



Canadian Association of  
Hepatology Nurses

Association Canadienne  
Des Infirmieres D'Hepatoologie

## Hepatocellular Carcinoma Competencies

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# Canadian Association of Hepatology Nurses Hepatocellular Carcinoma (HCC) Competencies

The Canadian Association of Hepatology Nurses (CAHN) approved the Hepatology Nursing Standards in February 2007. The Standards provide a comprehensive framework for the evaluation of professional hepatology nursing practice. Subsequently, a CAHN working group began to develop competency documents that describe core competencies specific to particular liver diseases/conditions. The hepatocellular carcinoma competencies pertain to adults and do not include specifics for pediatrics. Liver transplant, fibrolamellar, and cholangiocarcinoma will be referenced.

## Purpose

The Canadian Association of Hepatology Nurses HCC Competencies document provides a mechanism for nurses to examine their practice, determine their learning needs and ultimately improve their knowledge, skill and judgment related to HCC care.

## Introduction

Liver cancer is one of the most commonly diagnosed cancers in Canada. Recent liver cancer patterns show significant increases in mortality for both sexes. In males, the rate of HCC increased by 2.8% per year since 1991. In females, it has increased by 2.2% per year since 1994<sup>1</sup>. HCC screening should be established in appropriate patients to identify HCC at an early stage, which may allow for greater treatment options, some of which are curative in intent. A multidisciplinary team approach to HCC management is optimal, in which nurses play a vital role in the coordination and management of patient care.

The CAHN HCC Competencies document describes a full range of HCC nursing competencies but does not identify educational preparation or specific experience needed for any of the competencies. These competencies are meant to assist nurses with the identification of learning needs appropriate for their specific practice context. The document articulates expectations that the regulatory bodies have for nurses involved in specialty areas of practice. This document can be used by nurses working in liver disease for ongoing self-assessment and by nurses transitioning to a practice that includes HCC.

Embedded in the competencies are the assumptions that nurses advocate not only for the individual but also at the policy and/or systems level, and that nurses engage in collaborative practice.

As this document reflects current knowledge, CAHN will review and revise it at least every three years. The next review will take place by January 2025.

# HCC Competency Statements

The competencies are presented within four sections: 1) fundamental knowledge 2) nursing assessment 3) interventions and 4) evaluation. Each section contains competency statements with accompanying knowledge expectations. The nursing assessment section is framed within the determinants of health.

## 1. Fundamental Knowledge Competencies

### 1.1. Understand the epidemiology of liver cancer

- Prevalence and incidence
- Factors affecting demographics e.g., immigration, culture, ethnicity, gender, family history
- Risk factors for the development of liver cancer
- Different types of liver lesions
  - Malignant - HCC, cholangiocarcinoma, fibrolamellar
  - Pre-malignant – adenoma
  - Benign – hemangioma, cysts, focal nodular hyperplasia (FNH), regenerative nodules, granuloma

### 1.2. Define the at-risk population for HCC

- At-risk groups surveillance guidelines e.g. CASL, AASLD, EASL
- Understand surveillance benefits for different at-risk groups<sup>2</sup>

### 1.3. Describe the pathophysiology and natural history of HCC

- Histopathology of liver lesions
- Survival rates at different time points e.g. 1 year, 5 year
- Staging classification and treatment decision tools e.g. Barcelona Clinic Liver Cancer (BCLC) Staging and Treatment strategy<sup>3</sup>
- Liver cancer risk scores e.g. REACH-B\*
- HCC prognostic scores e.g. CLIP \*\*, ALBI\*\*\*

## 2. Nursing Assessment Competencies

### 2.1. Describe the importance of income and social status in HCC prevention, access to care, and treatment.

- The role of income security e.g., employed, social assistance, retired
  - Higher socioeconomic status is an indicator of increased likelihood of receiving curative therapy.<sup>4</sup>
- Types of income assistance available
- The impact of barriers such as lack of or unsafe shelter, lack of nutrition and lack of affordable transportation

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\*REACH-B score calculation <https://www.mdcalc.com/reach-b-score-hepatocellular-carcinoma-hcc>

\*\*CLIP calculation <https://www.hepatitis.va.gov/liver-cancer/clip-score.asp>

\*\*\*ALBI score: <https://pubmed.ncbi.nlm.nih.gov/25512453/>

- Strategies clients can use to access services e.g., addiction programs, travel support, and nutrition supplements
  - Regional/geographical differences in accessing care and treatment
- 2.2. Describe the importance and impact of the client’s social support network
- Quality of life; living with uncertainty
  - Access and retention in care
  - Emotional and practical (e.g., transportation to appointments) support from family and friends
  - Patient fatigue
  - Caregiver burden and burnout
- 2.3. Explain how the client’s level of education and literacy can impact health
- Assess client’s understanding of information e.g., reading, writing, expression, and comprehension
  - Use of adult learning principles e.g., language that is appropriate to the client’s education, literacy level, and ethnocultural context
  - Facilitate client access to information e.g., peer support groups, internet
  - Impact of language barrier
  - Use of language interpretation services as needed
- 2.4. Explain the impact of employment/working conditions
- Individual’s rights to confidentiality
  - Planning for work interruption
  - Financial impact from missed work
- 2.5. Understand the influence of social environments
- Importance and impact of social networks e.g., community groups
  - Access to community resources
  - Access to cancer support agencies e.g., volunteer drivers, peer support, etc.
  - Impact of the stigma associated with cancer on health behavior and human rights
  - Impact of media influence
- 2.6. Understand the importance of physical environments
- Community safety
  - Importance of a safe home environment e.g., location, fall prevention, assistive devices
  - Contribution of the physical environment e.g., air/ground/water quality and chemical/biological exposure
  - Assess client’s need for home care visits to ensure safety
- 2.7. Understand the importance of personal health practices and coping skills

- Optimize liver health e.g., balanced nutrition, physical activity, harm reduction practices re: alcohol and substance use
  - Factors influencing patients' choices e.g. psychosocial, financial, cultural and health literacy
  - Use of complementary and alternative (CAM) medicine e.g., acupuncture, massage therapy, Chinese herbs, traditional indigenous practices
- 2.8. Explain the importance of healthy child development
- Adverse childhood experiences (ACEs) and their impact on lifestyle choices and behaviours in adulthood e.g., childhood obesity, physical abuse and family alcohol use
- 2.9. Describe the role of biology and genetic endowment
- Role of genetics in the underlying disease
  - Importance of family history
  - Identification of at-risk individuals or groups e.g., family screening
- 2.10. Describe the impact of health services on HCC
- Client advocacy: self-advocacy, family and nurse's role
  - Understand different treatment modalities and access to options
  - Local referral and follow-up process for accessing HCC management
  - Effect of stigma and discrimination on service access and utilization
  - Role of remote community health services
  - Palliative care services
- 2.11. Understand the role of gender
- Recognize biological gender differences in cancer risk, natural history of disease and disease progression
- 2.12. Understand the impact of culture
- Implications related to HCC e.g., alcohol as part of lifestyle, ethnicity
  - Need to be culturally sensitive e.g., avoid actions that diminish, demean or disempower the cultural identity and well-being of an individual
  - Spiritual and religious beliefs impact decisions e.g., traditional healing beliefs, Jehovah's Witness
  - Impact of provider's values on relationships and client decision-making

### **3. A: Intervention Competencies (Client Focused)**

- 3.1 Describe health promotion activities associated with liver health
- Surveillance for at-risk populations
  - Balanced nutrition and exercise to maintain an ideal body weight
  - Avoid alcohol, tobacco, illicit substances, solvents, and chemical irritants
  - Safe sex practices
  - Medication reconciliation

- Immunizations to prevent co-morbid diseases e.g., hepatitis A/B, pneumovax, influenza, varicella
  - Importance of a mutually agreed-upon plan of care
- 3.2. Understand harm reduction philosophy, strategies, and their effectiveness
- Harm reduction approaches and their effectiveness e.g., modifying dietary, tobacco, and substance use
  - Community support and resources e.g., Rapid Access Addiction Medicine (RAAM) Clinics
- 3.3. Aware of commonly used complementary and alternative therapies
- Use and effects of complementary and alternative medicines (CAM)
  - Liver toxicity resource \*
- 3.4. Explain what the nurse needs to know about HCC assessment
- Importance of at-risk screening due to asymptomatic nature of the early presentation
  - Knowledge of patients' understanding of diagnosis of HCC
  - Assessment of functional and clinical status (e.g. ECOG\*\*, Child-Pugh score\*\*\*)
  - Tests used to diagnose and monitor HCC e.g., dynamic imaging modalities, tumor markers, total tumor volume
  - Understand the relevance of tumor characteristics in treatment decision making e.g. size, location, number of tumors
  - Clinical importance of the HCC staging system e.g., Barcelona Clinic Liver Cancer (BCLC) staging and treatment strategy (Appendix A)
  - Signs and symptoms of progression from compensated to decompensated liver disease and impact on HCC management e.g., jaundice, muscle wasting, ascites, variceal hemorrhage
- 3.5. Describe therapeutics and interventions for HCC
- Treatment modalities are not mutually exclusive as more than one may be provided
  - Curative-intent therapies – transplantation, surgical resection, thermal ablation, alcohol ablation/percutaneous ethanol injection (PEI)
  - Other therapeutic approaches - chemoembolization, theraspheres (Y90), radiation, and systemic therapies
  - Monitoring for complications during and post-treatment
  - Impact of functional and clinical status (e.g., ECOG, Child-Pugh score) in therapeutics selection
  - How and when to access additional services e.g., transplant or palliative care

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\* Liver toxicity website <https://www.ncbi.nlm.nih.gov/books/NBK547852/#IX-M>

\*\* ECOG performance status <https://ecog-acrin.org/resources/ecog-performance-status/>

\*\*\* Child-Pugh score calculation <https://www.mdcalc.com/child-pugh-score-cirrhosis-mortality>



## **B: Intervention Competencies (System Focused)**

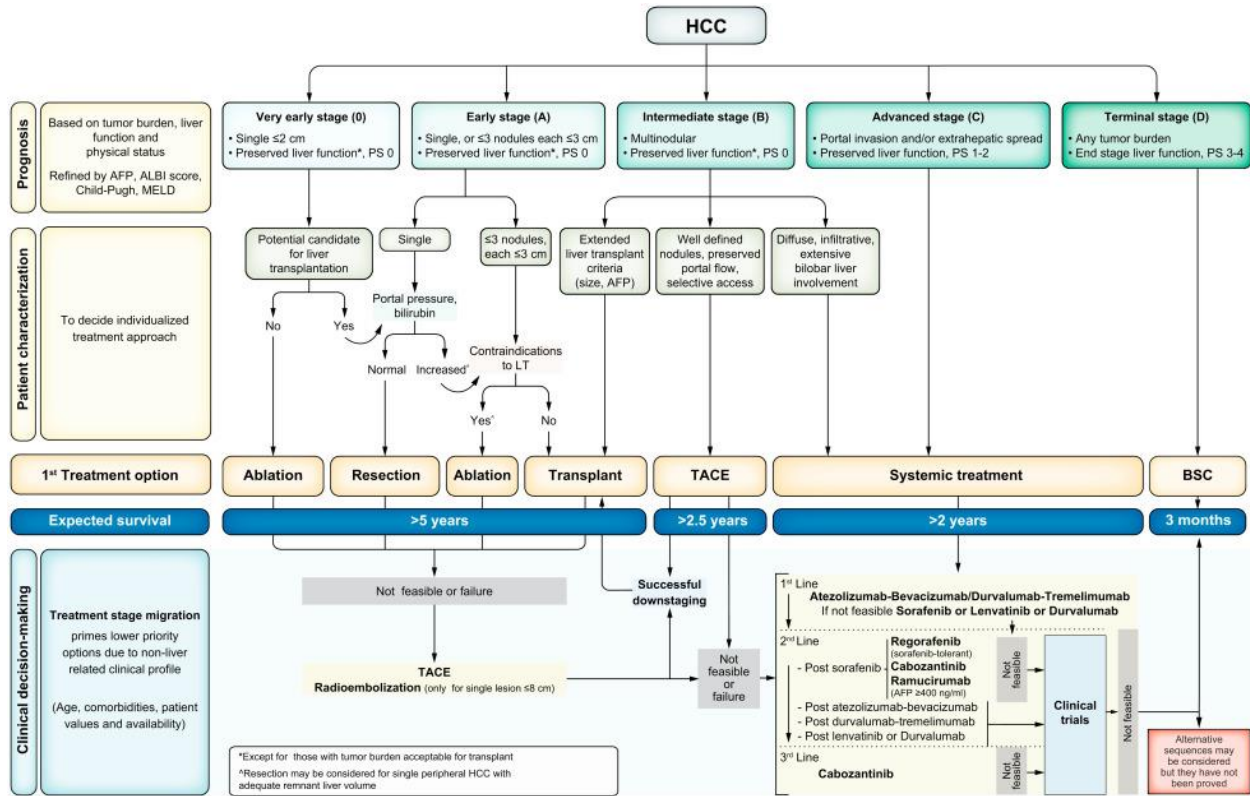
- 3.6. Recognize methods to influence policy change
- Advocacy role of non-profit/community organizations e.g. Canadian Liver Foundation
  - Governments' role in health policy changes e.g., resource allocation and access
  - Advocate for health system change e.g., improved access for care and treatment, participation in advocacy organizations such as Canadian Association of Hepatology Nurses
  - Nursing activities that can influence policy change e.g., participation in policy development and systems advocacy
- 3.7. Advocate for ongoing education and learning opportunities
- Advocate for HCC education and learning opportunities
  - Participate in professional development activities related to HCC
- 3.8. Describe opportunities for collaboration
- Identify opportunities to collaborate with other providers and support systems e.g., cancer care team, mental health and addictions services, community support groups
  - Recognize the importance of the Multidisciplinary Team (MDT) approach in HCC care
  - Identify and participate in local, provincial, national, and international health and social service initiatives

## **4. Evaluation Competencies**

- 4.1 Evaluate client responses, clinical outcome, cost-effectiveness, and ethical considerations of interventions
- Evaluate the effect of interventions and progress toward targeted outcomes
  - Share and discuss outcomes with a multidisciplinary team
- 4.2. Participate in the discovery and the dissemination of new knowledge in HCC
- Share leading practices/discoveries in HCC practice
  - Participate in research and/or disseminate research findings e.g., journal club
- 4.3. Practice self-assessment
- Evaluate continuing competency in HCC practice and knowledge
  - Identify gaps and knowledge in your own practice

# Appendix A

## BCLC (Barcelona Clinic Liver Cancer) Staging and Treatment Strategy 2022



Accessed from: J of hepatology 2022; 76(3): 681-693

<https://www.sciencedirect.com/science/article/pii/S016882782102223>

## Appendix B

### Glossary of Terms\*

**Adenocarcinoma** - cancer that begins in the secretory cells

**Alcohol ablation** - injection of ethanol directly into the tumour resulting in cancer cell death. Also referred to as ethanol ablation, percutaneous ethanol injection (PEI)

**Chemoembolization** - a procedure that blocks the blood supply to a tumour, after injecting chemotherapy into the blood vessels that access the tumour. Various delivery modes exist, eg Lipiodol, DC beads, hepaspheres. Also known as Transarterial Chemoembolization (TACE)

**Cholangiocarcinoma (CCa)** - a rare cancer that begins in the cells that line the bile ducts. It can be intrahepatic or extrahepatic. A Klatskin tumour is a tumour that forms where the right and left bile ducts meet outside of the liver

**Cysts** - closed sac-like pocket of tissue that are benign. May be filled with air, fluid pus or other material. Can form anywhere in the body including the liver

**Fibrolamellar Carcinoma** - rare primary malignancy of the liver

**Focal nodular hyperplasia (FNH)** - benign liver lesion that has no malignant potential

**Granuloma** - localized nodular inflammation found in tissues

**Hemangioma** - an abnormal buildup of blood vessels in the skin or internal organs

**Hepatic Adenoma** - benign tumour of epithelial origin. Adenomas have been associated with use of estrogen. Over time adenomas may turn malignant

**LI-RADS (Liver Imaging Reporting and Data System)** - a system for standardizing the performance and interpretation of CT and MRI for diagnosing HCC in at-risk patients

**Thermal Ablation** - A procedure using heat to destroy cancer cells

**Regenerative nodules** - a form of non-neoplastic nodules that arise in a cirrhotic liver

**Theraspheres® (Y-90)** - A type of radioembolization (combination of embolization and radiation) to treat liver cancer. It uses millions of tiny glass or resin beads filled with radioactive isotope yttrium-90

\* Adapted from Cancer.gov- NCI Dictionary of Cancer Terms;  
<http://www.nlm.nih.gov/medlineplus/ency/article/001459.htm>;  
<http://radiopaedia.org/articles/regenerative-nodules-in-liver>

## References

1. Canadian Cancer Statistics 2021. <https://cancer.ca/en/cancer-information/resources/publications/2021-canadian-cancer-statistics>
2. Sachar et al. Screening for Hepatocellular Carcinoma in Patients with Hepatitis B. *Viruses* 2021; 13, 1318. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8310362/pdf/viruses-13-01318.pdf>
3. Reig et al. BCLC strategy for prognosis prediction and treatment recommendation: the 2022 update. *J of hepatology* 2022; 76(3): 681-693  
<https://www.sciencedirect.com/science/article/pii/S0168827821022236>
4. Serper et al. Patient-reported outcomes in HCC: A scoping review by the Practice Metrics Committee of the American Association for the Study of Liver Diseases. *Hepatology* 2022 online ahead of print. doi: 10.1002/hep.32313