The ‘intelligent Liver Function Test’ (iLFT): A cost-effective way to improve quality of care

Dr Jennifer Nobes1, Dr Ellie Dow2 & Professor John Dillon2
1 Department of Biochemistry, Blood Sciences, NHS Tayside, Dundee, 2 University of Dundee, Ninewells Hospital and Medical School, Dundee

Background
Mortality from most major disease areas is falling in the UK, but deaths from liver disease continue to rise (Fig. 1). Liver disease is now the third most common cause of premature death (deaths under 65 years of age).1

Liver function tests (LFTs) are commonly used blood tests which may indicate liver disease. However, the results are often abnormal, the causes of which can be complex.2 Many of these results are not acted on in accordance with national guidelines.3

Aims of the ‘intelligent Liver Function Test’ (iLFT)
1 Increased investigation and diagnosis of liver disease
2 Earlier intervention in liver disease
3 Reduced morbidity, mortality and cost associated with late presentation

Methods
How does iLFT work?
iLFT is a novel, automated system that further investigates abnormal LFTs results on the initial sample from Primary Care. It combines patient demographics, clinical details and blood test results using advanced computer algorithms (Fig. 2). The results are compared with liver disease criteria produced by expert hepatologists.4 This allows a probable diagnosis and investigation/management plan to be generated.

The iLFT pilot study
The pilot study used a step-wedge design in which each GP practice acted as its own control for six months, followed by six months using iLFT. Health economics modelling was performed on the results.

Results
Over 700 patients were enrolled in the pilot study; n= 490 in control group (standard care) and n=229 in iLFT group.

1 Quality of Care
43% iLFT increased diagnosis of liver disease (Fig. 3)
40% iLFT increased documentation of liver disease
59% iLFT increased appropriate escalation of care

2 Health of Population
iLFT modestly improved length and quality of life (Fig. 4)

3 Value & Sustainability
iLFT is highly cost-effective (Fig. 5)

Conclusions
1 iLFT improves diagnosis of liver disease and quality of care whilst remaining cost-effective
2 Since mid-2018 iLFT has been fully available across Primary Care in NHS Tayside, with good uptake
3 iLFT embodies the 2020 Vision for Health & Social Care, offering an innovative, sustainable and efficient way to improve health across Scotland

What’s next for iLFT?
iLFT has been identified by the Scottish Government for roll-out across NHS Scotland
Groups in NHS England & NHS Wales have also expressed interest in using iLFT

References