# Bone Marrow Examination

What this leaflet is about: why we take a sample of bone marrow, what is done, and what to expect afterwards.

> Quick emergency advice
>
> If you have unexplained bruising, bleeding, tiredness, fever, weight loss or lumps, or an unexplained rise or fall in your blood counts, your doctor may ask for a bone marrow test. This is a short procedure. It takes about 10 to 15 minutes, it is done as an outpatient, and most people go home the same day.

## What is bone marrow?

Bone marrow is the soft, spongy tissue that fills the hollow centre of most of the bones of your body. It is the factory of the blood. Every single day it makes the three main types of blood cell: red cells, which carry oxygen around the body; white cells, which fight infection; and platelets, which help the blood to clot.

A bone marrow examination takes a very small sample of this tissue so that a haematologist can look at it under a microscope and work out whether the cells are healthy, whether the numbers are being made properly, and whether the cells look like leukaemia, lymphoma, myeloma or something else. The sample can also be tested for genes and chromosomes, which helps to decide the best treatment for you.

## Why do I need a bone marrow test?

There are two broad reasons for doing a bone marrow examination.

### To diagnose a blood disease

You may need one if you have signs that do not add up - for example tiredness with no reason, bruising or bleeding easily, repeated infections, unexplained fever or night sweats, weight you have lost without trying, a swollen abdomen or lymph nodes, or blood tests that show an anaemia, a low platelet count or an odd white cell count.

### To check the effect of your treatment

A second sample is often taken during treatment, or at the end of it, to show whether the treatment is working. If you are in remission - which means the disease can no longer be detected - the marrow should be quiet and normal. If any disease cells are still there, more treatment is needed. This is often called a marrow response test or a marrow check.

## What is actually done?

Two small samples are usually taken together.

### Aspiration (the fluid sample)

A fine needle is pushed through the skin, after a small area has been numbed with local anaesthetic, and fluid rich in marrow cells is drawn out. The cells are spread onto a slide straight away so that they can be looked at within hours.

### Trephine biopsy (the solid sample)

A slightly larger needle is then used to take a thin core of solid marrow tissue, about the thickness of a matchstick. This gives the laboratory a sample to keep, to slice very thinly and to examine the architecture of the marrow. It is this sample that allows the genetic and chromosome tests, including FISH, to be done.

The whole procedure takes about 10 to 15 minutes. It is done as an outpatient, usually in a procedure room, and you then go home. You do not need an overnight stay in hospital for the test itself.

### Is the needle put in my spine?

> **A common worry - this is not a lumbar puncture**
> Many people worry that a bone marrow test means a needle in the spine. It does not. A lumbar puncture takes fluid from the fluid around the spinal cord; a bone marrow test does not go near the spine at all.
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> The needle is placed into the hip bone, that is the pelvic bone at the front of your body, because the marrow there is thick, easy to reach and easily accessible. The doctor feels the top of the hip bone and pushes the needle into that solid bone.

## Will it hurt?

The area is first cleaned and then numbed with a local anaesthetic. While the local anaesthetic is being given, and while the anaesthetic is going in, there can be a short period of discomfort. Once the area is numb the biopsy itself is usually felt as firm pressure and a pushing or scraping feeling, but not as sharp pain.

If you are anxious, or if you find even the idea of it difficult, please ask about light sedation. It is often given for about 5 to 10 minutes. You will be awake but very relaxed, and you may not recall much of the procedure. You will need someone to take you home, and you must not drive yourself on that day.

Children and patients who cannot tolerate the procedure awake can usually have it under a general anaesthetic, arranged in advance with the team. Please tell us if this is what is needed.

## After the test

- Walk straight after the procedure. Walking is encouraged, and it helps the small wound to settle.
- Do not drive yourself if you have had a sedative.
- You can shower as normal. Keep the clear (transparent) dressing that we have put on, and get it wet if you like.
- The dressing may be removed after 3 days.
- There is no stitch that has to be removed, because the wound is so small.
- Take a simple pain-killer such as paracetamol for about 1 day if you need it, and afterwards only if you need it.
- Go back to your usual activities the next day.
- Some people feel a mild ache in the hip or lower back for a day or two afterwards. This is common and settles on its own.

Tell us straight away if, after the test, the dressing becomes soaked with blood, if the site becomes red, hot, swollen or very painful, if you develop a fever above 38.5 degrees C, or if the pain is not settling with a simple pain-killer. Telephone the clinic on Tel: +60 3 4289 5000 or Tel: +60 3 4270 2500.

## How long will the results take?

| Test | Typical time to a result |
|---|---|
| Morphology - the first look at the cells under the microscope | About 2 to 7 days |
| FISH - testing for particular genes in the cells | About 5 to 7 days |
| Cytogenetics - looking at the chromosomes of the cells | About 2 to 3 weeks |

Acute leukaemia cases are prioritised in the laboratory. If you are waiting for a result and you are unwell, or if you are anxious, please telephone us - we do not expect you to sit at home without news.

**Please come back for a follow-up visit**
Always return to see your haematologist to discuss the result of your bone marrow examination. A report is not the end of the story: we need to explain what it means for you, talk about any further tests, and start or change treatment if that is what is needed.

## When to contact us

If you are worried about yourself, or about the person you are caring for, please get in touch. We would always much rather hear from you early than late. If you have read something in this leaflet that worries you, that is a good reason to telephone us, even if you feel well.

**Visit us**
Dr K Y Goh Haematology & Internal Medicine Clinic
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### If you cannot reach us, or you are very unwell

Please go to the emergency department of KPJ Ampang Puteri Specialist Hospital, or call the emergency ambulance service. Do not wait for a routine appointment, and do not wait for a reply to an email.

## Important medical disclaimer

This leaflet is written for patients and their families and carers. It is general patient education only. It is not a substitute for medical advice, and it is not a substitute for the diagnosis and treatment that your own haematologist, nurse, pharmacist or doctor will give you.

Nothing in this leaflet should be used to change, stop or start a medicine, a test or a treatment. If anything you read here is different from what your healthcare team has told you, follow your healthcare team and ask us about the difference.

Information about medicines names, strengths, test turnaround times and supportive care is current at the time this leaflet was prepared. It may be updated from time to time, and the version printed here may therefore not be the newest one. Please ask reception for the current copy.

If you think that you or someone you care for is seriously unwell, do not wait for an appointment and do not wait for this leaflet to be read. Contact the clinic, or go to the emergency department of KPJ Ampang Puteri Specialist Hospital, straight away.

We Listen. We Care. Evidence-based Medicine.

Dr K Y Goh Haematology & Internal Medicine Clinic | KPJ Ampang Puteri Specialist Hospital | Tel: +60 3 4289 5000
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