

Ischaemic Heart Disease

According to the occurrence measurements reported to the CMS, the current prevalence of ischaemic heart disease (coronary artery disease) is 7.50 per 1000 lives. The treatment of the disease causes frequent complaints as treating providers and members are not sure what treatment is included in the PMB level of care. The majority of uncertainties stem from the insertion of stents and the type of stents that are included in the PMB level of care.

What is ischaemic heart disease?

Ischaemic heart disease occurs when there is insufficient blood flow to a part/area of the heart muscle due to a blockage in the blood vessels leading to the area.

Coronary arteries supply oxygen-rich blood to the heart muscle and are the only arteries to perform this function. Any blockage in the coronary arteries reduces the supply of blood containing oxygen and nutrients to the heart muscle. This condition is defined as ischaemic heart disease or coronary artery disease.

The blockage of the coronary arteries is usually caused by a build-up of plaque (fatty deposits) on the artery walls, that cause a partial or complete blockage. The process of build-up of fatty deposits is called atherosclerosis.

The plaque may harden over time, narrow the coronary artery and reduce blood supply to the heart. The plaque may also rupture and cause blood platelets to stick to the artery wall. These blood platelets may clump together and form a blood clot. Blood clots will further narrow the coronary artery or completely block the artery.

Types of ischaemic heart disease

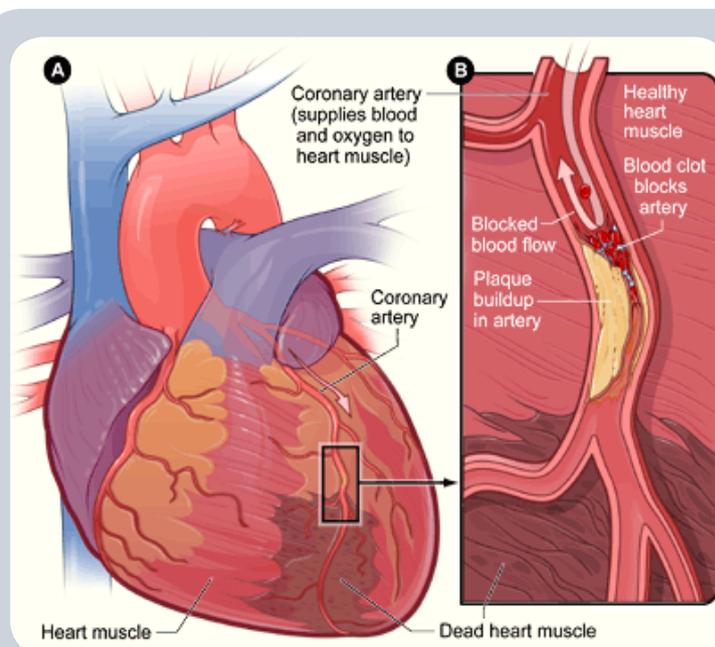
There are four classifications of ischaemic heart disease. These include:

Advanced Ischaemic Heart Disease

Patients with aggressive heart conditions are at risk of heart failure and arrhythmias (the heart beats irregularly or with an abnormal rhythm). These patients may have had coronary artery bypass surgery, multiple stents or angioplasty procedures previously. They may also still suffer from chest pain even when they are on optimum treatment.

Bifurcation Blockage

Coronary arteries branch into different blood vessels. The first branch is the Y-junction, and fatty build-up is more likely to occur at this site. Narrowing in this area is called bifurcation blockage.



Heart with muscle damage and a blocked artery

Heart Attack (Myocardial Infarction)

Myocardial means the heart muscle ("myo" stand for muscle and cardial stand for heart). Infarction means death of tissue or muscle due to a lack of blood supply. A heart attack (myocardial infarction) occurs when there is a complete loss of blood supply to an area of the heart muscle causing death to that area of the muscle. A heart attack causes permanent damage to the heart muscle and can be fatal.

Silent ischaemia

A temporary shortage of blood supply to the heart usually causes chest pain (angina pectoris). In some cases there is no pain and the condition is called silent ischaemia.

Silent ischaemia may disturb the heart's rhythm. Abnormal

rhythms such as ventricular tachycardia (rapid heartbeat that starts in the bottom chambers of the heart called the ventricles) or ventricular fibrillation (the pumping chambers in your heart tremble uselessly instead of pumping blood) can interfere with the heart's pumping ability and can cause fainting or even sudden cardiac death.

The risk factors for developing ischaemic heart disease?

- Unhealthy blood cholesterol levels — a high LDL cholesterol (low density lipoprotein or “bad” cholesterol) and low HDL cholesterol (high density lipoprotein or “good” cholesterol).
- Hypertension (high blood pressure) — blood pressure is considered high if it stays at or above 140/90 mmHg over time (the mm-Hg is millimetres of mercury that is the units used to measure blood pressure).
- Smoking — smoking can damage and tighten blood vessels, cause unhealthy cholesterol levels and increase blood pressure. It can further limit the oxygen that reaches the body's tissues.
- Diabetes Mellitus — the disease causes the body's blood sugar levels to be too high. Over time the high blood sugar levels can cause increased plaque (fatty deposits) on the inside of the artery walls.
- Obesity – being overweight or obese increases the risk to develop other risk factors and diseases such high blood cholesterol, high blood pressure and diabetes mellitus
- Lack of physical activity – a lack of physically activity can worsen other risk factors such as high blood cholesterol, high blood pressure, diabetes, and obesity.
- Unhealthy diet — a diet that is high in saturated fats, cholesterol, salt (sodium) and sugar can worsen other risk factors
- Age — genetic or lifestyle factors cause plaque to build up in your arteries as you age. In men, the risk for ischaemic heart disease increases from 45. In women, the risk for ischaemic heart disease increases from age 55.
- Family history – the occurrence of early ischaemic heart disease in a family member increases the risk. This risk increases specifically if a father or brother is diagnosed with the disease before age 55 or a mother or sister is diagnosed before age 65.

Complications of ischaemic heart disease

Ischaemic heart disease can lead to:

- Chest pain (angina pectoris) — temporary shortage of blood supply to the heart usually causes chest pain. Chest pain and/or shortness of breath occurs most often during physical activity and stress situations.
- Heart attack — the lack of blood flow to your heart may damage your heart muscle. The severity of such damage partially depends in part on how quickly treatment is provided.
- Heart failure – if the heart is damaged due to chronic reduced blood supply that deprives the heart of oxygen and nutrients permanent damage of the heart muscle may occur. The heart muscle may then become too weak to pump enough blood to the rest of the body.
- Abnormal heart rhythm (arrhythmia) — inadequate blood supply to the heart or damage to heart muscle can interfere with the heart's electrical impulses and cause abnormal heart rhythms.

What must be funded under PMB level of care?

Ischaemic heart disease is included in the PMB regulations under both the diagnostic treatment pairs (DTPs) and in the chronic disease list (CDL).

The DTP category include 907E - Acute and subacute ischaemic heart disease, including myocardial infarction and unstable angina.

The PMB regulation specifies that medical schemes must fund in full the diagnosis, treatment and care of the conditions. It is important to remember that medical schemes may use managed care protocols to manage their financial risk. Such protocols must however be evidence based taking into account cost effectiveness and affordability. Medical schemes may further appoint designated service providers (DSPs) and charge a co-payment if such provider is not used.

The CMS published [PMB benefit definitions](#) with regards to the treatment of ischaemic heart disease in 2015. A summary of the diagnostic tests and treatment specified as PMB level of care are provided below.

Diagnostic tests

- A physical examination is required to:
 - Exclude non-cardiac and non-ischaemic causes of chest pain
 - Assess complications of acute coronary syndrome
 - Identify factors that can cause the disease and contribute to the severity such as anaemia, fever, thyrotoxicosis (excessive thyroid hormone of any cause and therefore includes hyperthyroidism)
- Electrocardiogram (ECG)
- Blood tests
 - Cardiac Enzymes – cardiac troponins, CK-MB (creatinine kinase – myocardium) is important but limited by sensitivity
 - C-reactive protein (CRP)
 - Full blood count: -anaemia may precipitate myocardial ischaemia and low HB
 - Platelet count
 - Urea, creatinine and electrolytes
 - Serum glucose
 - Lipid profile
 - Thyroid function tests when thyrotoxicosis is suspected
- Non-Invasive Imaging
 - Chest-x ray; to exclude extra-cardiac causes of chest pain, detect heart failure and cardiomegaly (abnormal enlargement of the heart)
 - Echocardiography -is used to exclude other non-cardiac causes of chest pain such as aortic dissection as well as diagnose ischaemia and detect complications of ischaemia such as left ventricular pathology
 - MRI and Scintigraphy (a technique in which a scintillation counter or similar detector is used with a radioactive tracer to obtain an image of a bodily organ or a record of its functioning) may be used when there is uncertainty on the condition and final diagnosis
- Invasive Imaging
 - Angiography - dyes that can be seen by x-rays are injected into blood vessels (either arteries or veins) and examined using x-rays

Treatment of ischaemic heart disease

Ischaemic heart disease can be managed with medicine but in some instances may require surgery or percutaneous procedures (angioplasty).

The first line of treatment for mild to moderate ischaemic heart disease includes lifestyle changes such as to stop smoking, follow a healthy diet, increase aerobic exercise and limit alcohol consumption to 2 units/day.

Medical Management

Medical management of the condition (medicines) are based on the algorithm that was published in the PMB regulations. Medicines specified in this algorithm include:

- Beta-blockers are recommended in the absence of contraindications, particularly in patients with conditions such as hypertension or tachycardia
- Intravenous or oral nitrates are effective for symptom relief in the acute management of angina episodes
- Calcium channel blockers provide symptom relief in patients already receiving nitrates and beta-blockers. It is also useful in patients with contraindications to nitrates and beta-blockers
- Nifedipine, or other dihydropyridines, may be used in combination with beta-blockers

Other medication that is clinically appropriate in the treatment of ischaemic heart disease includes:

- Antiplatelets keep clots from forming by inhibiting the production of thromboxane (a substance made by platelets that causes blood clotting and constriction of blood vessels). Aspirin and/or Clopidogrel are used most often.
- Anticoagulants target clotting factors that are essential to the blood-clotting process. Warfarin is the only drug in this group that is included in the PMB level of care.

Antiplatelet and anticoagulant medicines are included in the PMB level of care as part of the DTP and not as specified in the CDL.

Surgical treatment

Surgical treatment of the condition includes open surgery as well as percutaneous procedures.

Percutaneous coronary intervention, commonly known as angioplasty, is a procedure that opens blocked or narrowed coronary arteries. A thin, flexible tube with a balloon or other device on the end is threaded through a blood vessel to the narrowed or blocked coronary artery. Once in place, the balloon is inflated to compress the plaque against the wall of the artery. This restores blood flow through the artery. A small mesh tube called a stent is also installed in the artery. The stent helps prevent blockages in the artery in the months or years after angioplasty.

Two types of stents are available namely bare metal stents and drug eluting stents. Both types of stents are included in the PMB level of care.

Coronary Artery Bypass Grafting (CABG) is open surgery where the chest is opened and arteries or veins from other areas in the body are used to bypass (go around) the narrowed coronary arteries. CABG can improve blood flow to your heart, relieve chest pain, and possibly prevent a heart attack.

References

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Image one, pg1. Available from: http://www.nhlbi.nih.gov/sites/www.nhlbi.nih.gov/files/images_259

WHAT ARE PRESCRIBED MINIMUM BENEFITS?

Prescribed Minimum Benefits (PMBs) are defined by law. They are the minimum level of diagnosis, treatment, and care that your medical scheme must cover – and it must pay for your PMB condition/s from its risk pool and in full. There are medical interventions available over and above those prescribed for PMB conditions but your scheme may choose not to pay for them. A designated service provider (DSP) is a healthcare provider (e.g. doctor, pharmacist, hospital) that is your medical scheme's first choice when you need treatment or care for a PMB condition. You can use a non-DSP voluntarily or involuntarily but be aware that when you choose to use a non-DSP, you may have to pay a portion of the bill as a co-payment. PMBs include 270 serious health conditions, any emergency condition, and 25 chronic diseases; they can be found on our [website](#)

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