

# Paediatric ELF requests are inappropriate and costly: how outdated guidelines could be causing harm.

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## Background

The Enhanced Liver Fibrosis (ELF) test is used in assessing the severity of liver fibrosis in patients with chronic liver disease. It measures 3 analytes in serum: Hyaluronic Acid (HA), procollagen III aminoterminal peptide (PIIINP), and tissue inhibitor of metalloproteinase 1 (TIMP-1).

The NICE guidance "Non-alcoholic fatty liver disease (NAFLD): assessment and management (NG49)" advises testing for advanced liver fibrosis in patients with NAFLD, and states that use of the ELF test should be considered. NG49 quotes an ELF score of  $\geq 10.51$  for diagnosis of advanced liver fibrosis. Those with an ELF score  $< 10.51$  should have ELF reassessed after 3 years (adults) or 2 years (children and young people). It also advises that a rise in ELF in children/young people should be used as an indicator to cease Vitamin E treatment. The guideline states that the evidence for using ELF in children and young people was from a singular study, and advises that further research is needed.

Birmingham Children's Hospital (BCH) is the UK premier paediatric Liver Unit. Clinical Chemistry refer samples for ELF analysis to an external laboratory, at a cost of £88 per test. The referral lab quotes a cut-off for ELF of  $> 9.5$  indicating advanced liver fibrosis, which differs to the NICE guidance. Both the referral lab range, and an additional in-house auto comment advising the NICE cut-off are reported by BWC. Due to concerns that this could cause interpretive confusion, the Paediatric Hepatology department were approached to advise which cut-off they used in children. The response received from the consultants who hold the MASLD clinics was that there is no reliable cut-off value for ELF in children, and that this test should not be used. The team provided useful references to new research papers which have demonstrated that ELF performs poorly in children and young people (1) and guidelines that do not include the use of ELF in their recommendations (2).

## Methods

A review of new literature and guidelines was performed to ascertain the most up-to-date guidance on evaluation of liver fibrosis in paediatrics.

A data gather from LIMS was performed of ELF requests over 12 months (October 2024-September 2025) and reviewed for requesting consultant and speciality.

A re-audit was performed 2 months after changes were implemented to assess their effectiveness.

## Audit Findings: Literature and Guideline Review

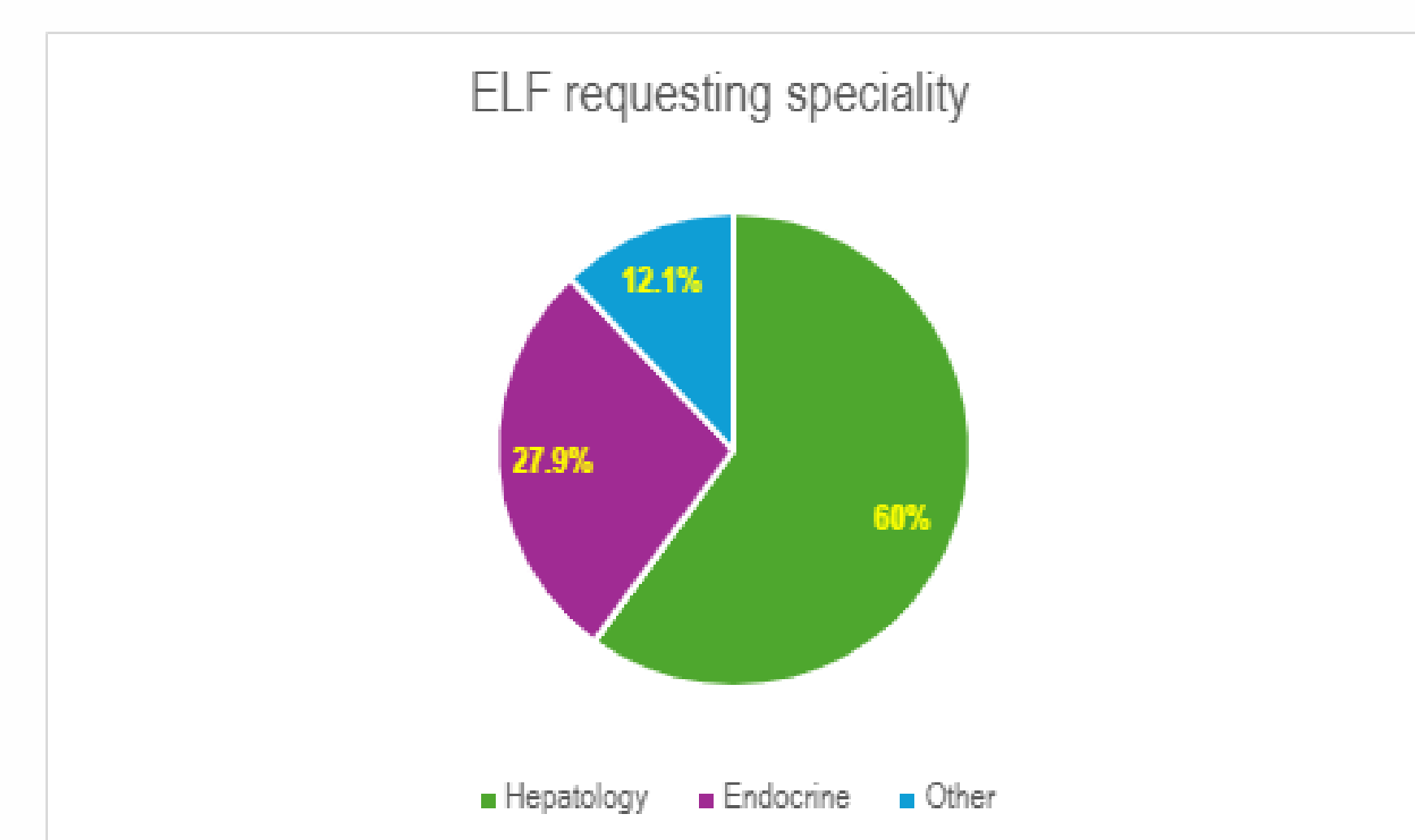
Some components of the ELF score (HA and PIIINP) have significantly raised concentrations during puberty, such that the healthy reference range is different for paediatrics. In addition, patients with known fibrosis frequently had ELF scores within this healthy range, demonstrating that this score is a poor differentiator in paediatrics between healthy and fibrotic livers.

The North American Society For Pediatric Gastroenterology, Hepatology & Nutrition (NASPGHAN)<sup>2</sup> recommend using ALT  $> 80$  U/L, splenomegaly and AST/ALT  $> 1$  as potential clinical signs of increased risk of NASH (nonalcoholic steatohepatitis) and/or advanced fibrosis, and advises consideration of liver biopsy for assessment in these patients.

## Audit Findings: Review of requesting

Of 215 requests, 129 (60%) were from Hepatology, 60 (27.9%) from Endocrinology, with the remainder from other various specialities. Despite clinicians advising us in October 2025 that they no longer request ELF, 14/17 requests in September 2025 were from hepatology. This may be due to clinicians requesting panels of tests that they were unaware included ELF, or other members of the team not being aware of the new research around its use.

At £88 per test, the annual cost for referring ELF for analysis is almost £19K.



## Outcome

With the agreement of the paediatric hepatology department, changes have been made to OrderComms (Epic):

- ELF code was removed from the clinician requestable catalogue
- 'Freetext' ELF requests must be requested using a 'Miscellaneous' code which are vetted by the Duty Biochemist for appropriateness.

## Re-Audit

A re-audit of requests since implementing this change shows that only 1 ELF request has been sent in 2 months (due to an error of incomplete removal of the ELF code from all OrderComms panels, but now corrected), demonstrating that the change in process has been successful in preventing inappropriate ELF requesting and realise financial savings to the department.

## Discussion

New research demonstrates that following NICE guidance and using the ELF score to assess fibrosis in paediatrics may result in incorrect interpretation of results. This may lead to an incorrect assessment of the degree of fibrosis in these patients which could have adverse consequences for patients. It is not unusual for guidelines to extrapolate from adult data where there is a lack of paediatric data. This should be done with extreme caution and requires a mechanism to correct guidelines quickly in situations where new, contradictory data becomes available.

## Acknowledgements

Liver Unit Consultant team, Birmingham Children's Hospital

## References

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