

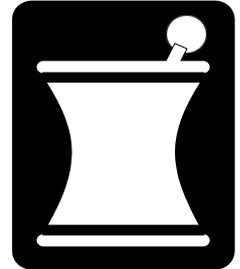
Therapeutic Drug Monitoring

Patient Information - Hillmorton Hospital Pharmacy

Therapeutic Drug Monitoring measures the level of a medicine in the blood stream.

Why measure the level of a medicine?

- To make sure the level in your blood is a level that will treat your illness effectively (that is, not too low).
- To ensure you are not taking too high a dose of your medicine which might cause a side effect.



Sampling times

It is important to take a blood sample at the right time for therapeutic monitoring. This will ensure that the information obtained is helpful for making dose adjustments. Usually a blood sample is taken just prior to the next dose when the level of the medicine in the body is at its lowest. This is called a trough level.

We take bloods several days after starting the medicine or changing the dose of your medicine. This is because it takes time for the medicine to build up in your blood stream and reach a level which is effective for you. We call this level the steady state. The time taken to reach steady state depends on factors such as your age, type of medicine, weight, the way your body handles the medicine, and whether you are taking other medicines.

Which medicines are monitored?

Medicines used in diseases where we do not have an easily measurable outcome (e.g. blood pressure is an easily measurable endpoint to know the medicine is working).

Medicines which have a narrow therapeutic index (when there is a small difference between the safe level of the medicine and the toxic level).

Psychiatric medicines that can be monitored include clozapine, lithium, valproate, tricyclic anti-depressants, carbamazepine and lamotrigine.

When is it appropriate to measure levels of medicines?

- When first starting on a medicine to establish when a therapeutic level has been reached.
- When changing the dose or time of taking a medicine.
- At regular intervals while on the medicine to ensure a therapeutic level is being maintained.
- If unusual side effects occur which indicate the possibility of toxic levels.
- If the medicine is not working as expected.

What can cause levels to change?

- Adding a new medicine to the medication you are already taking can sometimes cause a change in the way your body handles those medicines and this might cause the blood levels to change.
- As you either get older or become ill, this can change the way your body handles the medicines you are taking.
- Forgetting to take medicines or not taking the correct dose of the medicine.
- For some medicines (e.g. clozapine) stopping or starting smoking can cause blood levels to change

When is the best time to have a blood test taken?

1. If you are having your medicine once a day in the evening:
More than 12 hours after the last dose e.g. have the blood test late morning or in the afternoon.
2. If you are taking your medicine once a day in the morning:
Withhold the morning dose and have the blood test first thing in the morning, then take your medicine after the test.
3. If you are taking your medicine twice a day in the morning and evening:
Withhold the morning dose and have the blood test first thing in the morning, then take your medicine after the test.

For some medicines there is limited evidence that there is a direct link between the blood level of the medicine and people getting better. You may get better with a blood level outside of the normal range. Your doctor will have a number of reasons for wanting to take a level.

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For more information about:

- hospital and specialist services, go to www.cdhb.health.nz
- your health and medication, go to www.healthinfo.org.nz