



The Fasting Status of Patients undergoing Glucose Tolerance Tests

Departments of Clinical Biochemistry
and Phlebotomy

The Glucose Tolerance Test

- Comprises a fasting blood glucose level plus a further blood glucose level 2 hours after administration of a 75 gram glucose load
- Classification of results is defined by the WHO
- Both the fasting blood sample and the 2 hour sample are used in determining if the result of the test is abnormal

The Glucose Tolerance Test

- Fasting glucose 6.1 - 6.9mmol/l =
Impaired fasting glycaemia
Fasting glucose 7.0mmol/l +=
Diabetes Mellitus
- 2hour glucose 7.8 - 11.0mmol/l =
Impaired glucose tolerance
2hour glucose 11.1mmol/l + =
Diabetes Mellitus
- Normal = Fasting glucose 6.0mmol/l or less
plus a 2hour glucose 7.7mmol/l or less

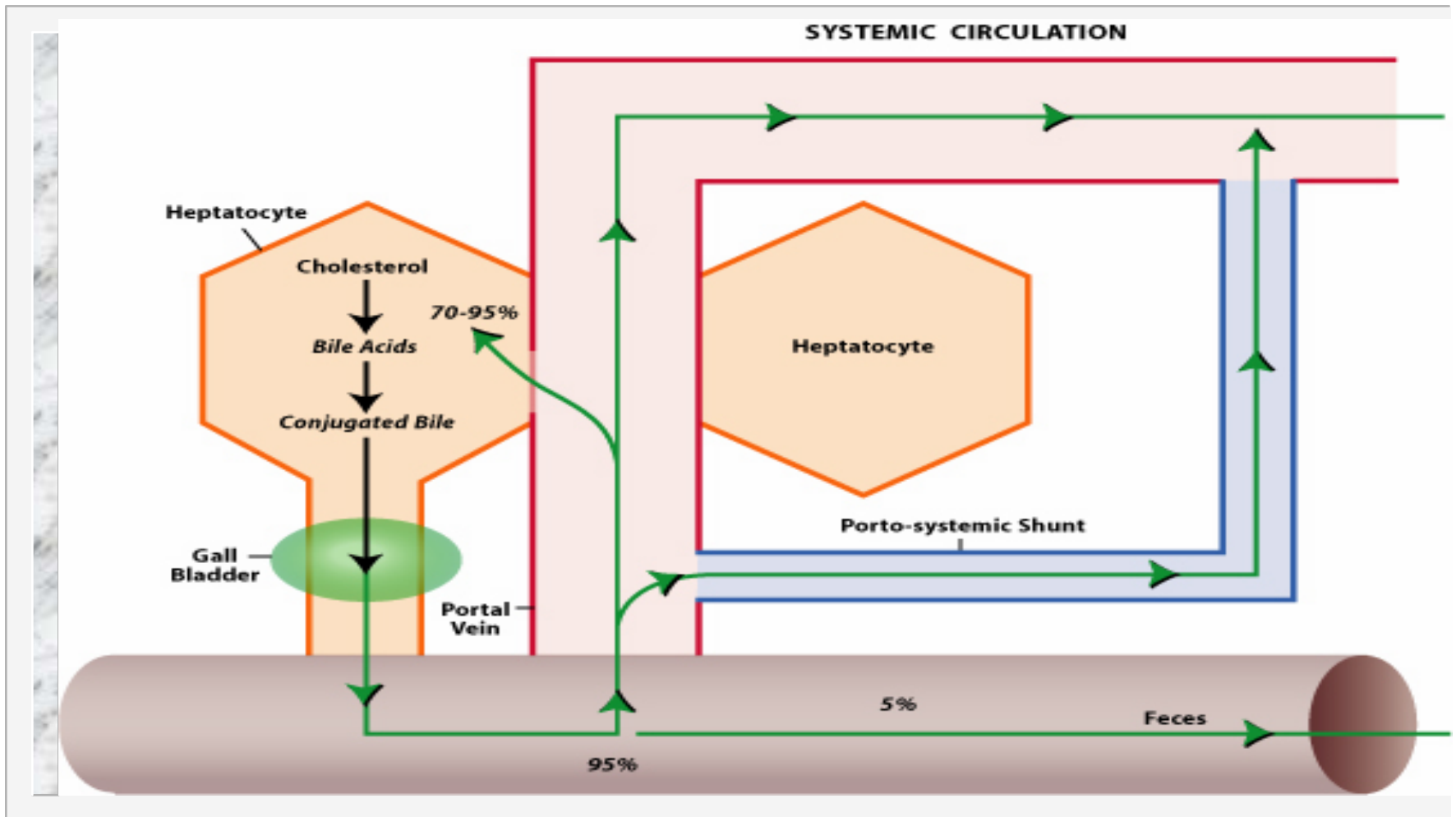
The Problem

- Varying advice given regarding the required duration of fasting prior to the test
 - 16 hour fast
 - 14 hour fast
 - Fast from 8pm the night before
 - Fast from midnight
 - an 8 hour fast is needed
- The outcome of the test uses the fasting glucose level
- Failure to fast correctly could result in misclassification of individuals

The Study

- As a subjective assessment of fasting patients were asked to complete a questionnaire regarding duration of fast prior their GTT
- As an objective assessment of fasting an additional blood sample was collected with the first blood glucose sample for fasting total bile acid measurement

Bile Acids and Fasting

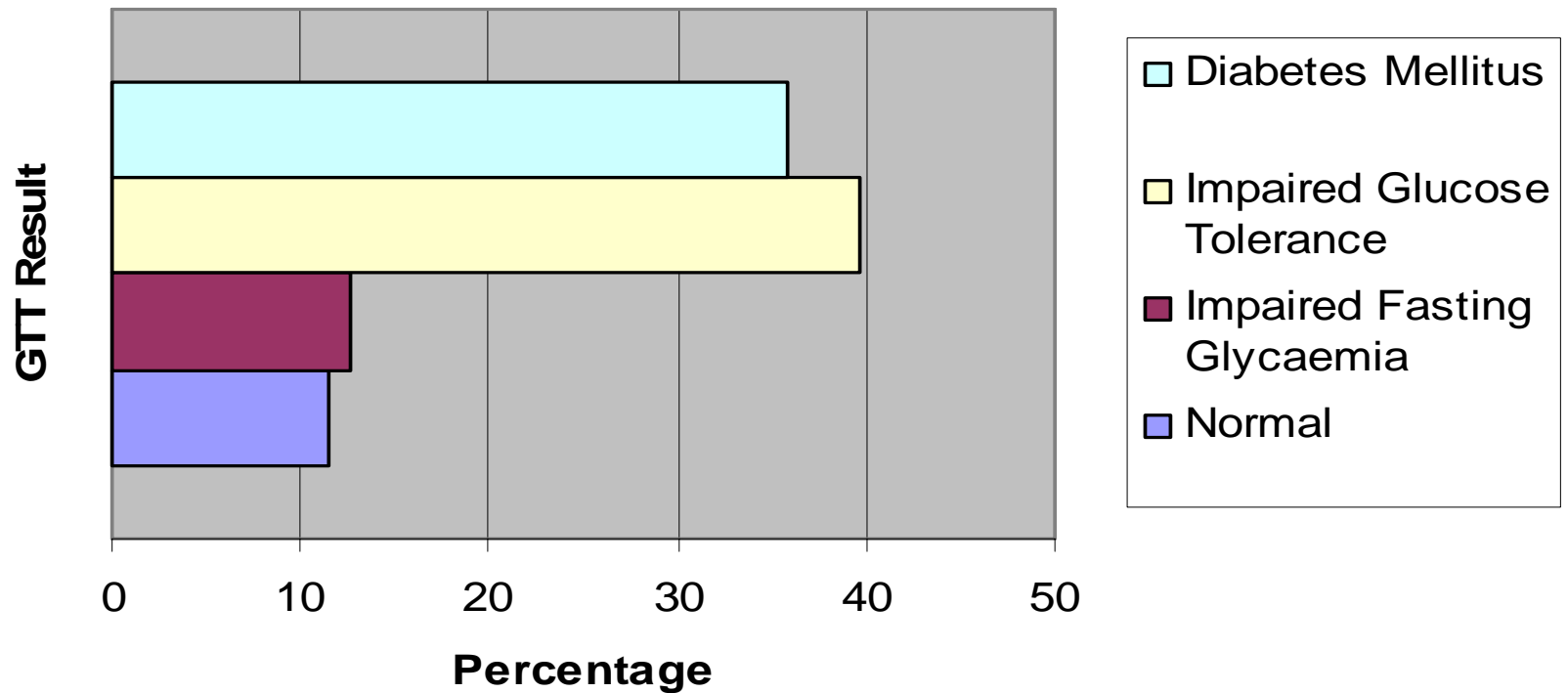


Preliminary Results

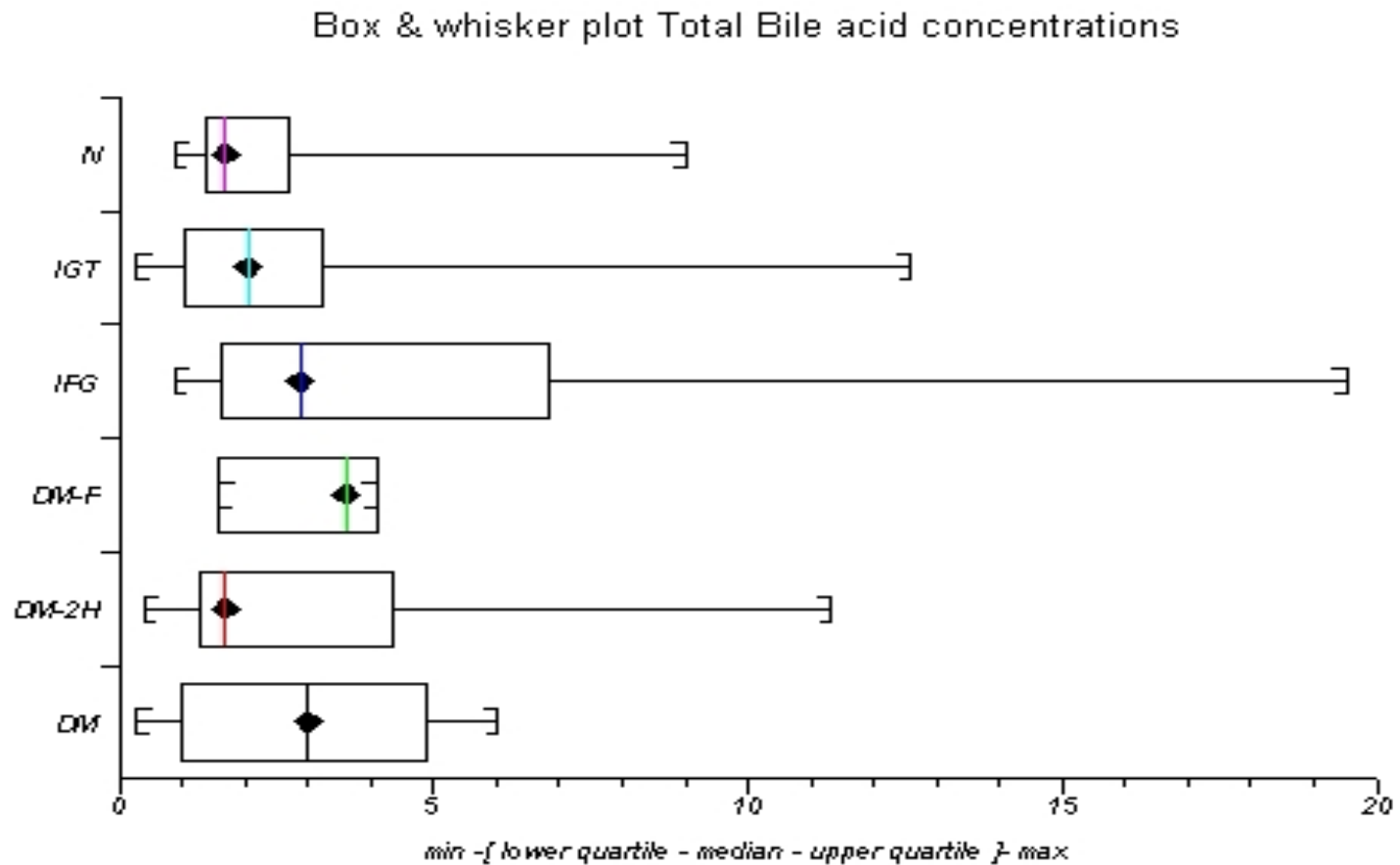
- 131 patients recruited
- Mean Age 63.8 years (range 28 - 89)
- 55% Male
- None had breakfast that day
- Mean total bile acid concentration was $3.0 \mu\text{mol/l} \pm 2.9$ (fasting range 1 - 7)
- Range of total bile acid concentrations :
0.3 - 19.5 $\mu\text{mol/l}$

Preliminary Results

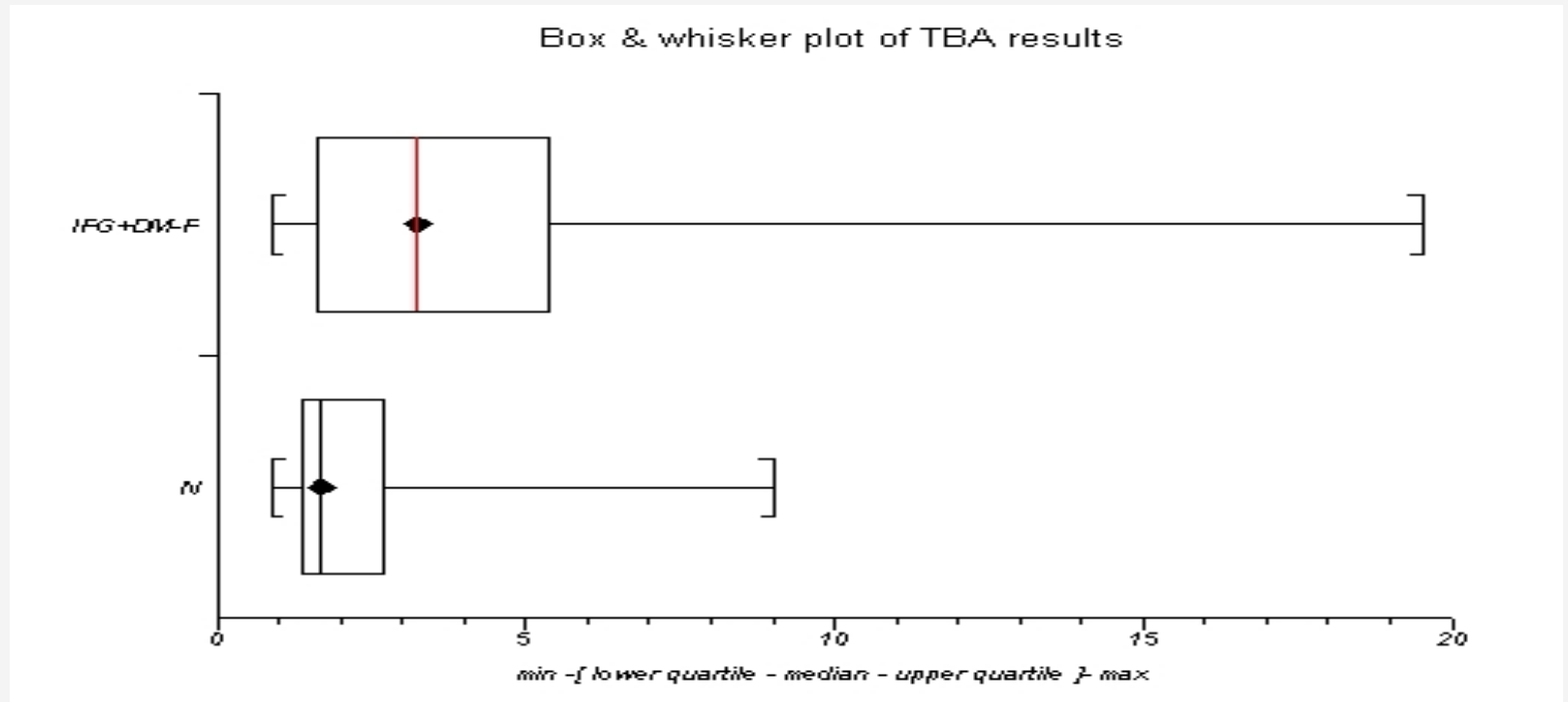
Glucose Tolerance Test Results



Preliminary Results

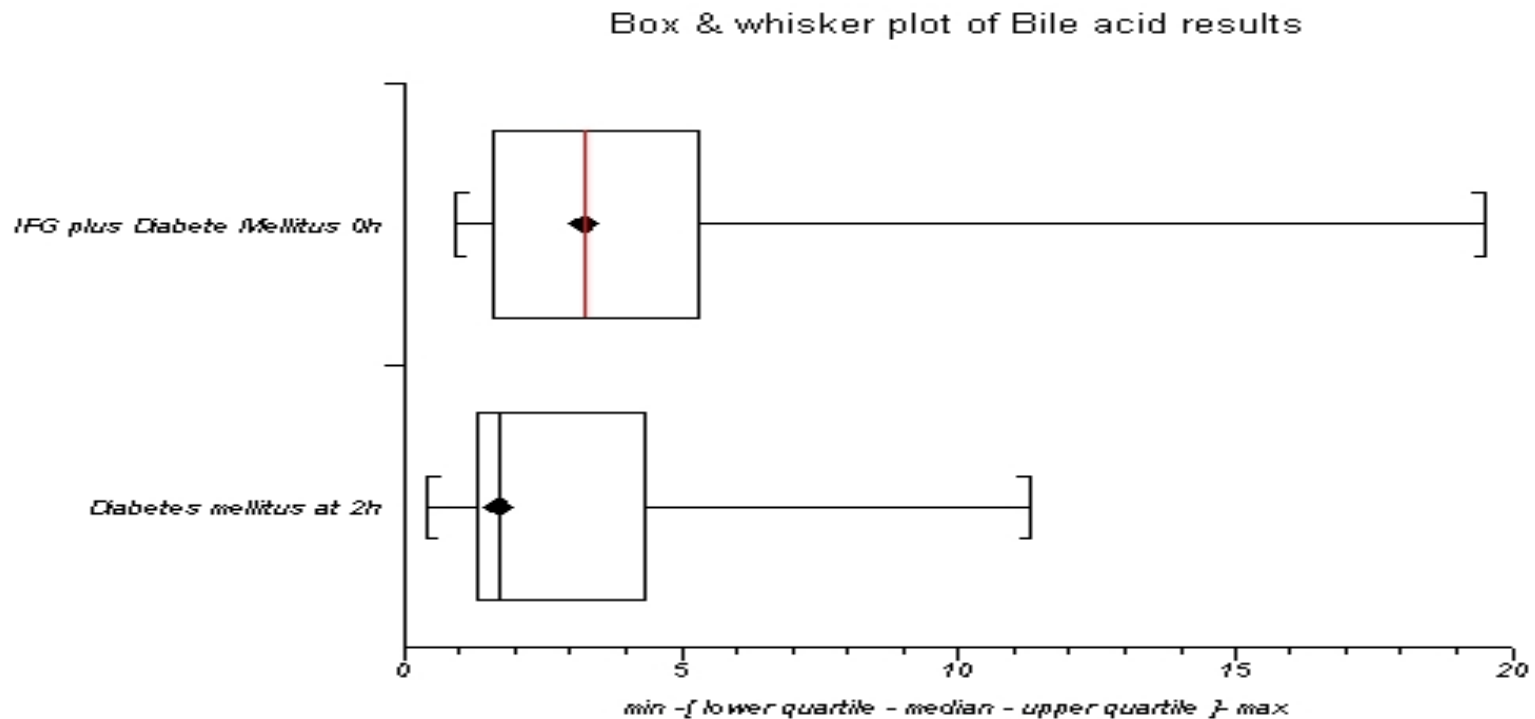


Preliminary Results



- Lower side $P = 0.0277$ (H1: Normal tends to be less than IGF +DM-F)
- Two sided $P = 0.0553$ (H1: Normal tends to be distributed differently to IGF+DM-F)

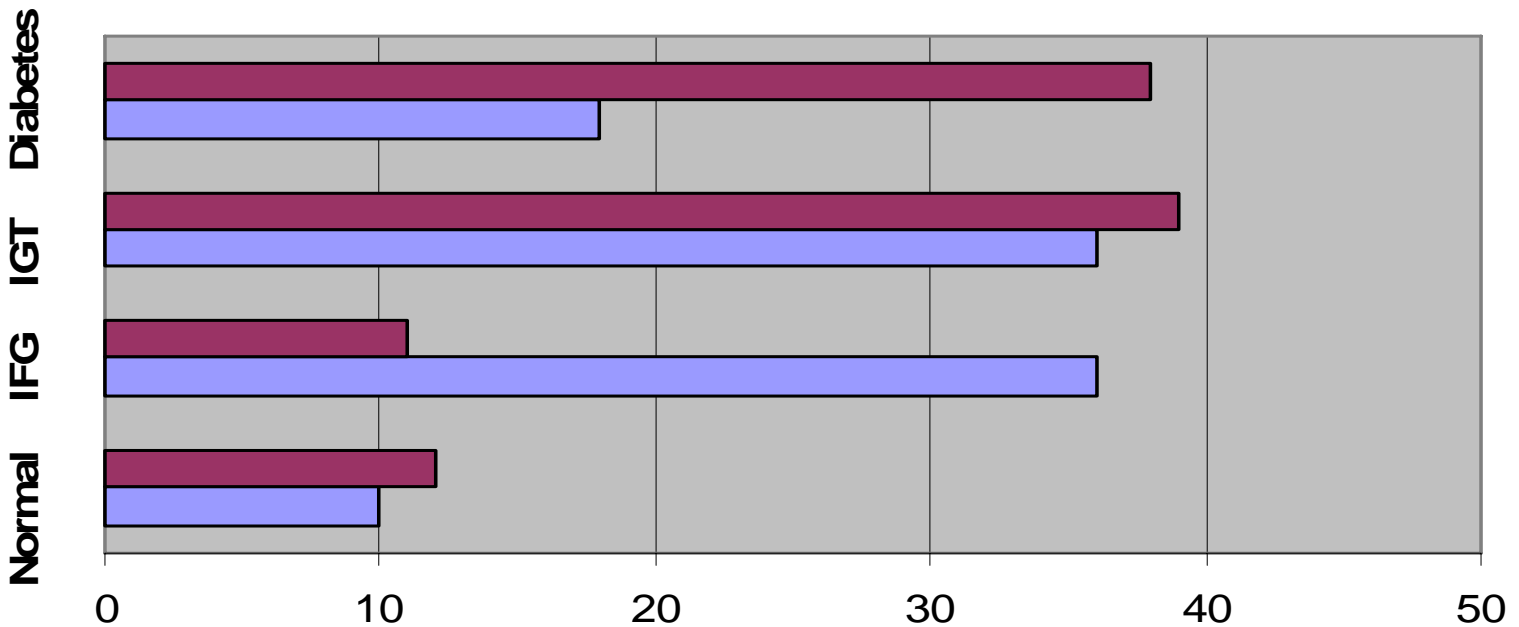
Preliminary Results



- Lower side $P = 0.0361$ (H1: DM tends to be less than IFG plus DM at 0min)
- Two sided $P = 0.0722$ (H1: DM tends to be distributed differently to IFG plus DM at 0min)

Preliminary Results

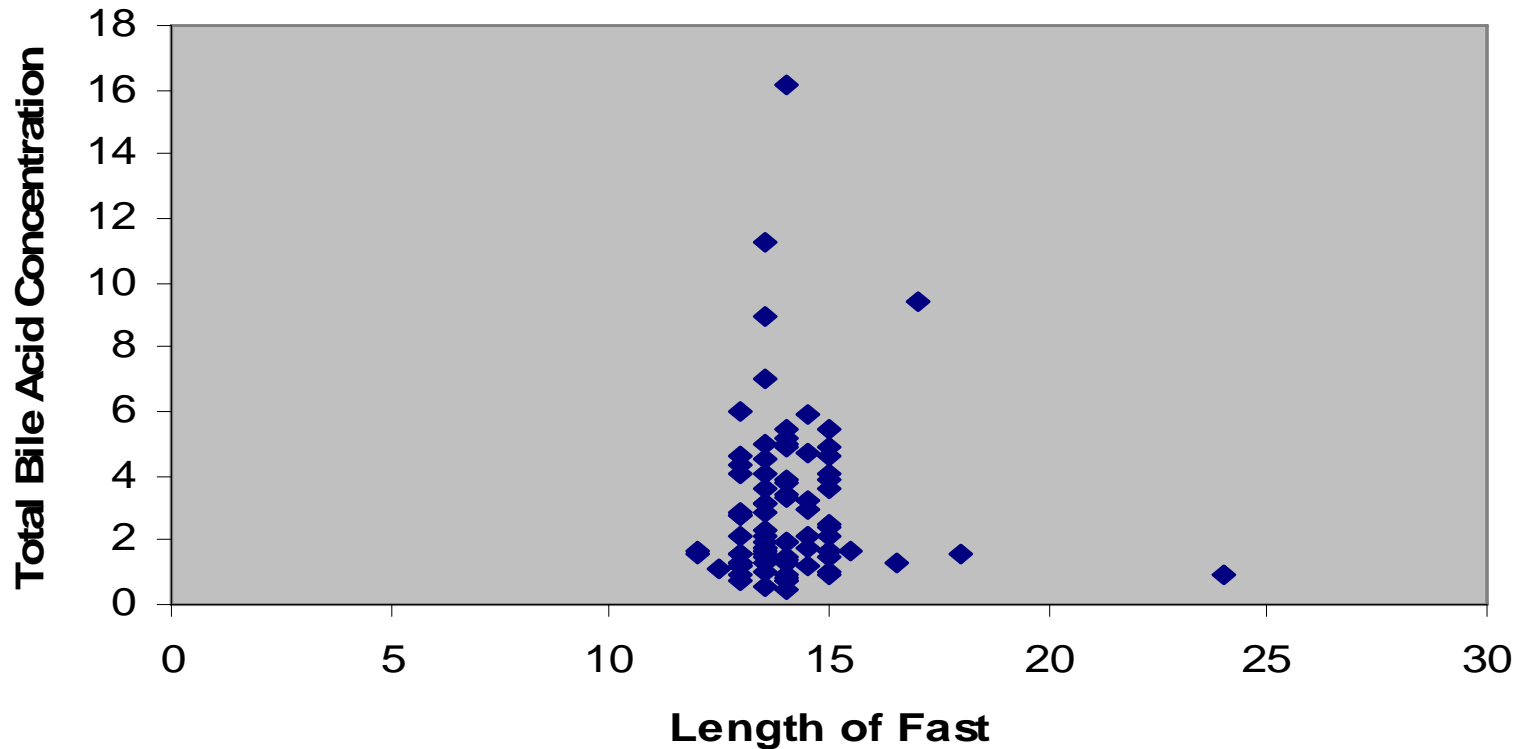
Comparison of GTT results with TBA concentration



■ Percentage with each result

TBA < 7 red : TBA ≥ 7 blue

Preliminary Results



■ Total Bile Acid Concentration vs Length of fast : Median 14h (12-24h)

Conclusions

- Most patients were fasting :90+%
- Individuals with only abnormal fasting glucose levels had higher total bile acid levels suggesting:
- A small proportion 8% may not have fasted correctly
- In individuals with higher total bile acid levels there appeared to be proportionately more IFG results



Any Questions
