Justice Health and
Forensic Mental Health Network

Justice Health NSW Policy

Management of Cirrhosis, Advanced Liver Disease and Hepatocellular Carcinoma Screening

Issue Date: 04 July 2024

Together for
Healthier Tomorrows

Management of Cirrhosis, Advanced Liver Disease and Hepatocellular Carcinoma Screening

Policy Number 1.175

Policy Function Continuum of Care

Issue Date 04 July 2024

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Risk Rating Medium

Summary This policy provides guidance for the screening, assessment, treatment and monitoring of patients who are at risk of, or who are living with, advanced liver disease and/or hepatocellular carcinoma.

Responsible Officer General Manager, Population and Preventative Health

Applies to
- ☐ Administration Centres
- ☐ Community Sites and programs
- ☒ Health Centres - Adult Correctional Centres or Police Cells
- ☒ Health Centres - Youth Justice Centres
- ☒ Long Bay Hospital
- ☒ Forensic Hospital

CM Reference POLJH/1175

Change summary
- Minor updates
- Updated references and streamlined processes
- Title change

Authorised by Chair, Policy Steering Committee

Revision History

#	Issue Date	Number and Name	Change Summary
6	July 2024	1.175 Management of Cirrhosis, Advanced Liver Disease and Hepatocellular Carcinoma Screening	• Minor updates • Updated references and streamlined processes • Title change
5	January 2021	1.175 Management of Advanced Liver Disease Hepatocellular and Carcinoma Screening	• Update links to current policies

			• Ensures policy reflects current best practice and evidence based medicine • Inclusion of revised Baveno VI criteria for endscopy referrals
4	January 2018	1.175 Management of Advanced Liver Disease and Hepatocellular Carcinoma	• Incorporation of advanced liver disease and hepatocellular carcinoma assessment and management • Title change
3	March 2014	1.175 Advanced Liver Disease – Management of Patients	• Title change • Minor changes to monitoring
2	September 2010	1.175 End Stage Liver Disease – Management	• Minor updates
1	June 2007	1.175 End Stage Liver Disease – Management	• New policy

PRINT WARNING

Printed copies of this document, or parts thereof, must not be relied on as a current reference document.

Always refer to the electronic copy for the latest version.

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1. Preface

Cirrhosis is a disease process that involves progressive destruction, regeneration, and progressive replacement of the functioning liver by fibrous tissue and a distortion of the overall architecture. Portal venous flow into the liver decreases due to the process of fibrosis, leading to elevated portal pressures (portal hypertension) and expansion of portal-systemic venous communication pathways manifesting as varices. Portal hypertension also leads to splenomegaly, causing anaemia and thrombocytopenia. Patients who develop complications of cirrhosis including liver failure, ascites, peripheral oedema, variceal bleeding, spontaneous bacterial peritonitis, and hepatic encephalopathy are considered to have decompensated cirrhosis, known as advanced liver disease (ALD). In addition, cirrhosis is associated with a markedly increased risk of hepatocellular carcinoma (HCC).

Patients with established compensated cirrhosis may have stable liver function for long periods of time. Patient with compensated cirrhosis can also have varices present that are stable. An acute insult such as varices bleeding and/or sepsis in the presence of advanced fibrosis and decreased functional reserve may lead to hepatic decompensation, or liver failure may develop insidiously as a result of the progressive clinical course of ALD.

This policy describes an integrated approach to screening, assessment, and management of patients with cirrhosis, ALD and HCC.

There is a close nexus between hepatitis B (HBV), hepatitis C (HCV) and imprisonment, as injecting drug use is a key risk factor for transmission of both viruses, and a major driver of criminal activity. Although unrestricted access to testing and highly effective antiviral therapy is available for both chronic viral infections, not all of those diagnosed in Australia have accessed treatment. Left undiagnosed and untreated, these infections will continue to drive a rapidly growing disease burden on the Australian health care system via the insidious progression of hepatic fibrosis leading to cirrhosis, liver failure and HCC with the attendant high levels of morbidity and mortality.

The NSW Ministry of Health has committed to focusing on HCV prevention, testing, treatment, stigma and discrimination; and HBV prevention, early diagnosis and care, as well as improving access and equity to services. These strategies will assist to avert the personal, social and health care costs of the burgeoning epidemic of cirrhosis, ALD and its complications. The goals and the supporting targets and priorities for NSW are articulated in the *NSW Hepatitis C Strategy 2022 - 2025* and the *NSW Hepatitis B Strategy 2023 - 2026*.

Data collected during 2012-2014 in Justice Health and Forensic Mental Health Network (JHFMHN) from staging the degree of hepatic fibrosis by transient elastography (Fibroscan™) revealed that 12% of patients with chronic HCV have cirrhosis (fibrosis stage 4, or F4), indicating the substantial burden of ALD due to HCV alone in the NSW custodial system (Kelly 2018)

Cirrhosis of the liver is the greatest risk factor for HCC in Australia. The number of deaths from liver cancer increased from 282 (185 males and 97 females) in 1982 to 2,192 in 2020. Over the same period, the age-standardised mortality rate increased from 2.3 deaths per 100,000 persons (3.3 for males and 1.5 for females) in 1982 to 6.8 deaths per 100,000 in 2020. (Cancer Australia 2022).

Other causes of cirrhosis and ALD include alcohol; metabolic associated steatotic liver disease (MASLD) previously called non-alcoholic fatty liver disease (NAFLD), primary

sclerosing cholangitis, primary biliary cirrhosis, autoimmune hepatitis, and genetic causes including haemochromatosis and Wilson's disease.

2. Policy Content

2.1 Roles and Responsibilities

It is the responsibility of all clinical staff within Justice Health and Forensic Mental Health Network (JHNSW) to provide care and treatment to patients living with cirrhosis, ALD and/or HCC. It is the role of JHNSW Population Health HepCare Team to coordinate and support primary prevention (avoidance of risk factors including alcohol and certain supplements, and vaccination), secondary prevention (ongoing avoidance of hepatotoxins, clinical and laboratory surveillance, endoscopic surveillance, treatment for underlying liver disease and management/medication for complications) and tertiary prevention (aimed at preventing the complications that arise from cirrhosis)

Patients who are living with viral hepatitis, cirrhosis, ALD and/or HCC must be referred to the HepCare Team for management via the Nurse Led Model of Care (NLMC). They must be regularly monitored and managed by the Primary Care Nurses (PCN) and the Public Sexual Health Nurses (PSHN) in consultation with the HepCare team, particularly those with cirrhosis (F4) detected by FibroScan or imaging and those with an increased risk of HCC without cirrhosis due to chronic hepatitis B.

2.2 Identification of patients with Cirrhosis, ALD and HCC

The identification component of the clinical pathway for cirrhosis, ALD and HCC must be commenced by the PCNs at the Reception Screening Assessment (RSA) or at the Early Detection Program Screening (EDP). Those patients who report, or are known or suspected to have cirrhosis, must be referred through the Patient Administration System (PAS) / iPM to the PSHN who must undertake an initial cirrhosis/ALD assessment including clinical observations and measurements as well as laboratory investigations as detailed in section 3.4 of this policy. The patients must then be referred by the PSHNs to the HepCare team who will manage the patients via the NLMC program.

Information relating to patient care is to be documented in the patient's Health Record and an health condition alert must be placed in JHeHs.

2.3 Immunisation

There is an increased likelihood of fulminant hepatitis in patients with cirrhosis and ALD if they become newly infected with viral hepatitis (due to the reduced reserve of hepatic synthetic function). Patients with cirrhosis must be encouraged to be immunised for hepatitis A and B, influenza and pneumococcal infection using an appropriate protocol in line with JHNSW Procedure 6.128 *Immunisation of Patients*.

2.4 History and Clinical Assessment for ALD

In conjunction with the PSHN, the HepCare team will undertake a detailed medical history assessment including a clinical history, examination, and laboratory investigations, as well as a Fibroscan using the NLMC Advanced Liver Disease (ALD) Clinical Assessment Form. For those patients with cirrhosis, ALD and/or HCC who are also living with chronic HCV or chronic HBV, the HepCare team will also undertake further targeted assessments and complete the

NLMC Hepatitis C Clinical Assessment Form or the NLMC Hepatitis B Clinical Assessment Form where appropriate. Upon completion of the form or forms, a consultation is undertaken by HepCare to determine ongoing monitoring, management, and treatment requirements. This consultation may include face to face appointments with the Liver Clinic or Hepatology Specialist or NP for review. The HepCare will co-ordinate the relevant waitlists and appointments.

Patients with compensated cirrhosis may then be managed in a shared care arrangement with the HepCare team in conjunction with Primary Care GP/NP and the Liver Clinic Hepatitis Specialists. The shared care arrangements are communicated by the relevant waitlist entries in PAS and documented in the patient's health record via JHeHs. The recommended review intervals for the HepCare team, Primary Care GP/NP and Hepatitis Specialists as well as the clinical and laboratory monitoring parameters will be directed by the outcome of the clinical consultation with the HepCare team and Specialists.

Suggested medical interventions for patients with cirrhosis are outlined in the section 3.4 of this policy. The management plan must be documented in the patient's health record utilising the NLMC Advanced Liver Disease (ALD) Clinical Assessment Form on JHeHs and the next consultation waitlisted. The relevant NLMC forms are signed off by the reviewing specialist or nurse practitioner.

Patients with compensated cirrhosis may be housed in a centre with or without 24-hour nursing presence. Patients with ALD (decompensated cirrhosis) who have a recent history of bleeding, encephalopathy, ascites and/or spontaneous bacterial peritonitis (SBP) must be housed in a Centre where there is 24-hour nursing presence.

Patients with ALD (decompensated cirrhosis) requiring immediate intervention including conditions such as ascites, confusion and proven or suspected SBP must be transferred to the local hospital's Emergency Department for assessment and management. Refer to policy 1.252 *Access to Local Public Hospitals*. Resuscitation of patients with proven or suspected variceal bleeding must be done in accordance with *Adult Emergency Response Guidelines*.

2.5 Initial Assessment of Cirrhosis

Patients with compensated cirrhosis may have no or non-specific symptoms (including anorexia, fatigue, and weight loss) and stable liver function for long periods of time. They may progress to decompensated cirrhosis defined by the first onset of one of the complications of advanced liver disease including but not limited to hepatic encephalopathy, ascites, and oesophageal varices. The manifestations of decompensated ALD result from failure in the key physiological functions of the liver, including the following:

- Processing and storage of dietary proteins, carbohydrates, lipids, and vitamins.
- Synthesis of serum proteins (including albumin and coagulation factors).
- Detoxification of drugs and endogenous metabolic wastes.
- Excretion of bilirubin and bile acids.

In addition, the distortion of portal venous blood flow through the liver results in portal hypertension, which in turn produces additional manifestations (e.g., the formation of ascites and renal impairment).

Newly identified patients with known or suspected cirrhosis should have the following baseline investigations:

- Full blood count (FBC)
- Urea, electrolytes, and creatinine (EUCs)
- Liver function tests (LFTs)
- International normalized ratio (INR) or prothrombin time (PT)
- Alpha-feto protein (AFP)
- Fibroscan (transient elastography) with Controlled Attenuated Parameter (CAP)
- Viral hepatitis screen including HAV IgG, HBV serology and HCV Ab or PCR depending on history.

Stigmata (physical signs) of cirrhosis or portal hypertension can include:

- Abdominal distension (ascites)
- Easy bruising or bleeding (due to coagulopathy and/or thrombocytopenia
- Clubbing
- Cognitive impairment (encephalopathy)
- Asterix (hepatic flap)
- Gynaecomastia
- Jaundice
- Muscle wasting and signs of malnutrition.
- Palmar erythema
- Peripheral oedema
- Spider naevi
- Splenomegaly
- Firm edge and usually a small (scarred) liver rather than enlarged liver.

Laboratory Assessment for altered synthetic liver function:

- Hypalbuminaemia (low serum albumin)
- Coagulopathy (extended prothrombin time)
- Hyperbilirubinemia (high bilirubin)

2.6 Ongoing Monitoring of Cirrhosis

The recommendations on the frequency of ongoing clinical monitoring must be based on the clinical and/or laboratory assessments made by a PSHN, HepCare CNC/NP or Hepatitis Specialists. The required measures include:

- Temperature
- Pulse
- Weight
- Girth measurement (lying)

- Blood pressure (lying and standing)
- Handwriting chart
- Star chart (six-point star with no crossed lines)
- Assessment for asterixis- hepatic flap
- Peripheral oedema assessment
- Skin/ eyes assessment for Jaundice

In addition, the following laboratory investigations are required:

- Full blood count (FBC)
- Urea, electrolytes and creatinine (UECs)
- Liver function tests (LFTs)
- International normalized ratio (INR) or prothrombin time (PT)
- Alpha-feto protein (AFP)
- Additional pathology as deemed necessary by HepCare CNC/NP/ Hepatitis Specialists

The *NLMC Advanced Liver Disease (ALD) Clinical Assessment Form* must be completed by the PSHN in conjunction with HepCare, for these patients every 6 months or at more frequent intervals depending on the patient's individual health needs. Upon completion of the form, a specialist consultation should be undertaken (by case review only with HepCare or face-to-face discussion with the patient) to determine ongoing management and monitoring requirements.

The ongoing management plan should consider:

- A comprehensive nursing assessment of the patient that is ongoing and follows the *AHA Consensus Based Guidelines* including past and current complications of liver disease, viral hepatitis history and treatment if appropriate, relevant comorbidities, drugs, alcohol and tobacco history, relevant family medical history as it relates to the patient's current health, provide contact tracing if relevant.
- Discuss current medication use with HepCare team, including prescription and non-prescription, illicit and complimentary medicines (including vitamins and high protein drinks) in the context of cirrhosis with reduced liver functions.
- Assess Nutritional Metabolic Pattern, Elimination Pattern, and Activity-Exercise Pattern, including calculating patient's BMI and waist to hip ratio and reviewing patient's eating patterns.

  Patients with cirrhosis should incorporate a low intake of salt and preferably high intake of protein and fruits and vegetables. Meals should be small and frequent during the day with a high protein snack at bedtime. The *Chronic liver disease and your diet resource* is available for patients to increase their dietary knowledge.
- Ensure renal function assessment has been attended to exclude renal impairment/failure. If patient is taking diuretics, periodic monitoring of electrolytes and renal function is required.

- Dietary management of patients with ALD complicated by encephalopathy, ascites and peripheral oedema are made on the clinical recommendations of the Hepatitis Specialist and must be done in accordance with JHNSW Procedure 6.214 *Therapeutic Diets - Clinically Recommended* and a JUS200.300 *Clinical Certificate Therapeutic Diet (Adults)* form completed.
- For people with compensated cirrhosis, one of the primary management goals is prevention of decompensation, which includes treatment of underlying cause and use of non-selective beta-blockers (e.g. propranolol) in clinically significant portal hypertension.

2.7 Endoscopic Surveillance

Patients with compensated cirrhosis should be referred for endoscopic screening for varices using the *revised Baveno VI criteria* for identification of high risk varices. Patients who have a platelet count >110,000/µL and liver stiffness measurement (Fibroscan) <25kPa do not need to be referred for endoscopy screening. The requirement for endoscopic screening should be reviewed at each six monthly NLMC assessment, or when there is a change in the patients' disease status. Patients' whose results are close to the referral cutoff levels will be assessed for possible endoscopic screening based on factors including patient preference, the patients' medical history, clinical presentation and co- morbidities via an individualized decision-making process.

In patients with compensated cirrhosis who have small varices, the endoscopy should be repeated in 1-2 years. In the presence of decompensated cirrhosis, the endoscopy should be repeated at yearly intervals.

2.8 Screening for HCC

All patients with cirrhosis (regardless of cause) and some patients with chronic hepatitis B without cirrhosis are at sufficiently high risk for developing hepatocellular carcinoma (HCC), so should be enrolled in a screening and surveillance program.:

- Asian males > 40 years
- Asian females > 50 years
- African people > 20 years
- Aboriginal and Torres Strait Islander people > 50 years
- Māori and Pacific Islander males > 40 years
- Māori and Pacific Islander females > 50 years
- a family history of HCC
- co-infection with hepatitis D

This is further detailed in the GESA *Hepatocellular Carcinoma (HCC) Consensus Statement*, ASHM *Decision Making in Hepatitis B* tool, *Clinical practice guidelines for hepatocellular carcinoma surveillance for people at high risk in Australia* and *Roadmap to Liver Cancer Control in Australia*.

Regular six-monthly screening for HCC is facilitated by the PSHNs in consultation with the HepCare team. The screening consists of upper abdominal ultrasound and alpha feto-protein

(AFP) bloodtest. If AFP is elevated and abdominal ultrasound does not identify a lesion, AFP is to be repeated at one month. The HepCare team will review and if AFP still elevated, will refer for a triple phase CT or MRI, followed by specialist case review.

If a suspicious lesion is identified on the abdominal ultrasound, the HepCare team will co-ordinate for the patient to have further imaging such as a triple phase CT or MRI scan, followed by specialist case review.

2.9 Lifestyle

Patients must be given information regarding management of their cirrhosis and ALD including an explanation of what cirrhosis is and why it is a problem. They must be educated regarding the signs and symptoms of cirrhosis and the signs and symptoms of decompensation. Information needs to be given about appropriate dietary management including protein supplementation for those with poor muscle bulk or hypoalbuminaemia but without encephalopathy. Fluid restriction and reduced salt intake should be implemented for those with severe ascites and/or peripheral oedema The *Chronic liver disease and your diet resource* can be provided to patients by the PSHN and the HepCare team. All alcohol use is to be discouraged as this can worsen ALD even of non-alcohol cause.

2.10 Continuity of Care

Ensuring continuity of care is a high priority for patients who are released to community whilst living with cirrhosis, ALD and/or HCC. Patients are supported to continue their treatment in the community without interruption due to the clinical risks associated with missing medications and receive regular reviews and support. To facilitate continuity of care patients should be referred to the Integrated Care Service (ICS) prior to release.

Prior to the patient's release, health centre staff must liaise with Pharmacy regarding discharge medications. Staff must also ensure the patient is provided with all appropriate follow up information including, but not limited to the JHeHS Release Summary and Transfer of Care summary (including medications and follow up appointments) and all FibroScan and medical imaging reports.

In consultation with ICS, staff handing over care of the patient must endeavour to connect the patient with a community GP or specialist medical officer (MO) and make arrangements with the patient for the required information to be sent to the nominated service/address or to be provided to the patient upon release, or both. The *Hepatitis NSW Directory* provides a listing of available services by postcode. Staff must obtain contact details in the community for the patient and record this information in the patient's health record via JHeHs. All clinical staff should liaise with a PSHN for clarification of this process as required. HepCare will provide referral to liver clinic as part of release planning/ linkage to care management.

2.11 Palliative Care and End of Life Choices

Appropriate palliative care measures must be considered for patients with ALD. The HepCare Team and Hepatitis Specialists will consult with the patient regarding if and when the patient is to be referred to Palliative Care Services such as with the advent or progression of HCC or worsening liver failure. These should include, but not be limited to, a referral from the Hepatitis Specialist to a palliative care specialist, a pain management team, CNS 2 Cancer Care Coordinator, Palliative Care and Integrated Care and include details about hospital or hospice placement. Early release for health-related reasons should be considered and managed

according to policy 1.170 *Mandatory Notification for Life Limiting Illness and Permanent Disability*.

End of life treatment decisions must be made in consultation with the patient, his/her family, the treating medical team and the Legal Advisor, Governance Unit in accordance with the NSW Ministry of Health Guidelines GL2021_004 *End of Life Care and Decision-Making* guidelines, and ACI *Use of resuscitationp plans in decisions at the end of life* and JHNSW policy 1.174 *End of Life Care and Decision Making*. Deaths associated with ALD must be managed in accordance with policy 1.120 *Management of a Death*.

3. Definitions

Must

Indicates a mandatory action to be complied with.

Should

Indicates a recommended action to be complied with unless there are sound reasons for taking a different course of action.

4. Related Documents

Legislations	
Justice Health NSW Policies, Guidelines and Procedures	1.037 *Admission Policy - (Aged Care Unit / Medical Unit) Long Bay Hospital (Referral, Admission and Assessment)* 1.120 *Management of a Death* 1.141 *Release Planning and Transfer of Care Policy - Adult to External Providers* 1.170 *Mandatory Notification for Life Limiting Illness and Permanent Disability* 1.174 *End of Life Care and Decision Making* 1.231 *Health Problem Notification Form (Adults)* 1.235 *Health Problem Notification and Escort Form (Adolescents)* 1.247 *Management, Assessment and Treatment of Patients with Hepatitis C (HCV) Infection In the NSW Custodial Setting* 1.248 *Management, Assessment and Treatment of Patients with Hepatitis B (HBV) Infection* 1.252 *Access to Local Public Hospitals* 6.128 *Immunisation of Patients* 6.214 *Therapeutic Diets - Clinically Recommended*

	Adult Emergency Response Guidelines
Justice Health NSW Forms	JUS005.001 *Health Problem Notification Form* JUS005.002 *Health Problem Notification and Escort Form Adolescent Health Specific* JUS060.341 *NLMC HEPATITIS B CLINICAL ASSESSMENT FORM* JUS060.342e *NLMC HEPATITIS C CLINICAL ASSESSMENT FORM* JUS060.340 *NLMC ADVANCED LIVER DISEASE (ALD) CLINICAL ASSESSMENT FORM* JUS110.306 *Star and Handwriting Chart* JUS200.300 *Clinical Certificate Therapeutic Diet (Adults)* *Chronic liver disease and your diet resource*
NSW Health Policy Directives and Guidelines	GL2021_004 *End of Life Care and Decision-Making* *NSW Hepatitis C Strategy 2022 - 2025* *NSW Hepatitis B Strategy 2023 - 2026* ACI *Use of resuscitationp plans in decisions at the end of life*
Other documents and resources	*Gastroenterological Society of Australia*: Clinical Guidelines and Updates: *American Association for The Study of Liver Diseases*: Practice Guidelines *European Association for the Study of The Liver*: Clinical Practice Guidelines Kelly ML, Riordan SM, Bopage R, Lloyd AR, Post JJ (2018) *Capacity of non-invasive hepatic fibrosis algorithms to replace transient elastography to exclude cirrhosis in people with hepatitis C virus infection: A multi-centre observational study*. PLoS ONE 13(2): e0192763. https://doi.org/10.1371/journal.pone.0192763 Cancer Australia 2022 – *Liver cancer in Australia statistics* Australasian Hepatology Association: *Consensus Based Guidelines* Augustin S, Pons M, Maurice JB, Bureau C, Stefanescu H, Ney M, Blasco H, Procopet B, Tsochatzis E, Westbrook RH, Bosch J, Berzigotti A, Abraldes JG, Genescà J. *Expanding the Baveno VI criteria for the screening of varices in patients with compensated advanced chronic liver disease*. Hepatology. 2017, Vol. 66, NO. 6.

	GESA *Hepatocellular Carcinoma (HCC) Consensus Statement* ASHM *Decision Making in Hepatitis B* tool *Clinical practice guidelines for hepatocellular carcinoma surveillance for people at high risk in Australia* *Roadmap to Liver Cancer Control in Australia* *Hepatitis NSW Directory*