

# Cancer-Related Oral Health Care Services and Resources: A Survey of Oral and Dental Care in Canadian Cancer Centres

- Joel B. Epstein, DMD, MSD, FRCD(C) •
- Ira R. Parker, DDS, MA, MPH •
- Matthew S. Epstein •
- Peter Stevenson-Moore, BDS, MRCD(C) •

## A b s t r a c t

**Purpose:** Prevention and management of oral complications of cancer and cancer therapy will improve oral function and quality of life, and reduce morbidity and the cost of care. Oral assessment, and oral and dental care have been strongly recommended before cancer therapy and should be continued during and after cancer therapy. The purpose of this survey was to assess the resources available for oral care in Canadian cancer centres.

**Methods:** Provincial cancer centres were assessed by questionnaire to determine the resources available for oral care in these facilities.

**Results:** Wide variability in oral and dental care of patients with cancer across Canada and a lack of documented standards of care were reported. Very few cancer centres had institutionally supported dental staff to support the oral care of patients with cancer, and few had dental treatment capability on site. The majority of centres managed oral care needs in the community with the patient's prior dentist.

**Conclusions:** We recommend that national guidelines be developed for medically necessary oral and dental care for patients with cancer.

**MeSH Key Words:** antineoplastic agents/adverse effects; Canada; comprehensive dental care; health resources; mouth neoplasms

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Prevention and management of oral complications of cancer and cancer therapy are important for improving quality of life and oral function, reducing morbidity and reducing the cost of care (Table 1).<sup>1-6</sup> Oral mucositis is an acute complication of cancer therapy that limits the intensity of therapy, and may result in breaks in therapy and cessation of therapy, thus limiting successful treatment of the cancer.

Infections in patients with neutropenia may result in morbidity and mortality. After hematopoietic stem cell transplant (HSCT), patients may have chronic complications such as hyposalivation, infections, increased dental caries, mucosal sensitivity, changes in taste and oral graft-versus-host disease. Acute and chronic complications have a great impact on quality of life. Oral assessment, and oral

and dental care have been strongly recommended before cancer therapy and should be continued during and after cancer therapy.<sup>1</sup>

The purpose of this survey was to assess the resources available for oral care in Canadian cancer centres.

### Methods

A questionnaire was developed and pretested at 2 hospitals. The questionnaire (see Appendix 1, Cancer-related oral health care survey, at <http://www.cda-adc.ca/jcda/vol-70/issue-5/302.html>) was mailed to 24 provincial cancer centres in 1999. The administration was asked to have dental providers or knowledgeable oncology staff complete the survey and to return it to the investigators. Two follow-up mailings were forwarded to nonresponding centres at 2-month intervals. Data from the returned

**Table 1 Oral complications of and preventive programs for cancer therapy**

<b>Acute complications: care before and during cancer therapy</b>
Mucositis: mucosal ulceration, oropharyngeal pain
Hyposalivation: increased viscosity, reduced volume
Mucosal infection: fungal, viral
Exacerbation of dental or periodontal disease
Caries or demineralization risk; gingivitis
Taste disturbance
<b>Preventive programs before and during cancer therapy</b>
Mucositis: preventive program, pain management, diet instruction
Gingival health: oral or dental hygiene
Caries prevention: oral hygiene, fluoride, chlorhexidine, diet, saliva
Saliva management: sialogogue, fluid intake, mucolytic
Management of dental emergencies
Management of oral mucosal infections
Exercises for range of motion of the jaw for patients having radiation
Reinforcement of tobacco or alcohol cessation
<b>Chronic complications: care after cancer therapy</b>
Mucosal conditions: fibrosis, atrophy, sensitivity
Salivary gland dysfunction: flow rate, consistency, function
Taste dysfunction
Caries or demineralization risk
Problems with dental prosthesis fit or function
Soft tissue conditions or osteoradionecrosis
Fibrosis of muscles or soft tissue
Neuropathy
Speech, esthetic concerns
Oropharyngeal or head and neck pain

questionnaires were entered in a Microsoft Excel spreadsheet and reviewed.

## Results

Responses were received from 20 cancer centres in all provinces except New Brunswick. The overall response rate was 83% of surveys mailed.

All centres provided treatment for head and neck squamous cell carcinoma. Responding centres recorded a total of 2,415 cases per annum. Radiation treatment units available at responding centres were cobalt at 17 centres, for a total of 21 units; linear accelerators at 18 institutions, for a total of 45 units; and brachytherapy or implant sources at 12 centres. Nineteen centres used chemotherapy; 12 of these did so in an in-patient treatment setting. HSCT was done in 7 centres. A total of 27 patients received matched unrelated donor transplants; 79, allogenic transplants; 174, autologous transplants; and 88, peripheral stem cell transplants in the prior year.

Nine respondents indicated that medical staff managed treatment-associated oral or dental complications. Thirteen stated that oral complications were managed by community-based private dental practitioners, the majority of whom were the patients' own private dentists; 9 were hospital dentists and 5, dentists at the cancer centre. A total of 4.7 full-time equivalent (FTE) dentists were on the staff of the reporting centres.

Six centres had dental departments and 4 of these were involved in research. Dental facilities reports indicated a total of 8 facilities with dental operatories, 4 with office space for dental staff and 5 with dental radiographic facilities. Two reported regularly scheduled operating room time and hospital beds available for oral and dental treatment. Five centres had a dental coordinator.

Twelve centres reported providing dental examinations, 10 dental treatment and 11 patient education before treatment for cancer. Fourteen centres stated that urgent dental care was available if needed, 12 provided oral and dental care during treatment for cancer and 13 provided ongoing care after treatment for cancer. Palliative care was provided at 10 clinics. Separate dental records were kept at 10 centres.

Dental treatment before radiotherapy was provided for all patients at 12 centres and for patients with oral or dental complications at 2 centres, and was not required in 1 centre. No definite protocol for dental treatment before radiotherapy was available in 4 centres. For patients receiving chemotherapy, no centre required assessment of all patients, 8 centres requested treatment for those with oral or dental complications, 2 did not require assessment for any of their patients and 9 had no definite protocol for evaluation and treatment before chemotherapy. Patients about to receive HSCT were seen routinely before treatment at 4 centres and at 1 centre when oral or dental complications were noted, but no definite protocol was in place at 4 centres. Routine follow-up of patients after HSCT by dental staff was reported for 2 of 7 centres.

## Discussion

This survey demonstrated that provincial oncology centres had programs for oral and dental care in patients receiving radiation therapy to the head and neck, but fewer well-established programs for patients receiving chemotherapy and HSCT. The programs varied from care delivered in-house to community dentists, some of whom had additional experience and some of whom had no additional training or experience who were the patient's prior general dental provider. Across the country few FTE positions (4.7 FTEs) were reported, and only some facilities had institutionally based clinical services. Over half of the clinics required dental assessment and treatment in preparation for cancer therapy. Fourteen of 20 centres stated that urgent dental care was available, but just over half provided care during cancer treatment. Protocols were less well established for patients receiving chemotherapy. In high-risk HSCT patients, 4 of 7 centres provided supportive oral care, although no definite protocols were in place in 4 centres. In addition, routine follow-up of these patients was provided by only 2 of 7 centres, despite well-known oral complications of transplantation. Approximately 60% of facilities reported that

complications were managed in community dental offices, the majority of which were those of the patient's prior dentist; less than half of the patients were treated by dentists with additional experience and training.

Oral care has been increasingly recognized as an indispensable part of overall health care.<sup>7</sup> Specifically, for patients with cancer, oral complications have been associated with considerable morbidity. Oral mucositis has been reported as the most distressing of all complications for patients having head and neck radiation therapy, and hematopoietic cell transplant.<sup>5,6</sup> Oral mucositis is an acute complication of cancer therapy that limits a patient's ability to complete a course of therapy, may require modification of the treatment schedule and can interrupt cancer therapy. In addition to being the most distressing complication of some cancer treatment protocols, oral mucositis in HSCT has a major impact on the cost of care.<sup>3</sup> A 1989 National Institutes of Health developmental conference on oral complications of cancer therapies strongly recommended precancer treatment and oral-care assessment and treatment, and reviewed state-of-the-art practices for the prevention and management of the oral complications commonly seen in these patients.<sup>1</sup> In addition, osteoradionecrosis is reduced in patients who have had comprehensive oral or dental assessment and management before radiation.<sup>8</sup> Thus, oral or dental programs for patients with cancer have been supported as an integral component of precancer therapy care and for patients during and after cancer therapy. Oral complications of outpatient cancer therapy have been the subject of few studies.<sup>9,10</sup> At least in part because of this, the Institute of Medicine of the National Academy of Sciences has recommended enhanced dental and medical education to prepare future providers for the care of medically complex patients. Unfortunately, as in medicine, outcome measures of such interventions have limited support in the literature.<sup>11,12</sup> Ongoing research is needed to identify beneficial outcomes of a comprehensive program for oral assessment and care for patients with cancer. In the absence of population-based outcome studies, anecdotal reporting of the complications of cancer treatment remains common, although the number of studies about oral management of these patients is increasing.

## Conclusions

Results of this survey showed a wide variability in the oral and dental care of patients with cancer across the country and a lack of documented standards of care. The survey also showed a wide disparity in the supervision of oral care: fewer than 5 FTE positions existed across the country. We recommend that a national consensus statement about the medically necessary oral and dental care, before, during, and after cancer therapy, be developed and guidelines established. ♦



*Dr. Epstein is professor and head of oral medicine and diagnostic sciences, College of Dentistry, and director of the interdisciplinary program in oral cancer, College of Medicine, Chicago Cancer Center, Chicago, Illinois, and was formerly on the medical-dental staff of the British Columbia Cancer Agency and Vancouver Hospital, Vancouver, British Columbia.*



*Dr. Parker is associate clinical professor of medicine, University of California at San Diego, San Diego, California.*



*Mr. Epstein is research associate, Fred Hutchinson Cancer Research Center, Seattle, Washington.*



*Dr. Stevenson-Moore is provincial practice leader, department of dentistry, British Columbia Cancer Agency, Vancouver, British Columbia.*

*Correspondence to: Dr. Joel Epstein, Department of Oral Medicine and Diagnostic Sciences, College of Dentistry, University of Illinois at Chicago (MC 838), 801 S. Paulina St., Chicago, IL 60612. E-mail: [jepstein@uic.edu](mailto:jepstein@uic.edu).*

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**Appendix 1 Cancer-related oral health care survey**  
**Oral/Dental care survey of comprehensive cancer centers**

Oncology Treatment Services	Survey Number ____		
1. Please estimate the number of head and neck cancer patients your cancer center treats annually: ____			
2. Does your cancer center provide radiation therapy services? <i>(If your answer to question 2 is "Yes", please complete the following section; otherwise, please proceed to question 3).</i>	Yes	No	
Please estimate the number of head and neck cancer patients treated with radiotherapy annually: ____			
What kind of radiation units do you have? How many?			
Cobalt	Yes	No	# ____
Linear Accelerator?	Yes	No	# ____
Other?			
Please list "other": _____			# ____
Do you have facilities for radioactive implant therapy?	Yes	No	
3. Does your cancer center provide chemotherapy services? <i>(If your answer to question 3 is "Yes", please complete the following section; otherwise, please proceed to question 4).</i>	Yes	No	
Do you provide inpatient chemotherapy services?	Yes	No	
Please estimate the number of patients treated with inpatient chemotherapy annually: ____			
Do you provide outpatient chemotherapy services?	Yes	No	
Please estimate the number of patients treated with outpatient chemotherapy annually: ____			
4. Does your cancer center provide bone marrow transplant services? <i>(If your answer to question 4 is "Yes", please complete the following section; otherwise, please proceed to question 5).</i>	Yes	No	
Please estimate the number of bone marrow transplant patients in the following categories:			
Matched unrelated donor transplants: ____			
Allogeneic donor transplants: ____			
Autologous transplants: ____			
Peripheral stem cell transplants: ____			
Other: ____			
<b>Oral/Dental Support Services:</b>			
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When oral or dental problems are identified, how are these problems managed?			
Medical staff?	Yes	No	
Dental provider(s) in the community-based private practice?	Yes	No	
Referral to a hospital-based dental provider?	Yes	No	
Referral to other facility?	Yes	No	
5. From what source(s) do your cancer center patients receive oncology-related dental consultation, interventional dental care and emergency/urgent care? <i>(Choose all applicable from the list below):</i>			
From a cancer center dental department?	Yes	No	
From a cancer center-associated dental consultant(s)?	Yes	No	
From a dental school?	Yes	No	
From the patients' own community-based dental provider?	Yes	No	
Other: _____			
6. Does your cancer center have a dental department? <i>(If your answer to question 6 is "Yes", please complete the following section; otherwise, please proceed to question 7).</i>	Yes	No	
Dental Department Personnel and Facilities:			
Full-time dental professional equivalents (FTEs)?			____
Number of dental operatories?			____
Administrative office space?	Yes	No	
Sterilization facilities within the dental clinic?	Yes	No	
Dental radiology capabilities?	Yes	No	
Access to operating room facilities?	Yes	No	
Dedicated hospital bed(s)?	Yes	No	
Is the dental department involved in research activities?	Yes	No	

7. Does your cancer center have dental consultants? Yes No  
 (If your answer to question 7 is "Yes", please complete the following section; otherwise, please proceed to question 8).

Resources Available to the Consultant(s):

Full-time dental professional equivalents (FTEs)?	—	
Number of dental operatories provided by the center	—	
Dedicated space for dental examinations?	Yes	No
Administrative office space?	Yes	No
Dental radiology capabilities?	Yes	No
Access to operating room facilities?	Yes	No
Dedicated hospital bed(s)?	Yes	No

8. What kind of dental services does your dental department/dental consultant(s) provide to cancer center patients?  
 (Choose all applicable answers from the list below):

N/A-no dental department/dental consultant at this cancer center	Yes	No
Pre-intervention oral/dental examinations	Yes	No
Pre-intervention comprehensive dental care	Yes	No
Health education/health promotion counseling	Yes	No
Emergent/urgent dental care during intervention	Yes	No
On-ward patient management	Yes	No
Follow-up care for cancer or treatment-related complications	Yes	No
Palliative care	Yes	No

9. If your cancer center does not have a dental department or a dental consultant(s), do you have a designee who coordinates oncology-related dental consultation and dental care? Yes No

10. Are dental consult requests, dental consult findings, and/or dental treatment records included in the medical record? Yes No

11. Which patients are required to receive a pre-intervention oral/dental examination prior to radiotherapy treatment of the head and neck region?  
 (Circle one answer)

- a. all patients
- b. only patients with oral/dental complications
- c. no patients are required
- d. there is no defined protocol.

12. Which patients are required to receive a pre-intervention oral/dental examination prior to chemotherapy?  
 (Circle one answer)

- a. all patients
- b. only patients with oral/dental complications
- c. no patients are required
- d. there is no defined protocol.

13. Which patients are required to receive a pre-intervention oral/dental examination prior to bone marrow transplantation?  
 (Circle one answer)

- a. all patients
- b. only patients with oral/dental complications
- c. no patients are required
- d. there is no defined protocol.

14. Are routine in-patient oral care follow-up visits provided to every bone marrow transplantation patient?  
 (Circle one answer)

- a. all patients
- b. only patients with oral/dental complications
- c. no patients are required
- d. there is no defined protocol.

15. Which patients are required to receive a pre-intervention oral/dental care exam prior to radiotherapy treatment, chemotherapy or bone marrow transplantation?  
 (Circle one answer)

- a. all patients
- b. only patients with oral/dental complications
- c. no patients are required
- d. there is no defined protocol.

16. Please add any further comments.

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