What to do about deranged LFTs?

Improving doctors assessment, management and communication in children with fever who have deranged liver function tests (LFTs)

Dr Jennifer Whitby[1]

[1] North Middlesex University Hospital, Royal Free London NHS Foundation Trust

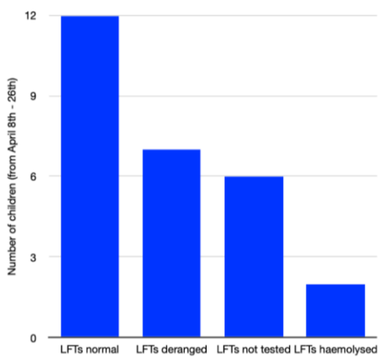
Royal Free London NHS Foundation Trust

1. The Problem

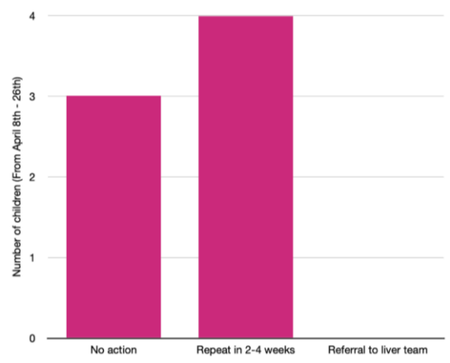
In children with fever, abnormal liver function tests (LFTs) are common — but it is not clear when, or if, to repeat them. This uncertainty leads to inconsistent care, parental anxiety, and in some cases missed investigation into a serious liver condition.

2. Diagnostics

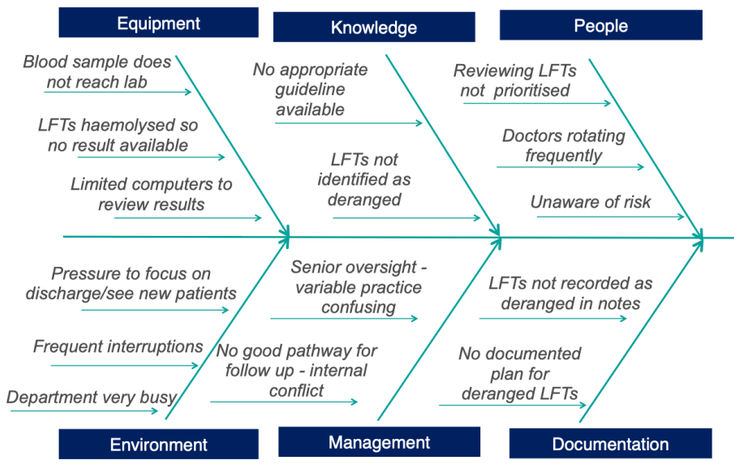
Bar Chart 1: Outcome of liver function testing in children with fever

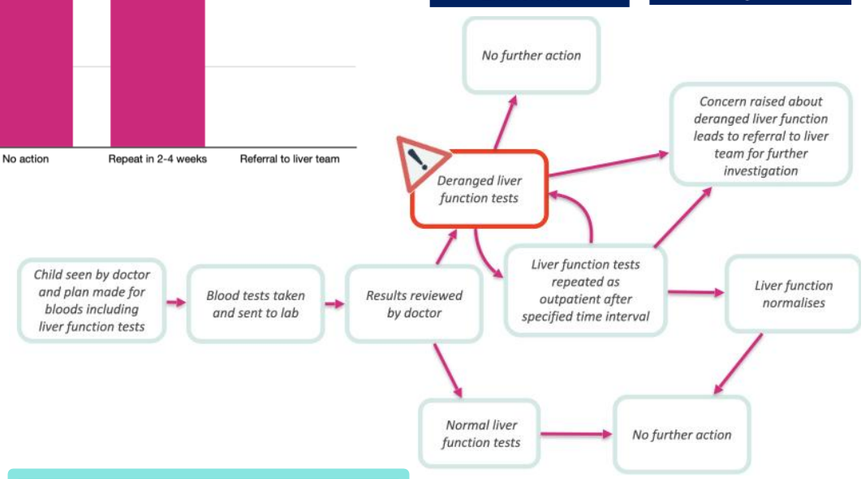


Bar Chart 2: Plan made for deranged liver function results in children with fever



NB: LFTs = liver function tests





3. Aim & Measurement

Aim: By the 31st August 2025, 7 out of 10 children with fever who have abnormal liver function tests will have the results communicated to the parents and appropriate follow up arranged and agreed with the parents.

Chosen measure: Score out of 4 for -

- Documented deranged liver function tests in the notes
- Documented non-viral causes of liver derangement ruled in/out
- Documentation that parents are informed of deranged liver function test
- Child booked for a repeat liver function test as outpatient

Inclusions: Children more than 1 year old presenting with fever who have bloods performed and found to have abnormal liver function tests defined as an ALT > 40

Exclusions:

- Children with an ALT more than 5x the upper limit of normal (ALT > 200)
- Children less than 1 year old
- Children with chronic liver condition or have known deranged liver function tests (for example, on chemotherapy for cancer)

Sampling measure and frequency: Review notes of children with deranged LFTs twice weekly to gather data

4. Change Ideas

Emails

Posters

Automated computer alert

Share and learn session

Leaflet for parents

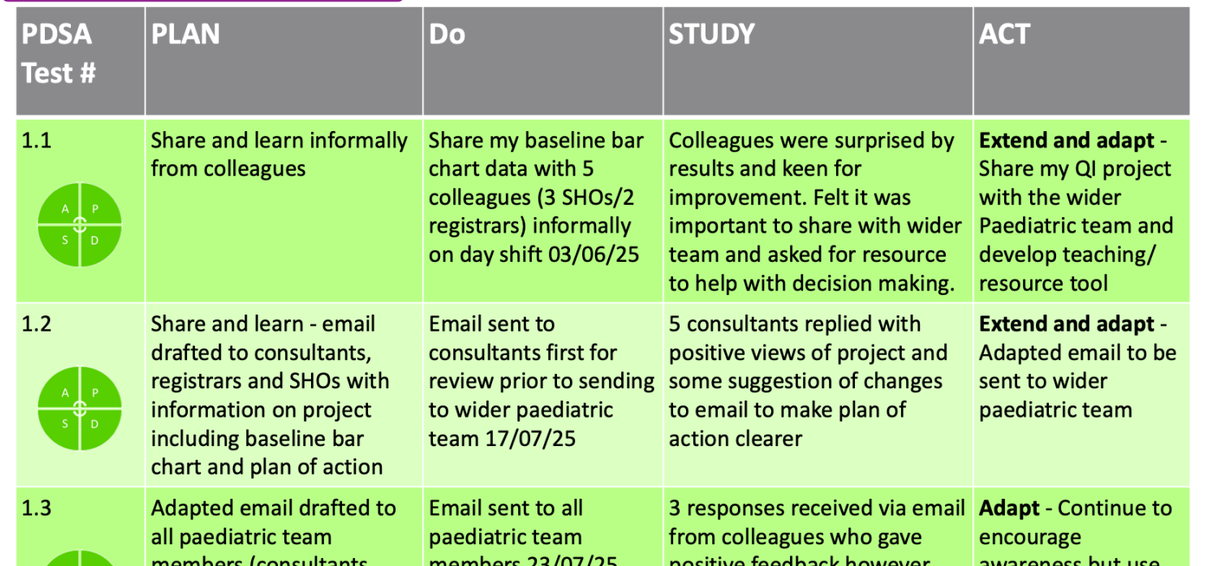
Mnemonic to jog memory

Teaching session

5. PDSA Cycles

PDSA Test #	PLAN	Do	STUDY	ACT
1.1	Share and learn informally from colleagues	Share my baseline bar chart data with 5 colleagues (3 SHOs/2 registrars) informally on day shift 03/06/25	Colleagues were surprised by results and keen for improvement. Felt it was important to share with wider team and asked for resource to help with decision making.	**Extend and adapt** - Share my QI project with the wider Paediatric team and develop teaching/ resource tool
1.2	Share and learn - email drafted to consultants, registrars and SHOs with information on project including baseline bar chart and plan of action	Email sent to consultants first for review prior to sending to wider paediatric team 17/07/25	5 consultants replied with positive views of project and some suggestion of changes to email to make plan of action clearer	**Extend and adapt** - Adapted email to be sent to wider paediatric team
1.3	Adapted email drafted to all paediatric team members (consultants, registrars and SHO)	Email sent to all paediatric team members 23/07/25	3 responses received via email from colleagues who gave positive feedback however not clear if email read by majority of colleagues	**Adapt** - Continue to encourage awareness but use WhatsApp and polls to improve responses
2.1	Teaching session created and booked for paediatric team on QI project	Teaching session delivered 17/07/25	10 paediatric SHOs/registrars/ consultants in attendance. Positive feedback given by 5 colleagues.	**Extend and adapt** - not all colleagues able to be present
2.2	QI project poster developed for display in doctors areas	QI project poster displayed in handover room	Poster seen by colleagues and commented on while waiting for handover. But writing small and in grey scale so not easily visible.	**Extend and adapt** - poster adapted to be more succinct and colourful
2.3	QI project poster adapted to be more succinct and printed in bright colours for better visualisation	New QI project poster displayed in handover room, ward and PAU doctors office	WhatsApp poll put out to see if colleagues had seen and read poster - 12 positive responses	**Extend** - To plan further teaching session with new cohort of trainees Sept 25
3.1	Patient leaflet developed explaining why a child may have deranged liver function tests and the action plan	Patient leaflet made and under review by consultant body 12th August	TBC	TBC

6. Run Chart



7. Conclusions and Reflections

Aim and outcome: Before starting my project only 1 out of 20 parents were informed about deranged liver function tests and 3 out of 10 children were booked for follow up. After starting my PDSA cycles this improved to 6 out of 10 parents being informed and 8 out of 15 children booked for follow up. While not quite reaching my aim I am very pleased with the improvement over a short period of time.

Key drivers of improvement: Sharing my project with colleagues through teaching, emails, posters and involving them as stakeholders was key to implementing change.

Challenges: There is no consensus or guideline on how to manage abnormal liver function tests and there is huge variation in how they are managed. My project instigated a pragmatic and consistent approach for the department. Involving all my colleagues was difficult due to shift patterns. Reduced patient numbers during summer limited time to see improvement during the PDSA cycles.

Reflections: Diagnostics are key to improve your QI plan. Colleagues are receptive to change when they understand the rationale and are involved as stakeholders - this make change more likely to succeed. Continuing sustainable change is challenging. A patient leaflet has now been developed and will be distributed to future patients.

Acknowledgements:

With thanks to Richa Ajitsaria, Jane Runnacles & Nikki Davey

Change CHAMPION

| qiclearn.com | londonpaediatrics.co.uk

| @qiclearn | @LondonPaeds