Background
- Liver function tests (LFT) are widely used by GPs in UK.
- Abnormal results from these tests (ALFTs) are common.
- ALFTs are uninvestigated further or lengthy retesting & referral
- Current practice leads to unidentified curable liver disease which could be fatal, and costs patient & health services time & resources.
- iLFT is a semi-automated liver test cascading system
  - Maximises efficiency of requesting LFTs.
  - Earlier detection of potentially curable liver disease.

Aim
- Determine cost-effectiveness of iLFT compared to routine practice for evaluating ALFTs in Scotland.

Methods
- Perspective: National Health Service.
- Economic evaluation alongside trial & decision model.

Within trial economic evaluation (CEA)
- Step wedge RCT, before / after analysis, Tayside Scotland
- Resource use data (GP, nurse, lab tests)
- Decision tree
- Incremental cost per correct diagnosis

Lifetime economic evaluation (CUA)
- Markov model
- Alcoholic Liver Diseases (ALD) & Non Alcoholic Fatty Liver Diseases (NAFLD)
- Patients with liver disease could enter in detected or non-detected states, then they followed pathway of disease
- Costs, utilities, transitional probabilities and treatment effect, were estimated from SCALE data, expert opinion and literature.

Sensitivity analysis
- Deterministic: four scenarios based on definition of normal range for ALT and patients exclusion criteria
- Probabilistic: Monte Carlo simulation

Results
- Within trial: iLFT higher costs, improved diagnosis.
- iLFT was cost effective with an ICER of 284£.
- Lifetime: iLFT dominant

Conclusion:
- iLFT is deliverable, requiring only innovative developments and adjustments to; existing laboratory hardware and software. It can reduce the number of LFT’s not rechecked/not investigated which are potential cases for fatal disease in future.
- This system is clearly more effective at diagnosing liver disease than the routine practice. iLFT has a higher correct diagnosis rate and cost in short-term, in lifetime model it dominates. The results were robust to PSA and different scenario