SydPath
ST VINCENT'S PATHOLOGY

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LIPID TESTING INFORMATION SHEET

GENERAL

Measurement of serum lipids (cholesterol and triglycerides) and lipoproteins (HDL cholesterol, LDL cholesterol and others) are performed for two main reasons. These are as a component of assessment of cardiovascular risk when needed, and for monitoring lipid lowering therapies. The routine testing and reporting of serum lipids is based on these two main uses. Other less common reasons for measurement include assessment of hypertriglyceridaemia in acquired or inherited disease and identification of some inborn errors of metabolism.

ACCEPTANCE OF NON-FASTING SAMPLES FOR LIPID TESTING

Traditionally fasting samples have been recommended for nearly all lipid testing. A recent international guideline (1) has established the ***suitability of non-fasting samples for the majority of lipid testing.*** This is based on research showing the effect of meals is minimal on most lipids (i.e. <0.2 mmol/L change for total and HDL cholesterol) and generally produces only a small increase triglycerides (and therefore a small decrease in calculated LDL-cholesterol).

While non-fasting samples usually suitable, fasting samples are preferred in the following situations:

- Known high triglycerides (e.g. >4.0 mmol/L)
- Treatment with drugs known to cause hypertriglyceridaemia
- Collection of a fasting sample required for other purposes (e.g. fasting glucose).

SydPath pathology collectors will collect samples for lipid testing at any time of day unless the doctor specifies “fasting” on the request form, in which case non-fasting patients will be asked to return at an appropriate time. The pathology reports will include the fasting status on the report where provided.

ROUTINE REPORTING OF TOTAL CHOLESTEROL TO HDL RATIO

SydPath will routinely report the total cholesterol to HDL ratio (TC:HDLC) as part of a lipid profile.

- TC:HDLC is used to predict cardiovascular risk.
- TC:HDLC is combined with age, sex, smoking and diabetes status and blood pressure to produce a probability of a cardiovascular event over the next five years.
- The calculation is performed using a paper or on-line calculator (https://heartfoundation.org.au/for-professionals/clinical-information/absolute-risk).
- This ratio is now provided on the SydPath report to facilitate the risk calculation.
- As risk prediction is the only use of this result there is no target or recommended level supplied on the report.

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ROUTINE REPORTING OF NON-HDL CHOLESTEROL

Sydpath will routinely report the Non-HDL Cholesterol as part of a lipid profile. The key points are:

- Non-HDL cholesterol is a result calculated simply from other lipid results.
  Non-HDL Cholesterol = total Cholesterol - HDL Cholesterol (all in mmol/L)
- Non-HDL Cholesterol is a measure of all the lipoproteins which are associated with increased vascular risk and includes the cholesterol in VLDL as well as in LDL.
- Non-HDL cholesterol has an advantage over LDL cholesterol with superior risk prediction and less interference from serum triglycerides.
- ***Non-HDL cholesterol is an approved target for lipid lowering therapy in both fasting and non-fasting samples with a target of <2.5 mmol/L for high risk patients (2).***

REPORT FORMAT

Lipid results report under a separate heading, **Lipid Studies**. The targets for therapy are shown in the footnote and are consistent with the Heart Foundation Guidelines (2,3). There are no Australian guidelines regarding the "Reference intervals" and these are unchanged pending national agreement. The current references will flag approximately 15% of the adult population.

An example report is shown below:

EXAMPLE LIPID STUDIES REPORT

	1-Feb-17	Reference	Units
Fasting Status	Fasting		
Cholesterol	5.6	(0.0 - 6.0)	mmol/L
Triglycerides	1.2	(0.0 - 2.0)	mmol/L
HDL Cholesterol	1.2	(>1.0)	mmol/L
LDL Cholesterol	4.0	(0.0 - 4.0)	mmol/L
Non-HDL Cholesterol	4.4	(0.0 - 4.5)	mmol/L
Chol/HDLC ratio	4.7		

Lipid targets for patients at high risk of cardiovascular disease:
Total Cholesterol <4.0 mmol/L HDL Cholesterol >1.0 mmol/L
Non-HDL Cholesterol <2.5 mmol/L Triglycerides <2.0 mmol/L
LDL Cholesterol <2.0 mmol/L, <1.8 mmol/L for secondary prevention
(Lipid target ranges from Australian Heart Foundation)

For cardiovascular risk prediction including lipids see www.cvdcheck.org.au.
Reference limits provided are for general advice only and identify
approximately 15% of the adult population.

REFERENCES

1. Consensus statement on non-fasting lipids. Nordestgaard BL et al. Clin Chem 2016; 62:930-46. Paper available from EAS website
2. National Vascular Disease Prevention Alliance. Absolute cardiovascular disease risk management guidelines (2012). Available from www.cvdcheck.org.au
3. Reducing risk in heart disease. An expert guide to clinical practice for secondary prevention of coronary heart disease. Heart Foundation (2012).