

Graphical abstract

Materials and methods

7006 standard lipid profiles:

Fasting population

n = 5826

Post-prandial population

n = 1180

Comparison of calculated LDL-C with LDL-C measured after ultracentrifugation :

Friedewald (F)

Sampson (S)

Martin-Hopkins (M)

VERSUS
Ultracentrifugation

Criteria for comparison

Correlation

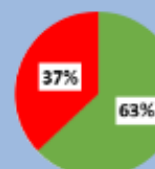
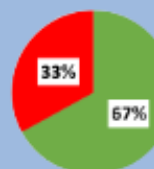
Residual error plot

Mean Absolute Deviations

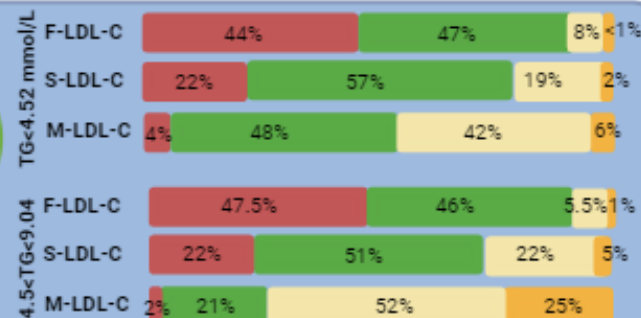
Root Mean Square Error

Main outcomes

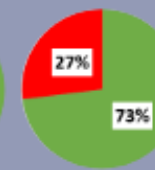
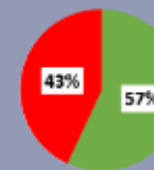
Fasting population



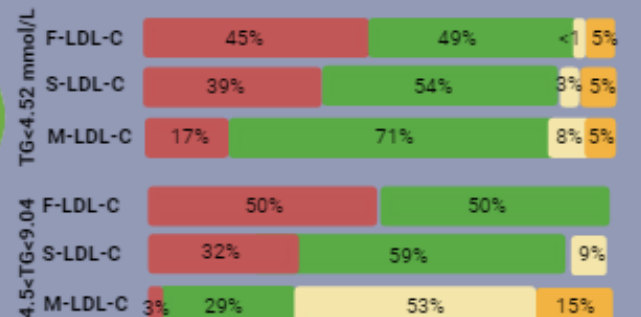
Sampson equation
but underestimate LDL-C



Post-prandial population



Martin-Hopkins equation
but overestimate LDL-C



■ Concordance with ultracentrifugation
■ Discordance with ultracentrifugation
Cut off 0.13 mmol/L

Misclassification (uLDL-C < 1.80 mmol/L)

■ lower 1 ■ same class. ■ upper 1 ■ upper ≥ 2

Conclusion

⊘ No equation is robust enough when TG > 4.52 mmol/L ⊘

ANALYTICAL PERSPECTIVE

Fasting population



Post-prandial population



CLINICAL PRATICE

Martin-Hopkins equation

Positive bias > 5%
TG > 4.52 mmol/L



Overtreatment

Sampson equation

Negative bias > 5%
TG < 4.52 mmol/L



Undertreatment

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