



FOCUS ON RESEARCH

A pilot evaluation of an intelligent liver diagnostic pathway: Making sense of LFTs for patients, GPs and the NHS in Scotland

Researchers

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Aim

Liver function tests are frequently requested blood tests which may reflect liver disease or other diseases. LFTs are commonly abnormal, the causes of which can be complex and are frequently under investigated. This misses the opportunity to diagnose and treat liver disease at an early stage. We developed an automated investigation algorithm, based on minimal diagnostic criteria, liver fibrosis estimation and reflex testing for causes of liver disease, which would maximise diagnosis of early liver disease. We set out to test if this new pathway of care increased diagnosis of liver disease and was cost effective.

Project Outline/Methodology

We developed existing; blood test ordering systems, results communications systems, added programming to tracked laboratory sample handling systems and programmed new logic into laboratory management systems to automate the iLFT algorithm within clinical work streams. We then used a step wedged trial design to compare LFT outcomes for six months before the activation of the iLFT system to 6 months after in 6 general practices. Collecting diagnostic outcome data on patients with abnormal LFTs on their first test.

Key Results

The project demonstrates that you can investigate all patients with abnormal LFTs, increasing diagnosis of liver disease by 44%, with a low and highly cost effective ICER of £284, which over a patient lifetime is a dominant strategy saving the NHS an average £3,216 per patient

Conclusions

iLFT increases Liver diagnosis, improves quality of care and is cost effective. This can be achieved with minor changes to working practices and existing lab systems.

What does this study add to the field?

This study takes the observations; that liver disease is a major cause of mortality, that large numbers of LFTs are measured, many are abnormal and not investigated. To this problem it applies a novel method of investigation using existing knowledge and biochemistry laboratory infrastructure to dramatically increase the diagnosis of liver disease in a way that is cost saving to the health service.

Implications for Practice or Policy

This study shows that the iLFT method could if widely implemented across the NHS, be a costeffective way to reduce the burden of endstage liver disease, by earlier detection and intervention.

Where to next?

The pilot project is being developed for roll out as standard care in NHS Tayside, other units and hospitals across the UK are exploring using it in their own systems.

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