Liver Surveillance Guidelines

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1. People at a significantly increased risk of hepatocellular carcinoma (HCC) due to underlying liver disease meeting the inclusion criteria below and without any of the exclusion criteria should be offered 6 monthly surveillance for hepatocellular carcinoma.
2. The primary modality for hepatocellular carcinoma screening should be liver ultrasound, which should be performed by highly trained ultrasonographers with experience of imaging cirrhotic livers. Where ultrasound give suboptimal liver views (for example due to obesity) other imaging modalities such as MR liver may be considered based on adequacy of imaging and individual patient risk, however this is unlikely to be cost effective on a whole population basis.
	1. Where possible ultrasound scans should be reported consistently in keeping with validated reporting systems
3. Alpha fetoprotein (AFP) levels are recommended 6 monthly in patients undergoing screening for patients with a Hepatitis B related risk of hepatoma in keeping with NICE guidance CG165. AFP should be considered for patients undergoing screening for liver disease of other aetiologies. A cut off of 10 ku/l should be considered abnormal.
	1. Where a patient has an AFP level greater than 10 ku/l without evidence of a focal lesion on US an MR of liver should be undertaken to look for liver lesions and if negative this should be repeated after 3 to 6 months.
	2. Patients with chronically or intermittently elevated AFP levels but two normal MR scans of liver may return to routine ultrasound based surveillance unless there is a significant further increase in the AFP level (based on the clinician discretion).
4. Inclusion criteria for HCC surveillance are given below. Patients in the highest risk groups for HCC development should be prioritised for screening where capacity limits the capability to screen at risk groups.
5. Currently there is no consensus regarding on going screening after successful treatment patients at risk due to viral hepatitis. Long term suppression of hepatitis B viral load is associated with improvement in liver fibrosis and approximately an 80% reduction in the risk of HCC. Improvements have also been reported with directly acting antiviral agents in hepatitis C, although the estimate of long-term benefit is currently less clear. In the absence of clear data or national guidance, patients in these groups should be informed of the impact of treatment on their cancer risk so the patient may be fully involved in joint decision making whether to continue or cease surveillance.
6. Where patients are enrolled into HCC surveillance, they should receive verbal and written information prior to enrolment so they may be informed to consent to involvement. This information should include the of the nature of screening, and the best estimate of the benefits of screening (e.g., 10% reduction in tumour mortality and uncertain benefit on all-cause mortality), including its rate of failure. A regional patient information leaflet is currently being developed which may be adapted for local usage.
7. All centres offering surveillance should work towards a digital solution for managing their surveillance programme. This should identify when patients are due for their next surveillance, identify patients who fail to attend surveillance so they may be offered support if appropriate to attend and allow audit of the proportion of eligible patients who are offered and participate in surveillance.
8. Exclusion criteria: Patients should not be offered surveillance or should be taken off surveillance programmes when their performance status, underlying liver health, comorbidity, or frailty indicate that surveillance will not offer a significant prognostic advantage. Detailed exclusion criteria are given in the box.
9. Where liver lesions are identified on surveillance imaging these should be followed up in accordance with regional or national guidelines.
10. Where there is insufficient capacity to undertake surveillance in all at risk groups., those at highest risk should be prioritised and trusts should develop plans to expand capacity to allow inclusion of all at risk patients.
11. Guidance may be updated as new evidence or surveillance methods are available.

**Inclusion criteria**

1. The risk of HCC is highest in patients with cirrhosis. All patients with cirrhosis of any aetiology should be considered for surveillance provided they do not meet exclusion criteria. The risk of HCC is highest in patients with cirrhosis due to hepatitis B or haemochromatosis.
2. The risk of HCC is also elevated in some non-cirrhotic patients with hepatitis B. As in NICE guidance CG 165 surveillance should also be considered in patients with hepatitis B and:
	1. F2 or greater fibrosis
	2. Milder than F2 fibrosis if aged over 40 with a family history of HCC and a viral load greater than 20,000iu (although this may be modified by antiviral therapy)
3. Decisions regarding screening of non-cirrhotic patients with hepatitis B should be joint and taken on an individual level taking into their personal risk factors for tumour development which may include:
	1. Family history of HCC
	2. Ethnicity and country of origin
	3. Viral load
	4. Risk factors for other liver disease (for example metabolic syndrome or obesity)
	5. Treatment history including length and adequacy of viral load suppression

1. Screening may also be considered for patients with F3 fibrosis due to treated hepatitis C although it is recognised that the cost effectiveness of screening in this group is unclear due to difficulty with maintaining programme follow up and a relatively low risk of development of tumour.

It is recognised that there may be insufficient capacity to offer screening to all individuals in these criteria at present, in which case patient with cirrhosis should be prioritised as they are in the highest risk group.

**Exclusion criteria for surveillance**

Patients should not be offered surveillance when there have significant other health problems that mean earlier diagnosis of HCC is unlikely to affect their lifespan.

* Those with significant frailty or co-morbidity that
	+ Significantly limits life expectancy to less than 1-2 years and cannot be remedied by transplantation or other direct therapy,1
	+ Means patients were not suitable for general anaesthetic 2,3
	+ Means patients were not suitable for future tumour directed treatment.
* Child Pugh C – not on liver transplant list 1,2,3
* Child Pugh B liver disease with ascites not suitable for TIPSS or transplantation 3
* Child Pugh B due to alcohol with continued hazardous alcohol usage
* Hep C SVR F2 or milder fibrosis 1
* NAFLD F3 or milder fibrosis 1
* Inability to comply with surveillance protocol, despite support to attend

Source: 1. AALSD guidelines 2023

 2. EASL guidelines 2018

 3. BSG guidelines 2020