Ontario Health
Cancer Care Ontario

Evidence-Based Series Special Report 17-2 Version 3

A Quality Initiative of the
Program in Evidence-based Care (PEBC), Cancer Care Ontario (CCO)

Hepatic, Pancreatic, and Biliary Tract (HPB) Surgical Oncology Standards

Members of the HPB Surgical Oncology Expert Panel

A Special Project of the Surgical Oncology Program, Cancer Care Ontario and
The Program in Evidence-Based Care, Cancer Care Ontario
Developed by the Expert Panel on HPB Surgical Oncology

Report Date: April 14, 2026

Evidence-Based Series (EBS) 17-2 Version 2 was reviewed in 2026 and ENDORSED by the HPB Surgical Oncology Expert Panel.
(See Section 5 Document Assessment and Review for details)

EBS 17-2 Version 3 is comprised of 5 sections. You can access the summary and full report here: https://www.cancercareontario.ca/en/guidelines-advice/types-of-cancer/546

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Guideline Report History

GUIDELINE VERSION	SYSTEMATIC REVIEW		PUBLICATIONS	NOTES and KEY CHANGES
	Search Dates	Data		
Original June 2006	1990 through September 2006	Full Report	Peer review publication Web publication	NA
Version 2 December 2015	2006 to May 2015	New data found in Section 4: Document Review Summary and Review Tool	Updated web publication	Guideline recommendations remain the same as the 2006 version of the report. Evidence-base updated.
Version 3 March 2026	May 2025-November 2024	New data found in Section 5: Document Review Summary and Review Tool	Updated web publication	2006 recommendations are ENDORSED with some modifications.

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Evidence-Based Series #17-2 Version 3: Section 1

Hepatic, Pancreatic, and Biliary Tract (HPB) Surgical Oncology Standards

Guideline 17-2 Version 3 was reviewed in 2026 and ENDORSED by the HPB Surgical Oncology Expert Panel. Some standards were added and some other minor wording changes were made that are explained in Section 5.

QUESTION

What is the optimum organization for the delivery of cancer-related hepatic, pancreatic, and biliary tract surgery in Ontario?

SCOPE OF STANDARDS

The following standards, developed by the Expert Panel on HPB Surgical Oncology, apply to hepatic, pancreatic, and biliary tract cancer surgery and include the full spectrum of multidisciplinary assessment and treatment:

- Management of primary and secondary liver cancer by hepatic resection or locally destructive techniques (ablation by any modality, hepatic artery embolization with or without chemotherapy, etc.).
- Management of cancer of the pancreas and peri-ampullary region by pancreatic resection.
- Management of tumours of the biliary tract (including gallbladder) by surgical resection.

The standards cover the full range of resources and expertise needed for the care of these patients and recognize that a multidisciplinary team approach is necessary for optimum management. Specific criteria relating to the characteristics of surgeons and institutions involved in HPB surgery are described.

SURGEON CRITERIA

General Characteristics

General characteristics for surgeons undertaking the management of patients with HPB cancer are as follows:

- Knowledgeable regarding the biology of HPB cancer, its natural history, appropriate investigation, and the whole range of treatment options.
- Skilled in modern techniques of surgery of the liver, pancreas, and biliary tract, including capability for managing vascular complications and vascular reconstruction.
- Experienced in the management of patients with hepatobiliary and pancreatic diseases, especially the management of early and late postoperative complications.
- Committed to providing excellence in care to patients with HPB diseases and to advancing knowledge in the field in order to improve patient outcomes.

- Committed to participating as a member of a multidisciplinary oncology team.
- Committed to participating in Cancer Care Ontario quality initiatives.

Training

Although there is not a formally recognized subspecialty in HPB surgery, the complex nature of this subspecialty area has lead to the development of training programs designed to provide the kind of expertise and experience necessary to appropriately manage patients with HPB diseases. Thus, appropriate training would include certification by the Royal College of Physicians and Surgeons of Canada in General Surgery (or its equivalent) plus the completion of a period of advanced training in HPB surgery designed to attain a high level of proficiency in the management of the complex surgical problems found in this patient population. The training program should specifically focus on the management of malignant disease and result in the trainee acquiring competence to manage not only routine cases but also those requiring more complex resection and reconstruction. Thus, surgeons practicing HPB surgery should have completed one of the following:

- A specific formal Fellowship in HPB surgery, or
- A Fellowship in liver transplant that includes a major focus in non-transplant HPB cases, or
- A Surgical Oncology Fellowship with a major emphasis on HPB surgery

Surgeons that trained prior to the existence of HPB or Surgical Oncology Fellowships may have received such training in less formal ways, such as extended post-residency training in a busy HPB service or mentoring and progressive experience in the early years of their staff appointment in a hospital where a busy HPB service was present. The increasing complexity of HPB surgery and the development of excellent quality formal fellowship training supports the use of the new standard for surgeons now entering the system.

All surgeons should maintain their expertise and knowledge through continuing professional development programs and a commitment to a career focussed on HPB surgery.

HOSPITAL CRITERIA

General Characteristics

A tertiary care HPB surgical centre should be capable of managing the full range of surgical care for patients with diseases of the liver, pancreas, and biliary tract, from the most complex to the most common, in a single hospital. A minimum of three HPB surgeons should be on staff in order to provide intraoperative assistance and continuous preoperative and postoperative care, while allowing for appropriate personal and professional leave. Where appropriate, complex HPB procedures may benefit from two HPB surgeons being present at the same operation to assist each other to enhance efficiency, safety, and outcomes. The hospital should have an affiliation with a Regional Cancer Program, and the HPB Program should include teaching, research, quality improvement, and program advancement elements.

Hospitals that do not have tertiary HPB services will provide care for patients with common HPB conditions. They should have an established relationship with a tertiary care HPB Centre to facilitate consultation and the referral of common and uncommon cases through a regional care network such as the Regional Cancer Program (RCP; previously known as Local Health Integration Network (LHIN)) so that all patients may have access to high-quality care in the appropriate setting. These hospitals and their professional staff would also play an important role in the initial diagnostic investigation and surgical follow-up of patients with complex problems. Participation in such a regional care network should lead to both better access to and quality of care.

The capability to provide optimal HPB care requires that an institution ensure the availability of the appropriate physical, fiscal, and human resources needed for the complete spectrum of patient care, from early diagnosis to long-term management and supportive care. A hospital should have a definable system of care for HPB patients that is integrated with the other components of the broader cancer care system.

Specific System Requirements

- Formal acknowledgement by the hospital that it is a Centre for HPB Surgery and therefore has a distinct HPB Surgery Program with definable leadership structure and accountability.
- A commitment to provide HPB surgery in a timely manner, including the support of and commitment to the targets set by the provincial wait-time strategy.
- A system of patient care that ensures multidisciplinary management, including Multidisciplinary Cancer Conferences (i.e., tumour boards) involving the appropriate health care professionals to ensure that patients receive the most appropriate treatment. This is essential for the achievement of optimal patient outcomes.
- A system for the regular review of the program, including clinical and educational rounds, morbidity and mortality review, and quality assurance, including a system for regular tracking of patient outcomes. This includes participation in all quality improvement programs of Cancer Care Ontario.
- Participation in regional cancer programs and the planning processes of the LHINs.
- Infrastructure support for participation in local and national clinical research studies.

Physical Resources

- Appropriately equipped operating rooms available 24 hours a day, seven days a week. This includes the capability for intraoperative imaging (fluoroscopy and ultrasound) and appropriate adjunctive therapy (e.g., microwave ablation).
- Full range of diagnostic imaging ability, including ultrasound (all modalities, including Doppler), computerized tomography (CT) scan, magnetic resonance imaging (MRI), and angiography, with the appropriate staff skilled in HPB interventions.
- ***Added April 2026:*** On site Interventional Radiology (not requiring patient transfer to another hospital) available on call 24 hours per day, seven days per week.
- Diagnostic and therapeutic Interventional Endoscopy available 24 hours per day, seven days per week, including Endoscopic Retrograde Cholangiopancreatography (ERCP). Endoscopic Ultrasound (EUS) should be available within a timely manner (either available on-site or within close proximity to the hospital). (See Section 5 for details).
- An appropriately equipped intensive care unit (ICU) capable of providing the appropriate range of ventilation modalities, dialysis, and the physical facilities for management of complex infectious problems.
- A fully developed nutrition service, including total parenteral nutrition (TPN).

Human Resources

HPB services are optimally delivered in a multidisciplinary team setting and require a full range of skilled health care professionals for optimum outcomes. These include:

- Qualified HPB surgeons (see Surgeon Criteria and Training).
- Radiologists with appropriate expertise across the full range of angiography, biliary tree imaging, abscess management, and ablative techniques.
- Dedicated, certified critical care physicians.
- An endoscopy service with advanced skills in biliary therapeutic endoscopy.
- Nursing personnel experienced in the management of complex abdominal surgical problems, particularly HPB diseases, abdominal sepsis, and fistulae.
- Medical and radiation oncology services available for consultation and interdisciplinary decision making.
- Supportive care, including pain management, psychosocial support, and palliative care.
- Allied health professionals, including nutritional care, occupational, and physical therapists.

- A pathologist with a special interest in HPB diseases and a commitment to developing the appropriate expertise.
- Administrative support, including a system of data management to meet the needs of the HPB Service.
- Availability of an appropriate spectrum of physician subspecialties to provide the required support to HPB patients, especially infectious disease practitioners.
- Anesthesiologists with expertise in managing long complex operations in which patients may potentially become unstable and in patients with impaired liver function.
- ***Added April 2026:*** A core anesthesiology team with expertise in HPB should be established to provide HPB anesthesia. There is limited but emerging evidence suggesting that care provided by anesthesiologists with high procedure volume versus care by anesthesiologists with low procedure volume was associated with lower risk of combined 90-day major morbidity (including mortality) and readmission, after adjusting for patient case mix, institutional volume, and surgeon volume. (See Section 5 for details).

Volume of HPB Surgery

The hospital with an HPB Service should have an adequate volume of index cases to maintain the skills of the multidisciplinary team, function as a tertiary referral centre, justify the resource investment required, and assure that optimum outcomes are achieved.

An HPB Centre should carry out a minimum of 50 index HPB cases per year (index cases include formal anatomic resection of one or more liver segments, all Whipple and total pancreatic resections, and all resections with reconstruction of the biliary tract). The volume should include at least 20 Whipple and total pancreatic resections.

OUTCOME MEASURES, BENCHMARKS, AND QUALITY ASSURANCE

Modified in April 2026:

The following outcomes are considered reasonable and achievable at HPB Centres across Ontario:

- A 30-day mortality rate of less than 3% for major pancreatic resection
- A 30-day mortality rate of less than 3% for anatomical liver resection.

DEVELOPMENT OF THE STANDARDS DOCUMENT

Evidence on HPB cancer surgery was gathered through a systematic search of the literature and a scan of documents from organizations concerned with quality practice in HPB surgery. Evidence was reviewed by members of the Expert Panel on HPB Surgical Oncology (see Appendix 1, Section 3) investigating the delivery of cancer-related HPB surgery in Ontario. The Panel included HPB surgeons, general surgeons, a medical oncologist, a radiation oncologist, a hospital chief executive officer, a Cancer Care Ontario regional vice president, a pathologist, a radiologist, and methodologists. The members came from across the province and provided appropriate regional representation.

The Expert Panel developed the standards, using a combination of evidence-based analysis, recommendations from other jurisdictions, and their own expert opinion based on experience. The Panel analyzed data on the current distribution of HPB cancer surgery across Ontario to inform the process, and in particular to assist in developing the volume standards. The standards proposed represent a consensus of the Expert Panel and are intended to accommodate the long-range needs of the province, including the ability to manage the projected increase in demand for HPB cancer surgical care over the next decade due to the growing and aging population.

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Disclaimer

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Contact Information

For information about the PEBC and the most current version of all reports, please visit the CCO Web site at https://www.cancercareontario.ca/en/guidelines-advice or contact the PEBC office at:

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