



# Health care delivery for head-and-neck cancer patients in Alberta: a practice guideline

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## ABSTRACT

### Background

The treatment of head-and-neck cancer is complex and requires the involvement of various health care professionals with a wide range of expertise. We describe the process of developing a practice guideline with recommendations about the organization and delivery of health care services for head-and-neck cancer patients in Alberta.

### Methods

Outcomes of interest included composition of the health care team, qualification requirements for team members, cancer centre and team member volumes, infrastructure needs, and wait times. A search for existing practice guidelines and a systematic review of the literature addressing the organization and delivery of health care services for head-and-neck cancer patients were conducted. The search included the Standards and Guidelines Evidence (SAGE) directory of cancer guidelines and PubMed.

### Results

One practice guideline was identified for adaptation. Three additional practice guidelines provided supplementary evidence to inform guideline recommendations. Members of the Alberta Provincial Head and Neck Tumour Team (consisting of various health professionals from across the province) provided expert feedback on the adapted recommendations through an online and in-person review process. Selected experts in head-and-neck cancer from outside the province participated in an external online review.

## Summary

The recommendations outlined in this practice guideline are based on existing guidelines that have been modified to fit the Alberta context. Although specific to Alberta, the recommendations lend credence to similar published guidelines and could be considered for use by groups lacking the resources of appointed guideline panels. The recommendations are meant to be a guide rather than a fixed protocol. The implementation of this practice guideline will depend on many factors, including but not limited to availability of trained personnel, adequate funding of infrastructure, and collaboration with other associations of health care professionals in the province.

## KEY WORDS

Head-and-neck cancer, health care delivery, practice guideline

### 1. BACKGROUND

The treatment of head-and-neck cancer is complex. Significant expertise is required from a range of health care professionals because of the involvement of anatomically diverse structures (soft tissue, bone, skin, and a variety of glands and organs) and because of the vital functions affected by both the cancer and the treatment (breathing, chewing, swallowing, and speech).

*Canadian Cancer Statistics 2012* does not report current statistics on the number of reported head-and-neck cancer cases overall. However, statistics concerning the two most frequently diagnosed types of head-and-neck cancer are reported: oral cancer is the most common, with 4000 new cases having been expected in 2012; laryngeal cancer is the next

most common, with 1050 expected new cases. Approximately 1540 deaths were expected in 2012 from those two most commonly reported head-and-neck cancers (1150 oral and 390 laryngeal cancer deaths)<sup>1</sup>.

Several organizations have recognized the need for guidance about the organization and delivery of health care services for patients with head-and-neck cancer. In Canada, Cancer Care Ontario's Program in Evidence-Based Care published relevant recommendations in 2009<sup>2</sup>. Its recommendations are largely an adaptation of the 2004 recommendations from the then U.K. National Institute for Clinical Excellence (now the National Institute for Health and Care Excellence), which are outlined in the document *Improving Outcomes in Head and Neck Cancers*. In that document, an extensive synthesis of the literature was translated into specific practice-oriented recommendations<sup>3</sup>.

The Alberta Provincial Head and Neck Tumour Team includes these tumours types in its mandate: head-and-neck mucosal tumours, salivary gland cancers, tumours extending to the skull base from the head and neck (craniofacial cancers and sinus cancers, among others), major non-melanoma skin cancers (requiring free flap reconstruction, neck dissection, and radiation), and invasive or complex thyroid tumours (requiring laryngectomy, pharyngectomy, or tracheal resection).

Because of the relative rarity of these cancers and the complexity of their management, it is critical to establish guidelines for the allocation of health care resources and for the formation of the multidisciplinary team or teams that are required to care for these patients. The purpose of the present practice guideline is to outline recommendations for the organization and delivery of health care services for head-and-neck cancer patients in Alberta. This document was created to define a set of foundational principles for the systems within which future treatment guidelines for tumour subsites (for example, the oral cavity, oropharynx, and so on) can be applied. The specific questions that guided the literature search and development of the practice recommendations were these:

- What does the health care team treating head-and-neck cancer patients look like?
- What are the minimum qualifications required by core team members?
- What are the minimum cancer centre and team member volumes that optimize clinical outcomes?
- What are the unique infrastructure requirements for team members?
- What are the acceptable wait times from referral to initiation of curative treatment for head-and-neck cancer patients?

The recommendations outlined in this guideline apply to adults more than 18 years of age with

head-and-neck cancer. Different principles might apply to pediatric patients.

## 2. METHODS

### 2.1 Literature Search

A knowledge management specialist from Cancer-Control Alberta and the Guideline Utilization Resource Unit of Alberta Health Services conducted the literature search and synthesis of the evidence. The systematic search was conducted using the SAGE (Standards and Guidelines Evidence) directory of cancer guidelines, the PubMed electronic database, and reference lists of included publications for the period 2000 to March 2012. In addition, the Web sites of prominent national and international cancer guideline developers—including the American Society of Clinical Oncology, Cancer Care Ontario, the European Society for Medical Oncology, the U.K. National Institute for Health and Clinical Excellence, the U.S. National Comprehensive Cancer Network, the New Zealand Guidelines Group, and the Scottish Intercollegiate Guidelines Network—were also searched. The search used “head and neck neoplasm” and “organization and delivery” as separate or combined terms.

### 2.2 Synthesis of Evidence

Practice guidelines, systematic reviews, and epidemiologic studies were included for review if they were published in English; considered adult patients with head-and-neck cancer; and reported on members of the treatment team, qualification requirements for team members, cancer centre and team member volumes, infrastructure requirements, and wait times from referral to start of treatment.

Evidence tables are used to present information from relevant publications. The full guideline, including evidence tables, can be found on the Alberta Health Services Web site (<http://www.albertahealthservices.ca/hp/if-hp-cancer-guide-hn001-organization.pdf>).

### 2.3 Development of Recommendations

The executive of the Alberta Provincial Head and Neck Tumour Team individually reviewed the results of the literature search as presented in the evidence tables. Based on its review, and in an effort to be efficient by making use of existing guidelines, the executive team decided to adapt Cancer Care Ontario's organizational recommendations published in its guideline, *The Management of Head and Neck Cancer in Ontario*. At a face-to-face meeting in April 2012, members of the executive once again reviewed the recommendations and made edits to reflect the Alberta context. All recommendations had 100% consensus.

## 2.4 Internal and External Review

Draft recommendations were sent electronically to more than 100 health care professionals from relevant health care disciplines within the province, including oncology, surgery, dentistry, pathology, nursing, and allied health. The role of oral and maxillofacial surgery in major head-and-neck cancer care has been poorly defined and a subject of controversy across North America. Thus, oral and maxillofacial surgeons were specifically identified and engaged in guideline discussions to help create mutually agreeable definitions and guidelines. A link to an anonymous online survey was included to collect demographic information, level of agreement, and comments on the recommendations from the reviewers. The response rate was 30%.

Based on survey results, the guideline was revised by members of the executive and sent to three expert reviewers outside the province for further review. Comments provided by the external reviewers were minor and general in nature (for example, “Good work by the group. My comments are quite minor and intended to prompt consideration, nothing else”). Thus, the guideline, with minor changes, was published on the Alberta Health Services Web site.

Since the guideline was first published in August 2012, it has been reviewed by the Alberta Provincial Head and Neck Tumour Team at its annual meeting in October 2012, and it was revised in November 2012, January 2013, April 2013, and May 2013. The guideline now has a scheduled annual review.

## 3. RECOMMENDATIONS

The following recommendations are adapted from *The Management of Head and Neck Cancer in Ontario: Section 1. Organizational and Clinical Practice Guideline Recommendations*<sup>2</sup>.

### 3.1 Question 1: Health Care Team

What does the health care team treating head-and-neck cancer patients look like?

**Recommendation:** The health care team will include a core team, a primary care physician, and an extended team. The core team is responsible for assessment, planning, treatment, management, rehabilitation, and survivorship of the patient. The primary care physician (family physician or general practitioner) is not involved in the daily treatment of a head-and-neck cancer patient, but plays an important role in post-treatment supportive care and is responsible for the ongoing overall health of a head-and-neck cancer patient<sup>2</sup>. The extended team is responsible for supporting the core team to facilitate treatment, planning, management, survivorship, and rehabilitation as needed. All members of the extended

team should have training or experience in managing head-and-neck cancer patients. Table 1 lists the core and extended care team members. Despite delineation of the team members in the next subsection, the complex care that head-and-neck cancer patients require, together with shortages of health care professionals and increasing health care costs, means that health care professionals must be able to work in collaborative practice models to ensure consistent and reliable care.

### 3.2 Question 2: Qualifications

What are the minimum qualifications required by the core team members?

**Recommendation:** Credentialing processes pose an inherent risk of excluding highly qualified health care professionals or of implicitly monopolizing care. Some flexibility should be used in the application of specific qualification requirements that assess the competence of health care professionals. Based on the Alberta experience, Table 11, which lists the qualification requirements for each core team member managing patients with head-and-neck cancer, is an excellent starting point for assessing the competency of team members. The qualifications were adapted from Cancer Care Ontario<sup>2</sup> and in some instances have been modified and expanded to reflect the practice experience in Alberta.

### 3.3 Question 3: Volumes

What are the minimum cancer centre and team member volumes that optimize clinical outcomes?

**Recommendation:** In general, the initial phases of care and the ongoing care of all head-and-neck cancer patients should be concentrated at a high-volume centre with adequate support and expertise to provide the level of interdisciplinary care required for such complex patients. Although the development of centres of excellence is strongly encouraged, innovative collaborations between high-volume and low-volume centres or regions should be expanded and defined to maintain the high quality of care being provided to head-and-neck cancer patients after the initial management phases<sup>2</sup>. The development of small-volume non-multidisciplinary treatment programs for patients with head-and-neck cancer is strongly discouraged<sup>2</sup>.

Some population-based studies show a favourable association between volume and outcome, with improved perioperative and long-term survival for procedures performed at high-volume hospitals<sup>6–13</sup>. Similarly, lower surgical mortality has been reported for patients treated by high-volume surgeons, which could account for a large proportion of the effect of hospital outcome on surgical mortality<sup>14</sup>. However,

TABLE I Core and extended care team members

<i>Core team</i>	<i>Extended team</i>
Head-and-neck surgeon <sup>2-5</sup>	Neurosurgeon <sup>2-5</sup>
Head-and-neck reconstructive surgeon <sup>2-5</sup>	Thoracic surgeon <sup>2-5</sup>
Oral and maxillofacial surgeon <sup>2,3,5</sup>	Prosthetic anaplastologist <sup>2</sup>
Medical oncologist <sup>2-5</sup>	Neurotologist
Radiation oncologist <sup>2-5</sup>	Anesthesiologist <sup>2-5</sup> with a special interest in airway management <sup>2</sup> and perioperative care
Maxillofacial prosthodontist <sup>2-5</sup>	Health care professionals with expertise in gastrostomy placement, feeding tube placement, and support for patients requiring tube feeding <sup>2-5</sup> , interventional radiologist <sup>2</sup>
Dentist with expertise or interest in dental oncology <sup>2-5</sup>	Ophthalmologist <sup>2-5</sup>
Pathologist <sup>2-5</sup>	Pharmacist
Clinical nurse specialist <sup>2-5</sup> , nurse practitioner <sup>2</sup> or advanced practice speech–language pathologist	Pain management specialist <sup>2-5</sup>
Speech–language pathologist <sup>2-5</sup>	Palliative care specialist <sup>2</sup>
Specialized nursing care	Critical care physician
Diagnostic radiologist or neuroradiologist <sup>2-5</sup>	Dental hygienists <sup>3</sup> and dental technician <sup>2</sup>
Registered dietitian <sup>2-5</sup>	Mental health professionals, including psychiatrist or psychologist <sup>2-5</sup>
Social worker <sup>2-5</sup>	Physiotherapist <sup>2-5</sup>
	Occupational therapist <sup>2-5</sup>
	Radiation physicist <sup>2-5</sup>
	Radiation therapist <sup>2-5</sup>
	Respiratory therapist <sup>2</sup>
	Hyperbaric medicine <sup>2</sup>
	Home care team <sup>2</sup>
	Dermatologist

TABLE II Minimum qualifications required to care for head-and-neck cancer patients

<i>Professional</i>	<i>Qualifications</i>
Head-and-neck surgeon	<p>Degree in medicine or equivalent<sup>2</sup></p> <p>Specialist certificate in otolaryngology–head and neck surgery, general surgery, or plastic surgery<sup>2</sup> from the Royal College of Physicians and Surgeons of Canada (RCPSC)</p> <p>1-Year minimum fellowship in advanced training in head-and-neck oncologic surgery through the American Head and Neck Society (AHNS) or equivalent</p> <p>Equivalent fellowship training will include a minimum of 1 year's training at a major head-and-neck oncology centre with specific surgical training in each of the areas include in the mandate of the Alberta Provincial Head and Neck Tumour team [head-and-neck mucosal tumours (all subsites), salivary gland tumours, tumours of the skull base, major skin cancers, invasive or complex thyroid and parathyroid tumours, and other tumours involving the head-and-neck region]. The fellowship training program, and the fellow, must meet all the guidelines defined in the Advanced Training Council program guidelines from the AHNS</p> <p>The head-and-neck surgeon is the core team member responsible for resection of head-and-neck cancers and will have training and experience in the surgical management of tumours in each disease site, as listed in the Background section</p>
Head-and-neck reconstructive surgeon	<p>Degree in medicine or equivalent<sup>2</sup></p> <p>Specialist certificate in otolaryngology–head and neck surgery, general surgery, or plastic surgery<sup>2</sup> from the RCPSC</p> <p>A minimum 1-year fellowship in microvascular surgery, with specific training in head-and-neck reconstruction as a major portion of the fellowship experience</p> <p>The head-and-neck reconstructive surgeon is the core team member responsible for the surgical reconstruction of defects related to head-and-neck cancer treatment and will have training and experience in the reconstructive management of each disease site, as listed in the Background section</p>



TABLE II Continued

<i>Professional</i>	<i>Qualifications</i>
Oral and maxillofacial surgeon	<p>Degree in dentistry, medicine or equivalent</p> <p>Fellow of the Royal College of Dentists of Canada certificate in oral and maxillofacial surgery, fellowship training certificate, or equivalent</p> <p>Formal clinical fellowship or significant clinical training in head-and-neck cancer treatment at an expert centre during oral and maxillofacial surgery residency or fellowship</p> <p>Oral and maxillofacial surgeons bring a unique skill set to the core team that is independent of the roles of the head-and-neck surgeon and the head-and-neck reconstructive surgeon. Oral and maxillofacial surgeons functioning as head-and-neck surgeons or reconstructive surgeons (that is, performing head-and-neck cancer resections or reconstructions) on the core team must meet the criteria put forth in Tables I and II for those categories. Oral and maxillofacial surgeons working in the core team will have expert-level training and experience in head-and-neck cancer care treatment planning, treatment, and aftercare in conjunction with, and as a member of, the head-and-neck cancer core team, and expert-level training and experience in head-and-neck cancer resection and reconstruction in conjunction with, and as a member of, the head-and-neck cancer core team. That specification pertains primarily to head-and-neck cancer resection and reconstruction as it applies to surgery involving the mandibular and maxillary complex and its contiguous structures</p>
Medical oncologist <sup>2</sup>	<p>Degree in medicine or equivalent</p> <p>Specialist certificate in internal medicine or equivalent from the RCPSC</p> <p>Certificate of special competence in medical oncology or equivalent from the RCPSC</p> <p>Formal clinical fellowship or significant clinical training in head-and-neck cancer treatment at an expert centre during medical oncology residency or fellowship</p> <p>Enhanced knowledge and skill in the treatment of head-and-neck cancer patients</p>
Radiation oncologist <sup>2</sup>	<p>Degree in medicine or equivalent</p> <p>Specialist certificate in radiation oncology or equivalent from the RCPSC</p> <p>Formal clinical fellowship or significant clinical training in head-and-neck cancer treatment at an expert centre during radiation oncology residency or fellowship</p> <p>Enhanced knowledge and skill in the treatment of head-and-neck cancer patients</p>
Maxillofacial prosthodontist	<p>Degree in dentistry or equivalent</p> <p>Graduate degree in prosthodontics or equivalent fellowship with emphasis in maxillofacial prosthodontics</p> <p>Registered as a prosthodontist with the Alberta Dental Association and College</p> <p>Fellowship member of the American Academy of Maxillofacial Prosthetics</p> <p>Must have significant maxillofacial prosthodontic training during prosthodontic specialty program or added year to fellowship. Training must include head-and-neck cancer care. Individual must demonstrate and active involvement in head-and-neck cancer care within a major institutional head-and-neck cancer team. Individual must demonstrate being active in the American Academy of Maxillofacial Prosthetics Fellowship or equivalent</p> <p>Expert level experience in intra- or extraoral maxillofacial prosthodontic aspects of head-and-neck cancer care treatment planning, treatment, and aftercare within a head-and-neck cancer care institutional environment. Expert level experience in the management of head-and-neck cancer care sequelae related to maxillofacial prosthodontic care. Must be well experienced with surgical oncology, surgical reconstruction, radiation therapy, and medical oncology patient care within an institutional head-and-neck cancer care environment. Must have skills in digital surgical design and simulation to plan reconstructions for functional rehabilitation. In-depth experience in functional assessment and nasopharyngeal endoscopic assessment</p>
Dentist	<p>University-based degree in dentistry<sup>2</sup></p> <p>Member of the Alberta Dental Association and College</p>

TABLE II Continued

<i>Professional</i>	<i>Qualifications</i>
Dentist (continued)	<p>Should have significant training in the examination and treatment of head-and-neck cancer patients, both before and after cancer treatment. Can often be graduates of a general practice residency or oral medicine residency</p> <p>Enhanced knowledge and experience regarding the sequelae of head-and-neck cancer treatments (surgery, chemotherapy, radiation) on oral health. Experience in providing pre-radiation oral health consultation, treatment planning, management, and counselling. Experience in post-radiation oral health management and counselling, including prevention strategies and collaboration with other members of the head-and-neck cancer team</p>
Pathologist <sup>2</sup>	<p>Degree in medicine or equivalent</p> <p>Certificate of special competence in anatomic or general pathology from the RCPSC</p> <p>Formal fellowship or significant experience in head-and-neck cancer pathology</p>
Clinical nurse specialist <sup>2</sup>	<p>Master's degree in nursing</p> <p>Should have prior oncology experience and expertise, but might require role mentoring to develop specific oncology expertise</p> <p>Knowledge and expertise in an area of cancer nursing</p> <p>Greater breadth and depth of knowledge compared with the specialized oncology nurse</p> <p>Qualified as a regulated independent practitioner according to the <i>Health Professions Act</i></p>
Nurse practitioner	<p>Master of nursing, nurse practitioner</p> <p>Holds a nurse practitioner permit with the College and Association of Registered Nurses of Alberta in adult stream of practice</p> <p>4500 Practice hours as a registered nurse in preceding 5 years, and completion of required clinical hours within the nurse practitioner education program. Successful completion of nurse practitioner national registration exam. Should have prior oncology experience and expertise, but might require role mentoring to develop specific oncology expertise</p> <p>Nurse practitioner is a registered nurse with advanced knowledge, skills, and competencies. Integrates elements such as diagnosing, ordering and interpreting investigative tests, treating health problems, and prescribing drugs into practice</p>
Advanced-practice speech–language pathologist	<p>Master's degree in speech–language pathology and advanced practice training</p> <p>Member of the Alberta College of Speech–Language Pathologists and Audiologists</p> <p>Independent authorizer with the assistive devices program</p> <p>Minimum of 5 years' experience required before advanced-practice training can begin</p> <p>2 Years' advanced-practice training</p> <p>Performs comprehensive health assessments in a clinic setting, independently treats wounds, excellent patient and staff teaching skills</p>
Speech–language pathologist	<p>Master's degree or equivalent in speech pathology<sup>2</sup></p> <p>Member of the Alberta College of Speech–Language Pathologists and Audiologists</p> <p>Independent authorizer with the assistive devices program<sup>2</sup></p> <p>Specialized training in speech, voice, and swallowing rehabilitation in head-and-neck cancer patients. Comprehensive education in the anatomy and physiology of the head and neck, and surgical procedures</p> <p>Knowledge and expertise in clinical swallowing assessment and therapy, video fluoroscopic swallowing assessment, fiberoptic endoscopic swallowing assessment, and the management of patients with tracheotomies and head-and-neck surgery with anatomic reconstruction</p>

TABLE II Continued

<i>Professional</i>	<i>Qualifications</i>
Speech–language pathologist (continued)	Approved for delegated controlled acts if required to undertake voice restoration work for laryngectomized patients <sup>2</sup> , which involves direct training for the placement of tracheoesophageal puncture valves at the Blom–Singer Course and subsequent supervision of the first 50 valve placements
Specialized nursing care	Bachelor's degree in nursing <sup>2</sup> Registered with the College and Association of Registered Nurses of Alberta Registered nurses should have general oncology experience or be mentored to develop the skills to work with the patient population (or both) Registered nurses are working in an environment in which most individuals have a diagnosis of cancer or are at risk of developing cancer
Diagnostic radiologist or neuroradiologist	Degree in medicine or equivalent <sup>2</sup> Certificate in diagnostic radiology from the RCPC Special certificate in neuroradiology or equivalent Minimum of 1 year's fellowship in neuroradiology or head-and-neck imaging
Registered dietitian	Bachelor's degree, with major in food science and nutrition Membership with the College of Dietitians of Alberta, eligible for membership with the Dietitians of Canada Accredited dietetic internship professional license <sup>2</sup> Should have hospital or patient care experience or oncology expertise (or both) <sup>2</sup> and experience with enteral nutrition
Social worker	Bachelor's or master's degree in social work Registered with the Alberta College of Social Workers Should have affiliation and membership with professional oncology social work organizations (for example, the Canadian Association of Social Workers) <sup>2</sup> Hospital or patient care experience in addition to oncology experience <sup>2</sup> Should have experience teaching, coaching, and providing psychosocial support and counselling across the continuum with patients and families <sup>2</sup>

the adoption of volume standards as a surrogate for quality is controversial, and more research is needed to determine the range of cancer care for which a volume–outcome relationship exists. Volumes notwithstanding, if the practice environment is to promote quality improvement, it should foster ongoing development of health care professionals through formal education, mentorship, and peer support.

Currently, no Alberta data are available to directly inform minimum volume thresholds for surgeons and medical and radiation oncologists to ensure high-quality care. Thus, the Alberta Provincial Head and Neck Tumour Team, like Cancer Care Ontario, endorses the volumes recommended by the U.K. National Institute for Health and Care Excellence<sup>3</sup>. In addition, no data or practice guidelines from Alberta or elsewhere are available to directly

inform minimum volumes for specialized oncology nurses, advanced-practice nurses, advanced speech-language pathologists, registered dietitians, and social workers. In some cases, minimum recommended volumes and full-time equivalents have been modified and expanded by the Alberta Provincial Head and Neck Tumour Team to reflect knowledge from practice experience in Alberta (Tables III and IV). The minimum recommended volumes and full-time equivalents are both presented as estimates only and can be predicted to change over time as further research becomes available.

### 3.4 Question 4: Infrastructure

What are the unique infrastructure requirements of the team members?

TABLE III Minimum recommended volumes required to care for head-and-neck cancer patients

<i>Team member</i>	<i>Minimum volume requirement</i>
Head-and-neck surgeon	Assess 50 new head-and-neck cancer patients per year. Perform major surgery (requiring lateral compartment neck dissection or equivalent complexity) on 40 head-and-neck cancer patients per year <sup>2</sup>
Head-and-neck reconstructive surgeon	20 Head-and-neck cancer microsurgery cases per year <sup>2</sup>
Oral and maxillofacial surgeon	A minimum of 50 assessments and 40 head-and-neck cancer patients treated per year
Medical oncologist	A minimum of 25 head-and-neck cancer patients treated per year <sup>2</sup>
Radiation oncologist	A minimum of 50 head-and-neck cancer patients treated per year <sup>2</sup>
Maxillofacial prosthodontist	A minimum of 50 assessments and 40 head-and-neck cancer patients treated per year
Dentist	A minimum of 25 initial consultations and a minimum of 25 head-and-neck cancer patients managed during and after radiation per year
Pathologist	No minimum volume currently established
Clinical nurse specialist	No minimum volume currently established <sup>2</sup>
Nurse practitioner	No minimum volume currently established
Advanced practice speech–language pathologist	No minimum volume currently established
Speech–language pathologist	No minimum volume currently established
Specialized nursing care	No minimum volume currently established
Diagnostic radiologist or neuroradiologist	No minimum volume currently established
Registered dietitian	No minimum volume currently established <sup>2</sup>
Social worker	No minimum volume currently established <sup>2</sup>

TABLE IV Minimum recommended full time equivalents (FTEs) to care for head-and-neck cancer patients

<i>Team member</i>	<i>Minimum FTE</i>
Head-and-neck surgeon	No minimum FTE currently established <sup>2</sup>
Head-and-neck reconstructive surgeon	No minimum FTE currently established <sup>2</sup>
Oral and maxillofacial surgeon	No minimum FTE currently established
Medical oncologist	1.0 FTE per 150 head-and-neck cancer patients seen in consultation per year
Radiation oncologist	1.0 FTE per 150 head-and-neck cancer patients seen in consultation per year <sup>2</sup>
Maxillofacial prosthodontist	1.0 FTE per 150 head-and-neck cancer patients per year
Dentist	1.0 FTE per site based on 1500–2000 patient contacts per year
Pathologist	No minimum FTE currently established
Clinical nurse specialist	1.0 FTE per head-and-neck site group (especially with larger site groups seeing more than 200 patients in consultation per year OR shared across another site group) <sup>2</sup>
Nurse practitioner	1.0 FTE per head-and-neck site group (especially with larger site groups seeing more than 200 patients in consultation per year OR shared across another site group) <sup>2</sup>
Advanced-practice speech–language pathologist	1.0 FTE per 150 patients seen in consultation per year
Speech–language pathologist	No minimum FTE currently established
Specialized nursing care	No minimum FTE currently established
Diagnostic radiologist or neuroradiologist	No minimum FTE currently established
Registered dietitian	1.0 FTE per 150 patients seen in consultation per year <sup>2</sup>
Social worker	1.0 FTE per 150 patients seen in consultation per year <sup>2</sup>



**Recommendation:** Table v describes the unique infrastructure requirements agreed upon by members of the Alberta Provincial Head and Neck Tumour Team.

### 3.5 Question 5: Wait Times

What are the acceptable wait times from referral to initiation of curative treatment for head-and-neck cancer patients?

**Recommendation:** Table vi describes the wait times to care that members of the Alberta Provincial Head and Neck Tumour Team have agreed are acceptable and are consistent with Cancer Care Ontario recommendations.

## 4. SUMMARY

The recommendations outlined in this practice guideline are based on existing guidelines that have been modified to fit the Alberta context. Although specific to Alberta, the recommendations lend credence to similar published guidelines and could be considered for use by groups lacking the resources of appointed guideline panels. The recommendations

are meant to be a guide rather than a fixed protocol. The implementation of this practice guideline will depend on many factors, including, but not limited to, availability of trained personnel, adequate funding of infrastructure, and collaboration with other associations of health care professionals in the province.

## 5. REVIEW AND UPDATE

Practice guidelines developed by the Alberta Provincial Head and Neck Tumour Team are reviewed on an annual basis—or earlier, if critical new evidence or contextual information is brought to the attention of executive members of the team.

## 6. ACKNOWLEDGMENTS

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TABLE V Unique infrastructure requirements<sup>a</sup>

<i>Technology or team member</i>	<i>Infrastructure requirements</i>
PET imaging	Access within 2 weeks for pre- and post-treatment evaluation as clinically indicated
MR and CT imaging	Access for definitive staging and treatment planning, with expert head-and-neck radiology review, should be available within 2 weeks of request
Pathologist	Expert review of select head-and-neck cases before definitive management Routine access to HPV/P16 testing
Surgical oncologist <sup>2</sup>	Infrastructure for microvascular, laser, and minimally invasive surgery Perioperative monitoring (≥level III) Specialized surgical nursing (head-and-neck) <sup>2</sup> Clinical equipment: endoscope with image-capture capability
Medical oncologist	Ambulatory chemotherapy unit and oncology pharmacy support <sup>2</sup> Access to inpatient services, including ability to administer chemotherapy <sup>2</sup> Access to peripherally inserted central catheter placement, continuous infusion pumps
Radiation oncologist	Radiation treatment facility <sup>2</sup> , including: Linear accelerator–based external-beam radiation treatment with multileaf collimation and IMRT capability <sup>2</sup> Portal or CT-based onboard treatment verification <sup>2</sup> CT simulation (with intravenous contrast available) and custom immobilization capabilities IMRT-capable treatment planning system Medical dosimetry and physics support for plan development and quality assurance Resources for staff and infrastructure
Advanced-practice speech–language pathologist	Specialized equipment for speech rehabilitation (post-laryngectomy) Availability and access to radiology and equipment to support analysis of swallowing function

<sup>a</sup> Unique to the treatment of head-and-neck cancer and beyond the requirements that would typically be found in oncology settings. PET = positron-emission tomography; MR = magnetic resonance; CT = computed tomography; IMRT = intensity-modulated radiation therapy.

TABLE VI Wait times to care

<i>Assessment or therapy</i>	<i>Timing</i>
Surgical assessment	Head-and-neck cancer patients should be seen by an experienced surgeon <sup>4</sup> , as defined in Tables I and II, with access to the necessary diagnostic tools within 2 weeks of referral.  Urgent assessment by an experienced surgeon should be available immediately for any patient with a suspected head-and-neck cancer and critical symptoms (For example, severe dysphagia, airway obstruction, stridor, and so on).
Primary surgical therapy	Patients undergoing primary surgical therapy should have surgery performed within 4 weeks of the ready-to-treat date.  The time from completion of surgery to initiation of radiation therapy should be less than 6 weeks in the absence of postoperative medical or surgical complications.
Maxillofacial prosthodontics	Maxillofacial prosthodontic care: Access to care within 3 months Jaw reconstruction rehabilitation care: Access to assessment within 3 months Access to treatment within 6 months
Radiation or medical oncology and dental assessment	Access within 2 weeks of referral
Primary radiation therapy	The target for external-beam radiation therapy is a wait-time interval of less than 4 weeks (that is, $\leq 27$ days) from the ready-to-treat date to the start-of-treatment date for all eligible patients. In certain cases, clinical indications for more rapid access to treatment might be present.

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## 7. CONFLICT OF INTEREST DISCLOSURES

The authors have no financial conflicts of interest to declare.

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