

## Australian Guidelines have changed

### Fasting is no longer required for routine lipid testing to assess cardiovascular risk

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#### KEY MESSAGES

- Non-fasting lipids can be used routinely to assess cardiovascular risk
- HDL-Chol should be routinely requested for lipid studies
- LDL-Chol and particularly Non-HDL Chol are the preferred measurements to assess cardiovascular risk.

#### Lipids and lipoproteins change only minimally in response to food

1. In multiple multicentre prospective studies, mean non fasting compared with fasting changes were + 0.3 mmol/L for triglycerides, -0.2mmol/L for total cholesterol, -0.2 mmol/L for LDL cholesterol (also non HDL cholesterol), -0.1 mmol/L for HDL cholesterol. The largest of these studies also confirmed abnormalities of non-fasting lipids likewise correlated with higher risk of ischaemic heart disease and myocardial infarction. Similar findings were found in diabetics.
2. It has also been demonstrated that non-fasting triglycerides are superior to fasting in predicting cardiovascular risk.
3. Studies in trials of lipid lowering agents using non-fasting values also have demonstrated reduction of non-fasting values reduced the risk of cardiovascular disease.
4. It also makes sense to use non-fasting values as they are more representative of the post-prandial concentrations of cholesterol and triglycerides to which the individual is lifetime exposed.

Harmonised adult lipid reference intervals and reporting protocols in Australia were determined in 2018 and are now uniformly used. In those recommendations fasting and non-fasting reference intervals are identical.

It is also strongly recommended that all lipid study requests include HDL cholesterol in addition to cholesterol and triglyceride. This allows calculation of LDL cholesterol and non HDL cholesterol as these are now the preferred measures of atherogenic lipoproteins and as risk factors of CVD risk. Non-HDL cholesterol is the preferred risk factor for CVD. Calculation takes into account the lipoproteins that also contain triglyceride. Total cholesterol also includes potentially protective HDL-Chol and is now believed to be of less value in assessing risk.

As well as the clinical relevance there are obvious practical benefits of non-fasting samples. It avoids the inconvenience of fasting, allows immediate collection during the consultation or a more flexible schedule for both the patient and the collection centre. It is especially useful in diabetics as it minimises the risk of hypoglycaemia.



## Recommendations for assessing patients for lipid profiling

### Non-Fasting

- Initial lipid profile testing
- Cardiovascular risk assessment (non-fasting allows better risk assessment especially for triglycerides)
- Inpatients with acute coronary syndrome early during admission (ACS lowers lipid concentrations so the earlier the collection during the ACS episode the more representative of lipids prior to the event)
- Children
- Diabetic patients
- Elderly

### Fasting (standard 12 hour fast recommended)

- Prior testing with non-fasting Triglyceride > 4.0 mmol/L. (Allows accurate calculated LDL using the Friedwald equation in these individuals)
- Monitoring severe hypertriglyceridemia
- Post pancreatitis due to hypertriglyceridemia
- Medications that may cause hypertriglyceridemia eg. steroids, HIV medications
- Convenience if additional tests require fasting eg. glucose, TDMs