



**Patient Information Booklet**

# **Coronary Angiography Coronary Intervention (Stenting)**

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## About this booklet

This booklet tells you about coronary angiography and coronary intervention.

## What is coronary angiography?

Coronary angiography is a way to outline the heart arteries on X-ray using dye. It is the best test for finding and assessing/treating blockages in the heart arteries.

## How is coronary angiography done?

In a special X-ray room called the Cath Lab you will be asked to lie flat on an X-ray table. Dr Ford will inject a small amount of local anaesthetic to numb the skin at your wrist, then he will pass a very small hollow tube (sheath) into an artery. Rarely this is done in your groin but he will tell you if this is necessary. An even thinner catheter goes through this into your heart. You typically cannot feel this.



**Figure 1:** Angiography from the wrist (distal radial artery).

- A) Iodinated skin cleanser
- B) Sterile drape
- C) Sheath (slim flexible tube) passed into the artery
- D) All the equipment removed

Dr Ford will measure the pressures inside your heart and an X-ray camera will move around you, taking pictures of your arteries while he injects an X-ray dye. All the time you are in the Cath Lab, a team of doctors, nurses, radiographers and cardiac technicians will look after you. Although you will be awake we usually give you some sedation so you feel relaxed.

The angiogram lets Dr Ford immediately see any blockage and how critical this is. If necessary, he will open these up by stenting them.

## Risk of complications during coronary angiography

Over 99% of angiograms are uneventful but there is a small risk of complications. Please make sure that you understand these before you sign the consent form.

**Death:** Under 1 in 1000 (0.1%)

**Heart attack** (myocardial Infarction): 1 in 500 (0.2%)

If a heart artery blocks off during an angiogram, this is usually treated by immediate angioplasty and/or a combination of different medications. Very rarely it may need emergency bypass surgery.

**Stroke:** 1 in 500 (0.2%)

A stroke might happen if the catheter dislodges material from the main blood vessel in the body (aorta) and this material blocks blood flow to part of the brain.

Minor complications include bleeding or bruising at the groin or arm site, excess bleeding which needs a blood transfusion or vascular surgery (less than 1%), allergic reaction to the dye (less than 1%), kidney impairment (usually reversible) – under 1%.

## Coronary function testing

Dr Ford is an expert at performing other tests of your heart arteries' function. This allows him to accurately diagnose your symptoms such as chest pain or breathlessness. These tests take a little longer. A special pressure and temperature sensitive wire is inserted into the heart artery and allows measurements of how your arteries function.

## What is stenting?

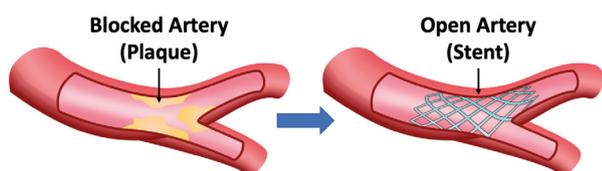
After the angiogram Dr Ford may recommend an intervention (coronary angioplasty or stenting) to open a blocked artery. This is also called a percutaneous coronary intervention or PCI.

A stent is a small metal scaffold. A tiny balloon is threaded down the catheter and inflated to open narrowed areas in the arteries of your heart. Sometimes a stent is inserted through the catheter to keep this blockage open. Improving the blood flow to your heart muscle like this will help your symptoms and/or improve how your heart works.

This may be done at the same time as your angiogram or you may be discharged and readmitted for the angioplasty at a later date. Dr Ford will explain what is best for you and why.

If you are having angioplasty immediately after your angiogram the same tube is used for both procedures.

Typically a stent is inserted into the blockage to hold it open (Figure 2) this reduces the chance of the blood vessel narrowing again in future.



**Figure 2:** Diagram (schematic) of heart artery with blockage before and after stent insertion

## Risk of complications during coronary angioplasty and stenting

Most people (97–98%) have no major problems but serious complications can happen. The procedure is recommended if the benefit of the intervention outweighs the small risks of the procedure.

You are likely to feel some chest discomfort during the procedure to open a blocked artery. If this becomes very uncomfortable, you will be given strong pain-killing medication.

Please make sure that you understand the risk of serious but rare complications before you sign your consent form.

**Death:** 1 in 500 (0.2%)

**Heart attack** (myocardial infarction): 1 in 50 (2%)

This is a minor event detected only by blood tests and is quite different to a typical major heart attack. It usually only affects small amounts of heart muscle damage and is not serious. However, rarely a serious heart attack can happen following angioplasty.

**Stent thrombosis:** 1 in 100 (1%)

When a blood clot forms within the stent it blocks it off and can cause a heart attack. To reduce the chance of this happening you will be asked to take medication for at least four weeks after the stent is inserted. We may ask you to keep taking this for up to a year. Do not stop this without speaking to your cardiologist.

**Stroke:** 1 in 200 (0.5%)

**Emergency open heart surgery:** less than 1 in 500 (0.2%)

## Renarrowing after stenting (stent restenosis)

5–20% of arteries renarrow following angioplasty or stenting. This occurs slowly over 6–9 months and is not usually serious. You may find that you slow down or have more chest tightness/breathlessness. If stent restenosis does occur, it is usually treated with a repeat angiogram and ballooning/stenting (or rarely requires bypass surgery).

The chance of these potential complications depends on the severity of the heart disease.

Problems are less common during elective (planned) procedures compared to urgent or emergency procedures.

If you have any questions about the procedure, please talk to the doctor about them before signing the consent form.

## Before your visit

- You must tell us if you are allergic to anything, including X-ray dye (contrast or iodine). You do not need to fast, you may eat a light breakfast before you leave home but do not have a heavy meal.
- You will stay in hospital for at least three hours after your procedure but be ready to stay overnight which is sometimes necessary.
- Please bring a list of all your current medication. Continue to take your medication as normal unless you are taking :
  - Rivaroxaban (Xarelto), Apixaban (Eliquis), Dabigatran (Pradaxa); stop these 48 hours before the procedure (unless we tell you otherwise).
  - Warfarin; please ask the doctor whether you should stop this
- If you have diabetes and are being admitted on the morning of your procedure modify your insulin dosage according to your usual routine. If you take metformin do not take this on the morning of the procedure. If you need help managing your diabetes at the time of your angiogram, please contact the Heart Centre.
- Do not have any caffeine for 12 hours before your angiogram. This means no coffee, tea, (including decaffeinated coffee or tea), herbal teas, chocolate, hot chocolate, chocolate ice cream or fizzy drinks. So please only drink water, squash or fruit juice for the 12 hours before your angiogram.

