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# Liver disease: GEMS

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## 1. Liver: GEMS

Please follow the link for a PDF version of the GEMS for download/printing:

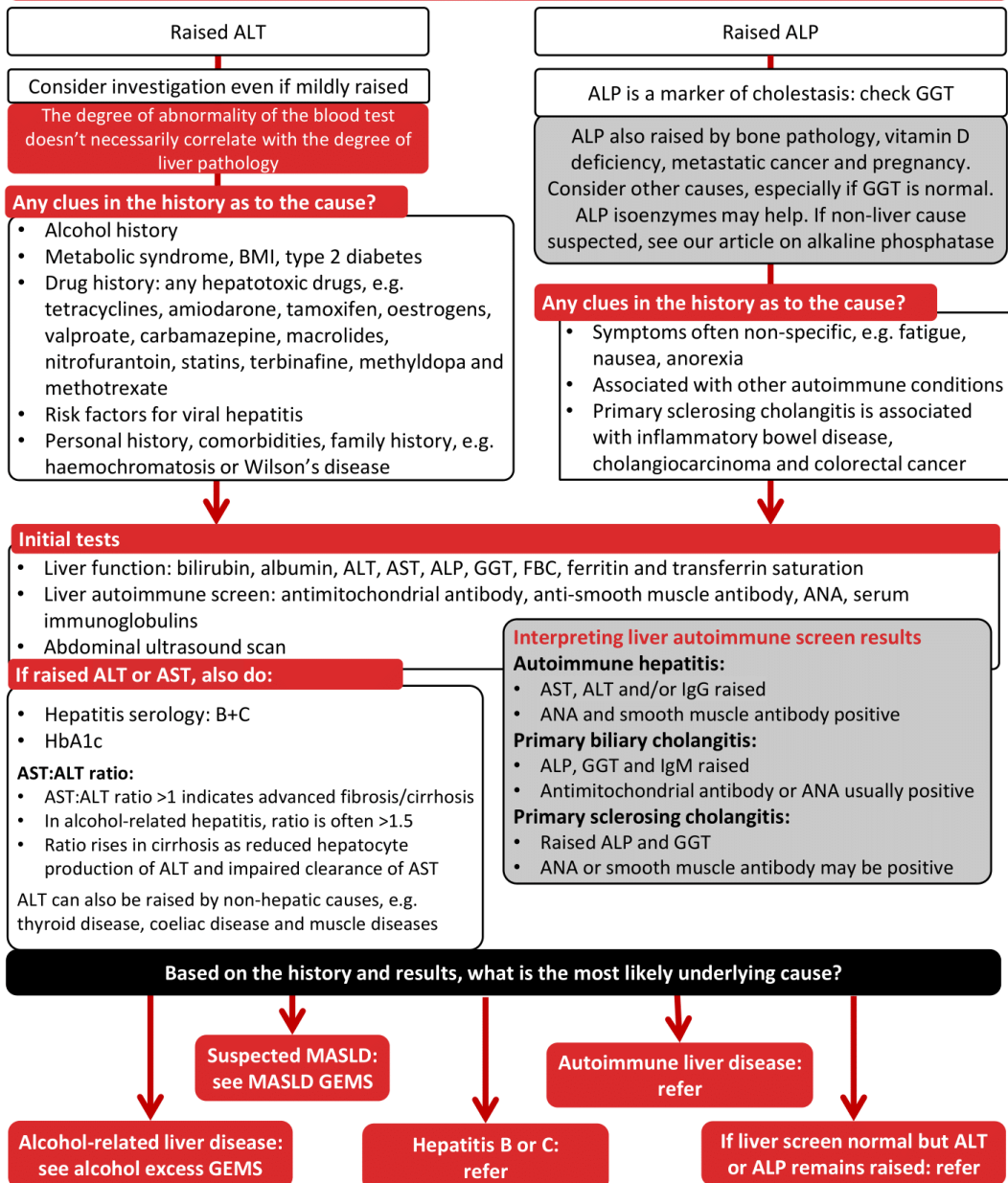
[Liver disease: GEMS](#)

## Liver GEMS: abnormal liver function tests

NICE 2016, NGS0, NICE 2013, CG165, JAMA 2022;327:580, Gut 2017  
doi:10.1136/gutjnl-2017-314924, Lancet 2021;397:2212, BMJ 2018;362:k2734,  
Lancet 2014;384:1953, BMJ 2009;339:b3305, JAMA 2021;326:165, Lancet  
2020;396:1915



**Do not use this GEMS if any red flags of liver disease, e.g. suspected cancer, ascites, jaundice, encephalopathy, sepsis, abnormal clotting, haematemesis, low albumin/platelets, rapid deterioration or ALT or ALP  $\geq 5$  x upper limit of normal: if any ONE of these present, consider admission/urgent referral**



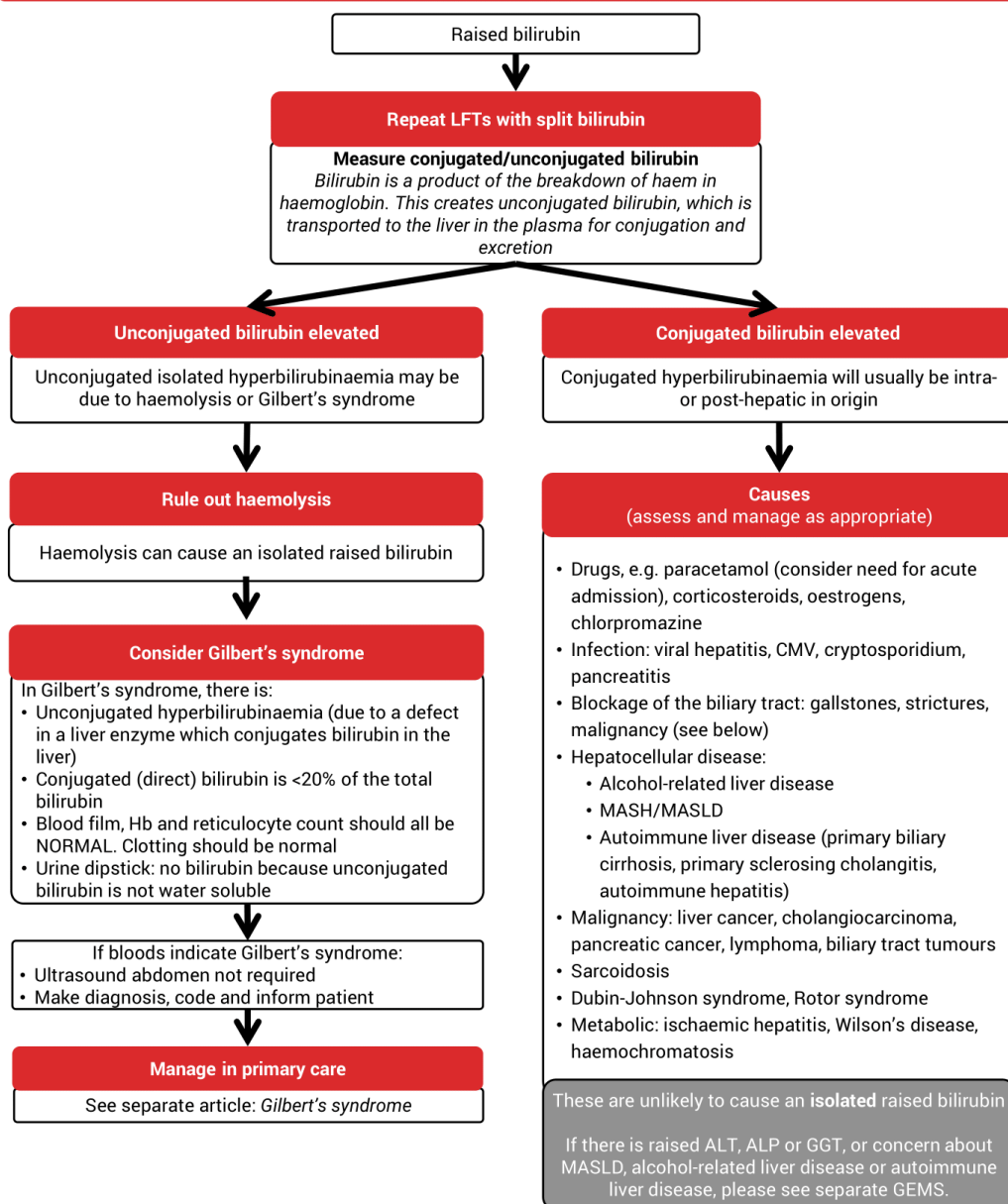
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## Liver GEMS: raised bilirubin

Gut 2017 doi:10.1136/gutjnl-2017-314924, BMJ 2011;342:d2293, DTB 2019;57(2):27, BMJ 2018;362:k2734, Am Fam Physician 2004;69:299, Am Fam Physician 2017;95:164



**Do not use this GEMS if any red flags of liver disease, e.g. suspected cancer, ascites, jaundice, encephalopathy, sepsis, abnormal clotting, haematemesis, low albumin/platelets, rapid deterioration or ALT or ALP  $\geq 5$  x upper limit of normal: if any ONE of these present, consider admission/urgent referral**



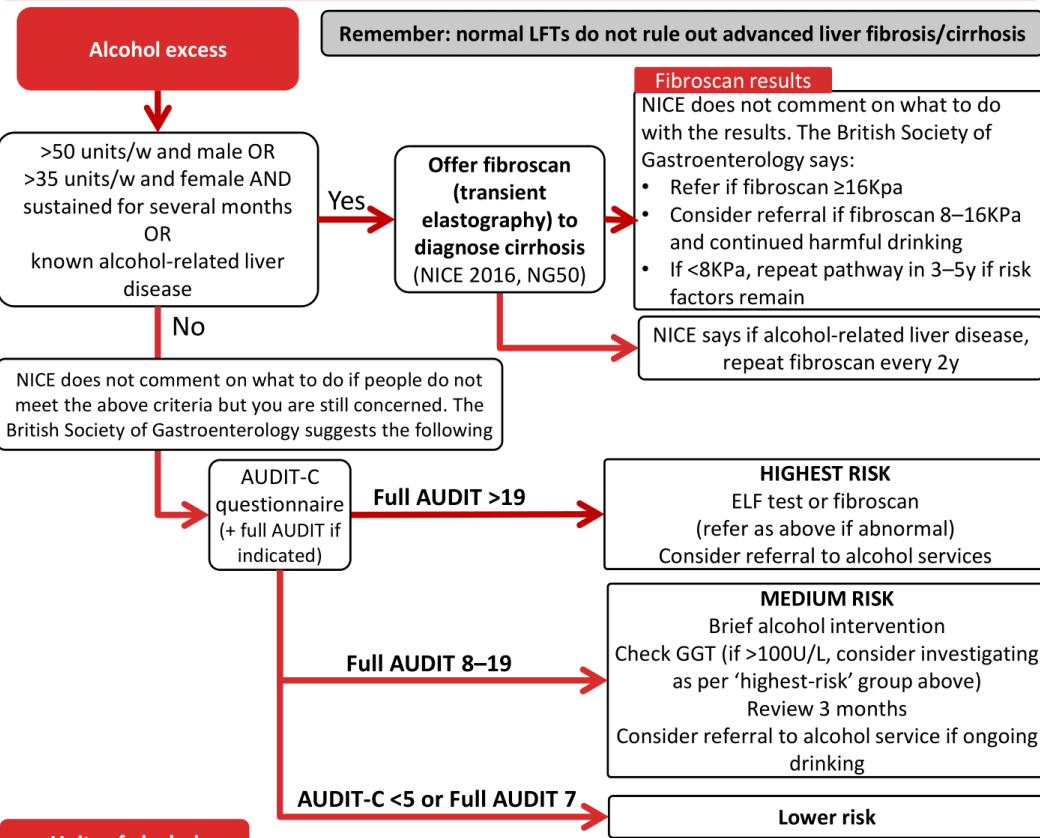
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# Liver GEMS: alcohol-related liver disease

NICE 2016, NG50, Gut 2017 doi:10.1136/gutjnl-2017-314924, BMJ 2018;362:k2734, Low risk drinking guidelines DOH 2016, AUDIT-C and AUDIT, Gov.uk, accessed July 2023



**Do not use this GEMS if any red flags of liver disease, e.g. suspected cancer, ascites, jaundice, encephalopathy, sepsis, abnormal clotting, haematemesis, low albumin/platelets, rapid deterioration or ALT or ALP  $\geq 5$  x upper limit of normal: if any ONE of these present, consider admission/urgent referral**



**Units of alcohol**

The UK CMO issued guidance on low-risk drinking in 2016, concluding that there is no safe level of drinking. To keep health risks from drinking to a low level, it is safest not to regularly drink **>14 units/w** (1/4 of the UK population exceeds this).

**How many units are in an alcoholic drink?**

- 1 shot (25ml) of spirit = 1 unit
- Half a pint of 4% beer/lager = 1 unit
- Small glass of wine (175ml) = 2.3 units; large glass of wine (250ml) = 3.2 units

**AUDIT-C and Full AUDIT**

AUDIT (the alcohol use disorders identification test) was developed by the World Health Organisation  
 AUDIT-C is a shorter initial questionnaire which concentrates on alcohol consumption; if the score is  $\geq 5$ , proceed to Full AUDIT

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# Liver GEMS: investigation of suspected MASLD

NICE 2016, NG49 and NG50, Gut 2017 doi:10.1136/gutjnl-2017-314924, BMJ 2018;362:k2734, Lancet 2014;383:1953, Lancet 2021;397:2212, NICE CKS NAFLD, <http://gihep.com/calculators/hepatology/fibrosis-4-score/>



**Do not use this GEMS if any red flags of liver disease, e.g. suspected cancer, ascites, jaundice, encephalopathy, sepsis, abnormal clotting, haematemesis, low albumin/platelets, rapid deterioration or ALT or ALP  $\geq 5$  x upper limit of normal: if any ONE of these present, consider admission/urgent referral**

## Suspected MASLD (metabolic dysfunction-associated steatotic liver disease) (previously NAFLD) in adults

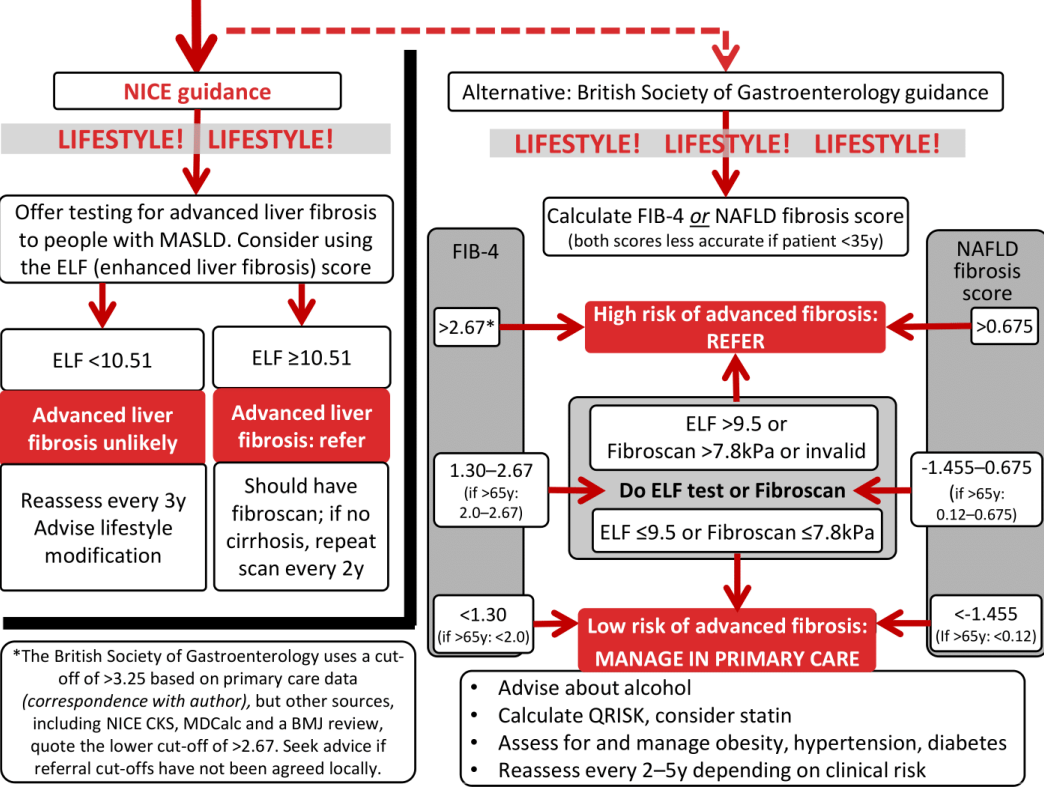
### When should we suspect MASLD? And when should we investigate?

MASLD is more likely in those with T2DM or metabolic syndrome, but many of these patients will be asymptomatic and have normal bloods. Should we go looking for it in this case? No! We should start looking for it in those with:



- **Abnormal ALT or AST** (because the cost-effectiveness of case-finding has not yet been demonstrated) (British Society of Gastroenterology)
- **Scan suggesting fatty liver** (investigate for MASLD and assess for other causes)

<p><b>ALT raised:</b> See GEMS on abnormal liver function tests for initial investigations of a raised ALT Come back to this page if you think MASLD is the most likely cause of the raised ALT after initial tests</p>	Or	<p><b>Ultrasound shows steatosis:</b> Any metabolic risk factors, e.g. obesity, type 2 diabetes, dyslipidaemia, hypertension? Rule out other causes: investigate as for a raised ALT (abnormal LFTs GEMS) if not already done</p>
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**If MASLD is still the most likely diagnosis and no other cause has been found, proceed to further tests below. Different guidelines suggest different pathways; you may also have local guidance. The tests below aim to identify those at risk of advanced fibrosis**



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	<p><b>Liver disease: GEMS</b></p> <ul style="list-style-type: none"><li>• Keywords: liver, alcohol, function, ALT, ALP, bilirubin, Gilbert's, NAFLD, non-alcoholic fatty liver, FIB-4, fibroscan, hepatitis, autoimmune liver disease, AUDIT, unit, ultrasound, hepatology, hepatic</li></ul>
	<p><b>Useful resources:</b></p> <p><u>Websites</u> (all resources are hyperlinked for ease of use in Red Whale Knowledge)</p> <ul style="list-style-type: none"><li>• <b>NAFLD score</b></li><li>• <b>FIB-4</b></li></ul>

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