste) for blood that can only be seen with a microscope. A small sample of stool is placed on a special card or in a special container and returned to the doctor or laboratory for testing. Blood in the stool may be a sign of polyps, cancer, or other conditions.
- Colonoscopy: To examine the inside of the colon and rectum using a thin, flexible tube called a colonoscope. It may also have a tool to remove polyps or tissue samples, which are checked under a microscope for signs of cancer.
- Barium Enema X-ray: To examine the inside of the colon using x-ray. A liquid that contains barium (a silver-white metallic compound) is put into the rectum. The barium coats the lower gastrointestinal tract and x-rays are taken. This procedure is also called a lower GI series.
- Biopsy: The removal of cells or tissues so that they can be viewed under a microscope by a pathologist to check for signs of cancer.

Once the diagnosis has been confirmed, staging of the cancer will be done to determine the extent of the cancer in the body. Knowing the cancer stage is important for determining the likely course of the condition (prognosis) and treatment options. Computerized tomography (CT) scan, and an ultrasound scan may be used for staging and risk assessment of the colon and rectum. The stages of colorectal cancer are then classified as below:

- Stage I: The cancer has grown through the superficial lining (mucosa) of the colon or rectum but hasn't spread beyond the colon wall or rectum.
- Stage II: The cancer has grown into or through the wall of the colon or rectum but hasn't spread to nearby lymph nodes.
- Stage III: The cancer has invaded nearby lymph nodes but isn't affecting other parts of your body yet.
- Stage IV: The cancer has spread to distant sites, such as other organs — for instance, to your liver.

Treatment

The choice of treatment will depend largely on the stage of the cancer and the location of the cancerous tissue. The three primary treatment options are surgery, chemotherapy and radiation.

Surgical treatment

When the cancer is located in the colon, the following surgical procedures may be indicated:

- Polypectomy – Is the removal of polyps (mass of tissue) from the colon, this procedure is done during colonoscopy where the cancer is small, localized in a polyp and in a very early stage.
- Colectomy - In this surgery, all or part of the colon together with surrounding lymph nodes are cut out.

Additional procedures may include:

- Stenting – A procedure whereby a metal is positioned across the tumour to relieve the obstruction allowing time to optimise and adequately stage the patient prior to surgery.
- A stoma – An opening on the belly created during surgery to allow waste to pass out of the body.

When the cancer is located in the rectum, the following surgical procedures may be indicated:

- Polypectomy - The cancer is removed as part of the polyp, which is cut out during colonoscopy.
- Trans-anal excision – This procedure is done to remove some early stage I rectal cancers that are relatively small, and not too far from the anus.
- Anterior resection - The cancer in the upper part of the rectum is cut out completely. The remaining colon is

then connected back to the remaining part of the rectum or brought out as an opening (stoma) on the belly.
- Low anterior resection with colo-anal anastomosis - The rectal cancers involving the middle and lower third of the rectum is cut off. The colon is then connected to the anus, a procedure known as colo-anal anastomosis.
- Diverting colostomy – This procedure entails bringing out the obstructed intestine onto the abdominal wall where the patient presents with obstructive symptoms. This often helps the patient recover enough to start other treatments (such as chemotherapy) prior to definitive surgery.
- Abdominoperineal resection (APR) - In this procedure the anus, rectum and sigmoid intestine are removed. An opening is then made on the belly to allow waste to pass out of the body.
- Extralevator abdomino-perineal resection – This surgical procedure is done in patients with distal rectal cancer in whom an anterior surgery cannot be performed

Radiation therapy

Radiation therapy is a cancer treatment that uses high-energy X-rays or other types of radiation to kill cancer cells or keep them from growing. Radiotherapy can also be used to relieve symptoms caused by metastases in the bones.

Chemotherapy

Chemotherapy is a cancer treatment that uses drugs to stop the growth of cancer cells, either by killing the cells or by stopping them from dividing. When chemotherapy is taken by mouth or injected into a vein or muscle, the drugs enter the bloodstream and can reach cancer cells throughout the body. Treatment may be given before surgery (neo-adjuvant) to reduce the size of the tumor or after surgery (adjuvant therapy) to suppress secondary tumour formation.

Supportive/Palliative care

Supportive care is care given to improve the quality of life in patients with cancer. The goal of palliative care is to prevent or treat, as early as possible, the symptoms and side effects of the cancer and its treatment, in addition to the related psychological, social, and spiritual problems. Palliative care will include management of symptoms and side effects such as, pain, diarrhea, nausea and vomiting through medication, surgical procedures and in some cases radiation therapy.

PMB level of care

Treatable colorectal cancer is a prescribed minimum benefit (PMB) condition under diagnosis treatment pair (DTP) code 950C. According to the PMB regulation, treatable cancers are defined as follows:

- They involve only the organ of origin, and have not spread to adjacent organs;
- There is no evidence of distant metastatic spread;
- They have not, by means of compression, infarction, or other means, brought about irreversible and irreparable damage to the organ within which they originated (for example brain stem compression caused by a cerebral tumour) or another vital organ.
- If points (i) to (iii) do not apply, there is a well demonstrated five-year survival rate of greater than 10%, for the given therapy, for the condition concerned.

According to the PMB regulations, schemes have to pay for the diagnosis, treatment and care costs of treatable colorectal cancer, regardless of the medical scheme option. This would include diagnostic tests and follow-up tests, consultations with doctors and other health professionals, surgery, radiology, chemotherapy, radiation therapy as well as palliative care.

Patients who have metastatic colorectal cancer are also entitled to some palliative care benefits. In these patients the cancer is not treatable and death will be imminent. Other palliative measures might therefore be taken to make the patient comfortable. These should be reimbursed as PMB level of care under DTP code 260S.

Glossary

- Anterior - situated nearer the front part of the body.
- Distal – situated away from the centre of the body, or from the point of origin.
- Excision – surgical removal of part or all of a structure or organ
- Polyp – a small growth, usually non-cancerous and with a stalk, protruding from a mucous membrane.
- Posterior – directed toward or situated at the back
- Resection – removal, as of an organ, by cutting.

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Early Gastric Cancer

Gastric or stomach cancer is one of the common cancers in the current era, and it is reported to be the 4th most common cancer in the world. There are almost 990 000 people worldwide who are diagnosed with this condition. In South Africa, gastric cancer is the 7th most frequently reported type of cancer.

What is a stomach?

It is a sac-like organ that holds food and initiates the digestion process by secreting gastric juice. The food and gastric juice are mixed and then emptied into the first part of the small intestine called the duodenum.

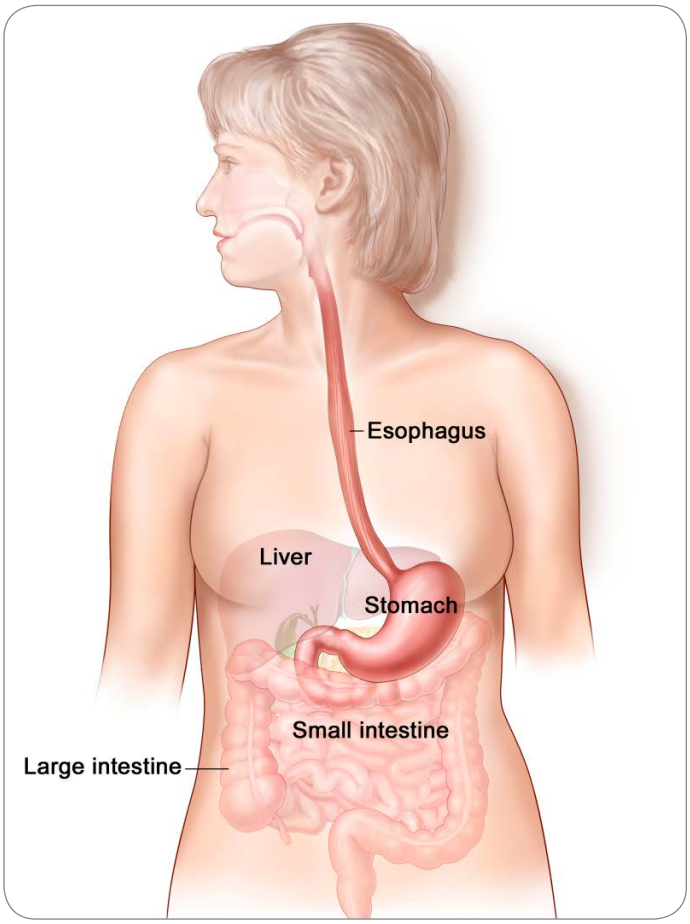
What is stomach cancer?

The cells in the body have certain jobs to do. Normal cells divide in an orderly way. They die when they are worn out or damaged and new cells take their place. Cancer occurs when the cells start to grow out of control. Stomach cancer is a cancer that starts in the cells that line the stomach. Stomach cancer tends to develop slowly over many years and is therefore often only diagnosed at an advanced stage because there are no specific early warning signs or symptoms.

What are the risk factors for stomach cancer?

The following are known risk factors for stomach cancer:

- Family history of stomach cancer - if a first-degree family member (parents, siblings, or children) has had stomach cancer, it can increase one's risk.
- Gender – stomach cancer is more common in men than in women.
- Age - stomach cancer is commonly diagnosed in people who are over 55 years of age.
- Infection with Helicobacter pylori bacteria – this germ seems to be a major cause of stomach cancer
- Diet - a diet high in salty and smoked foods, red meat and pickled vegetables, and a diet low in fruits and vegetables increases the risk for developing stomach cancer.
- Smoking - people who smoke are twice as likely to develop stomach cancer.
- Alcohol consumption - alcohol has been declared as Group 1 cancer causing chemical by the International Agency for Research on Cancer (IARC) in 1988.
- Certain occupations - workers in the coal, metal, nickel refining, rubber, timber and asbestos industries seem to have a higher risk of getting stomach cancer.
- Pernicious anaemia - if a person lacks Vitamin B12, it can cause pernicious anaemia, which affects the lining of your stomach and increases the risk for stomach cancer.
- Stomach surgery — there is an increased risk of stomach cancer after a stomach surgery.
- A history or present polyp larger than 2cm in the stomach increases the risk of stomach cancer.
- Inflammation and swelling of the stomach for a long time (chronic atrophic gastritis) and stomach ulcers also increase the risk for developing stomach cancer.



How do you prevent stomach cancer?

There is no specific way to prevent stomach cancer, but there are things that you can do, that could lower your risk. The following may help to reduce the risk of stomach cancer:

- Do not smoke.
- Eat healthy food rich in fruits and vegetables.
- Take medicines to treat reflux disease (heartburn), if it is present.
- Take antibiotics if you are diagnosed with H. pylori infection.

- Reduce the amount of salty and smoked foods you eat.

Signs and symptoms of stomach cancer

Early-stage stomach cancer rarely preceded symptoms. Most of the symptoms are likely to be caused by conditions other than cancer, such as a stomach virus or an ulcer. This is one of the reasons stomach cancer is so hard to detect early. The signs and symptoms of stomach cancer may include fatigue, bloated feeling after eating, feeling full after eating little, heartburn, indigestion and stomach discomfort, persistent nausea, loss of appetite, sensation of food getting stuck in the throat when eating, abdominal pain, vomiting shortly after eating, unintentional weight loss, diarrhoea or constipation.

Prescribed Minimum Benefits (PMBs)

Cancer of the stomach is a PMB condition under the Diagnosis and Treatment Pair (DTP) code 950C. The treatment component specified for this DTP according to the PMB Regulations is Medical and surgical management, which includes chemotherapy and radiation therapy. The diagnosis, treatment and care of PMBs should be funded by medical schemes irrespective of your plan option.

Diagnostic tests and the PMBs

- Full Blood Count (FBC), Liver and Kidney function tests are routinely done.
- Gastroscopy remains the gold standard investigation to detect and diagnose gastric cancer. A specimen from the stomach is usually taken during the procedure for analysis at the laboratory.
- Endoscopic ultrasonography (EUS) and computed tomography (CT) can be used to determine the invasion of cancer and the spread outside the stomach. Diagnostic laparoscopy is strongly recommended as an additional tool for cancer staging.
- Chest X-ray may be used to detect lung metastases. A CT scan of the chest, abdomen and pelvis is useful in identifying the tumor, assessing the spread of the cancer as well as lymph node involvement.

The above-mentioned tests constitute PMB level of care for cancer diagnosis. PET scan is not recommended as PMB level of care. The value of Positron Emission Tomography (PET) scan in diagnosis and evaluation remains controversial.

Treatment options and the PMBs

1. Surgical interventions of early stage gastric cancer that are PMB level of care:

Endoscopic resection

It is a minimally invasive procedure that allows for the removal of the tumor while preserving the stomach.

Total gastrectomy with lymph node resection

This procedure involves total removal of the stomach. The procedure can be done by laparascopy or by opening the abdomen.

Oesophagogastrectomy with lymph node resection

This surgery involves the removal of the lower portion of the oesophagus and the proximal or upper portion of the stomach.

Subtotal gastrectomy with lymph node resection

This procedure is associated with better nutritional outcomes and better quality of life when compared with total gastrectomy.

2. Chemotherapy

The following chemotherapy agents are used only for the treatment of stomach cancer and constitute PMB level of care:

- Epirubicin,
- 5FU
- Cisplatin
- Capecitabine

3. Radiation therapy

Radiation therapy in early gastric cancer is considered PMB level of care.

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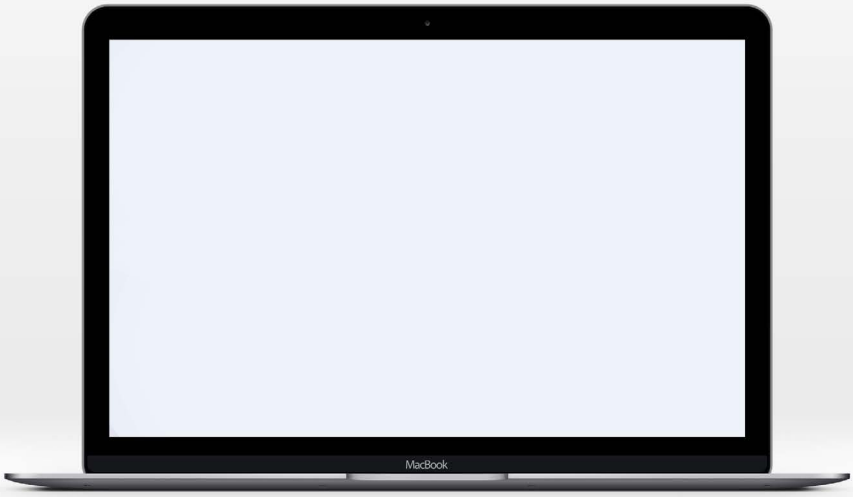

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Reception
Tel: 012 431 0500
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General enquiries
E-mail enquiries:
information@medicalschemes.com

Complaints
Fax: (086) 673 2466
E-mail:
complaints@medicalschemes.com

Postal address
Private Bag X34
Hatfield
0028

Physical address
Block A, Eco Glades 2 Office Park
420 Witch-Hazel Avenue
Eco Park, Centurion
0157

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