



Important New Evidence Service In Partnership with The Centre for Medicines Optimisation at Keele University

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Statins and liver function testing: CCG intervention to reduce unnecessary testing

A [recent paper](#) discusses a simple intervention undertaken by a CCG to reduce unnecessary liver function tests for statin monitoring. The intervention resulted in significant cost savings, with likely benefits to patients.

Reference: Homer K, Robson J, Solaiman S et al. [Reducing liver function tests for statin monitoring: an observational comparison of two clinical commissioning groups](#). Br J Gen Pract. 30 January 2017. DOI: <https://doi.org/10.3399/bjgp17X689365>

What do we know already?

- Liver function tests (LFTs) are commonly carried out during treatment with statins. However, **routine** annual testing is unnecessary, and is not advocated in [NICE guidance](#), which recommends monitoring of the liver transaminase enzymes (either alanine aminotransferase [ALT] or aspartate aminotransferase [AST]):
 - before starting a statin
 - again within 3 months, and
 - after 12 months of treatment, **but not again unless clinically indicated**.
- The [guidance](#) also recommends that people who have liver transaminase levels that are raised but are less than 3 times the upper limit of normal are not routinely excluded from statin therapy. (*N.B a usually transient increase in transaminase levels often occurs on initiation of statin therapy.*)
- NICE recommends that ALT- or AST-only testing is adequate for liver monitoring of statins. However, an array of up to seven different tests are typically carried out when a GP makes a request for 'LFTs' and there is often not the option for a GP to select just a single ALT-only test.
- This has led to suggestions of over-testing of liver function in patients using statins, which, in addition to cost implications, may result in unnecessary further investigations and lead to patient anxiety.

What does this evidence add?

- This study evaluated the impact of a relatively simple and potentially generalisable intervention undertaken by a CCG in London (Tower Hamlets CCG) to optimise monitoring of statins. The intervention involved:
 - the 'unbundling' of LFTs to allow GPs to select a single ALT test on the practice's electronic ordering system
 - the provision of local guidance to all GPs on liver function testing for monitoring of statins, promoting prudent testing, rather than routine annual testing.
- By the end of the year following the intervention, the use of full-array LFTs in people on statins had fallen by about a quarter in this CCG compared with the pre-intervention year. There was no decrease in full-array LFTs in a neighboring 'control' CCG that did not receive the intervention.
- This resulted in a substantial reduction in costs of LFTs to the CCG (a saving of ~£130k, when the additional cost of single ALT tests was taken into consideration). Whilst recognising the need for a more formal analysis of cost reductions, the authors estimated potential savings for England to be around £8.4 million per year (see details overleaf).
- The CCGs studied may not be representative of others in the UK as they serve economically deprived and ethnically diverse populations with high levels of cardiovascular disease, diabetes and statin use. However, the issue of unnecessary testing that is addressed in this paper may be common to many areas of the UK.
- Whilst not assessed in this study, the authors also suggest that the intervention may protect patients from potential harms from over-testing. For providers, there would be decreases in laboratory costs, phlebotomy and clinical staff time.

Study details

Participants:

- Data were collected from the electronic health records in 95 general practices serving a population of 650,000 patients in the inner east London clinical commissioning groups (CCGs) of Tower Hamlets ('intervention' CCG) and Newham ('control' CCG) between April 2014 and April 2016.
- The first 12 months allowed baseline data to be gathered for both CCGs, against which the intervention could subsequently be assessed.

Intervention and comparison:

- In April 2015, the intervention was undertaken in Tower Hamlets CCG enabling the selection of a single ALT test on general practices' electronic ordering systems. In addition, [guidance](#) on liver function testing was sent to all GPs. The guidance was also promoted at two educational meetings. Neither the guidance nor the single ALT request option were available in Newham.
- The guidance was later amended in October 2015 to include a single repeat test for patients receiving high-intensity statins to accord with [NICE standards guidance](#).
- The intervention aimed to achieve a reduction in the rate of full-array LFTs used in people on statins in the intervention CCG compared with the control CCG. Reduction in total liver function testing (i.e. full array LFTs plus ALT testing) was a secondary outcome.

Outcomes and results:

- Patients taking statins represented 17.6% of the total population of the two CCGs combined, but accounted for 43.2% of total the LFTs undertaken.
- For Tower Hamlets (the 'intervention' CCG), use of full-array LFTs decreased significantly from a rate of 70.3 tests per 1,000 people on statins in the pre-intervention year to 58.1 per 1,000 in the post-intervention year ($p < 0.001$). The rate for the final month of the study period (March 2016) was 53.2 per 1,000 -- a 24.3% reduction compared with the pre-intervention rate.
- In Newham (the 'control' CCG), there was no statistically significant decrease in use of full-array LFTs over the same period (rates of 96.3 per 1,000 on statins in year one and 93.0 per 1,000 in year two [$p = 0.32$]).
- In Tower Hamlets, the rate of total liver function testing (LFT plus ALT) per 1,000 people on statins fell from 70.5 pre-intervention to 65.3 per 1,000 in the post-intervention year (3.7% reduction). In Newham, total testing reduced from 96.7 to 93.6 per 1,000 people (a 3.2% reduction).
- In this study, a full LFT was priced at £45.50 and a single ALT at £6.50. The 3300 fewer full LFTs that were carried out in Tower Hamlets after the intervention represented a saving of £150,150. Taking into consideration the cost of the additional 3033 single ALT tests (£19,715), the overall saving for the CCG was £130,435.
- The authors estimate that, assuming the cost of a full LFT array to be £10 and with 20,000 tests for patients on statins per CCG in each of the 209 CCGs in England, the cost of testing to the NHS in England is £42 million per annum. Reducing unnecessary and inappropriate requests for testing by 20% could save £8.4 million per year (albeit partially offset by increases in ALT testing).

Level of evidence:

Level 3 (other evidence) according to the [SORT criteria](#).

Study funding:

No specific funding and no declarations of interest declared.