An Education and Training Survey of Speech-Language Pathologists Working with Individuals with Cancer of the Larynx

Un sondage sur l'éducation et la formation des orthophonistes qui travaillent auprès des personnes présentant un cancer du larynx

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Abstract

The objective of this study was to obtain preliminary information concerning the level of preparedness (via education and training) of speech-language pathologists (SLPs) currently employed in Canadian hospitals or clinical facilities serving individuals with laryngeal/head and neck cancer. Survey data were gathered from respondents at clinical facilities across Canada. Information was obtained regarding the types of services currently provided to this clinical population, the ratio of time spent serving those with head and neck cancer, years of experience as an SLP, education location and topics covered in formal university-level education, and levels of preparedness in various clinical domains related to head and neck cancer. In addition, respondents were asked about perceived need for greater education of SLPs working with head and neck cancer populations, and if required, what elements should constitute that education. Results suggest a greater need for systematic and basic academic education, as well as comprehensive, easily accessible postdegree continuing education that focuses on the comprehensive care of those with laryngeal/head and neck cancer.

Abrégé

L'objectif de cette étude était d'obtenir des informations préliminaires quant au niveau de préparation des orthophonistes (éducation et formation) travaillant présentement dans les hôpitaux et cliniques du Canada et désservant la clientèle présentant un cancer laryngé de la tête et du cou. Des données ont été obtenues à l'aide d'un sondage effectué auprès de répondant(e)s oeuvrant dans différentes cliniques canadiennes concernant les types de services couramment offerts à cette clientèle, le temps passé auprès de celle-ci, les années d'expérience des orthophonistes, le lieu d'éducation et les sujets couverts lors de la formation universitaire des orthophonistes, de même que le niveau de préparation concernant les divers aspects cliniques reliés au traitement des patients avec cancer de la tête et du cou. De plus, les répondants au sondage ont été interrogés à savoir si le besoin d'une formation accrue était ressenti pour oeuvrer auprès de la clientèle atteinte de cancer de la tête et du cou et dans l'affirmative, à savoir quels en seraient les éléments. Les résultats suggèrent un besoin plus grand de formation académique systématique de base, de même que l'accès plus facile à une formation post-universitaire exhaustive concentrée sur les soins complets des personnes atteintes d'un cancer laryngé de la tête et du cou.

Key words: rehabilitation, head and neck cancer, laryngeal cancer, alaryngeal voice/speech, clinical education, cancer care

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Head and neck cancers account for approximately three percent of all types of cancer (American Cancer Society, 2001). The National Cancer Institute of Canada (2001) currently estimates that there are approximately 3,100 new cases and 1,050 deaths associated with oral cancer in Canada each year. The annual numbers of cases of laryngeal cancer are estimated at 1,250 new cases and approximately 520 deaths (National Cancer Institute of Canada, 2001). Although head and neck cancer refers to a diagnosis of cancer where involved tissues include structures of the head and neck (i.e., tongue, jaw, skin, larynx, nose, etc.), this article will focus primarily on rehabilitation issues related to head and neck cancer involving laryngeal structures. In general, the voice and speech rehabilitation processes for those treated for laryngeal cancer requires more involvement than those associated with other head and neck cancers. The treatment options for laryngeal/head and neck cancer include radiation therapy, chemotherapy, and surgery. Combined methods of treatment are also offered for specific types of cancer. Among all laryngeal cancers, the most common treatment is radical surgical management or what is termed "total laryngectomy" (Doyle, 1994). The degree of surgical resection depends on the size, site, and extent of the tumour as these factors influence the potential spread of disease (Doyle).

Traditional health care and speech-language pathology approaches to postlaryngectomy rehabilitation focus on eliminating the physical symptoms that result from medical and surgical treatments and reacquisition of voice/speech (Doyle, 1994, 1999). However, recent studies indicate that such approaches may indeed be limited in scope by ignoring the treatment of the social, psychological, and physical aspects that evolve from the diagnosis of cancer and its treatment (Doyle, 1999). The overall well being of the individual may be severely compromised due to a cancer diagnosis and the resultant effects of treatment, considerations that should be considered independently of the potential physical risks associated with cancer. Effective pre- and postoperative care play a significant role in the short- and long-term outcomes of individuals diagnosed with and treated for cancer and significantly improve their quality of life and ability to participate actively in society (Allen et al., 1998; Doyle, 1994). Preoperative counselling includes providing information to patients and family members concerning the surgical procedures and expected outcomes of treatment that cross anatomic, physiologic, communicative, and social domains. Postoperative counselling includes reviewing information given preoperatively, facilitating alaryngeal communication, and offering suggestions to help optimize conditions for physical recovery (Doyle, 1994). Pre- and postoperative counselling facilitates transitions from diagnosis through to treatment and short- and long-term rehabilitation.

Although the importance of providing accurate and comprehensive counselling is critical in pre- and postoperative care, comprehensive rehabilitation requires a keen awareness of the factors that affect the success of rehabilitation (Doyle, 1997; Eadie, 2001). A laryngectomy, which includes the diagnosis of cancer, surgical removal of the larynx, and psychosocial adjustment after the surgery, has far reaching and potentially devastating effects. Social support networks, personal relationships, and employment capacity may all be threatened. The threats may lead to social, emotional, and economic hardships, along with isolation from vocational and avocational milieu (De Boer, McCormick, Pruyn, Ryckman, & Van Den Borne, 1999; De Santo, Olsen, Perry, Rohe, & Keith, 1995; Doyle, 1994, 1997; Gritz et al., 1999).

A rehabilitation team approach addresses potential threats to rehabilitation. A team approach is the most effective method to provide comprehensive care for the treatment of laryngeal/head and neck cancer (Doyle, 1994; Lehmann & Krebs, 1991). Most teams should include an otolaryngologist (i.e., head and neck surgeon), an oncologist, a speech-language pathologist (SLP), a social worker, a nurse, a dentist, a respiratory therapist, a physiotherapist, a dietitian, a psychologist, a chaplain and members of the patient's family (Doyle, 1994, Lehmann & Krebs, 1991).

Speech-language pathologists play an integral role in the rehabilitation of alaryngeal patients with laryngeal/head and neck cancer, regardless of type of lesion and surgical method pursued (Allen et al., 1998; Doyle, 1994). Nearly all of those who undergo surgery for laryngeal/head and neck cancer experience some degree of communication difficulty ranging from dysphonia associated with radiotherapy, to the complete loss of voice in total laryngectomy (Doyle, 1994; Fung et al., 2001). Several studies indicate the importance of direct involvement by an SLP with those who undergo laryngectomy (Berkowitz & Lucente, 1985; Blanchard, 1982; Johnson, Casper, & Lesswing, 1979; Minear & Lucente, 1979). Speech-language pathologists commonly provide education (pre- and postoperative information on new voice options, speech rehabilitation, support groups, and stoma care), counselling (pre- and postoperatively, individual, group, family), and voice-speech rehabilitation (artificial larynx, esophageal speech, tracheoesophageal speech) (Doyle, 1994; Allen et al., 1998).

In a 1998 survey of laryngectomy services in Canada, Allen and colleagues (1998) suggested that:

> ...few students have exposure to laryngectomy as a communication disorder and/or experience in direct patient care...as a potential outgrowth of the lack of formal academic training in laryngeal cancer...clinicians may feel that their skills are inadequate, hence, they may provide cursory services. (p. 184)

Allen et al. also reported that most clinicians who practise in the area of laryngeal cancer obtain knowledge as a result of what is best described as 'on-the-job' training. A review of the recent literature on the level and/or extent of education and training of SLPs in the area of laryngeal/head and neck cancer revealed the absence of any informal or formal studies. In part, the important roles that SLPs play in the rehabilitation of individuals who have laryngeal cancer prompted the present study. This study sought to obtain preliminary information on the current level of preparedness (via formal education and/or training) of SLPs currently employed in Canadian hospitals and clinical facilities serving those with laryngeal cancer. In doing so, it was anticipated that deficits in academic education and clinical training could be identified and that corrective actions could be suggested.

Method

Participants

A list of potential participants for the study was obtained from the Canadian Association of Speech-Language Pathologists and Audiologists Membership Directory (CASLPA; Canadian Association of Speech-Language Pathologists and Audiologists, 2001). Participants were selected based on the following criteria: SLPs who were identified in the directory as working clinically with the population having undergone laryngectomy, and/or who practised at a facility known to provide services to those with laryngeal/head and neck cancer.

Survey Instrument

An evaluation survey instrument was designed specifically for use in the present study. There were a total of 19 questions in the survey. Questions addressed topics such as caseload, responsibilities, academic training, level of preparedness, and recommendations for education and training (see Appendix A).

Table 1
Composition of Formal Head and Neck Cancer Care Teams at the 18 Facilities That Reported Having Such Teams in Place

Team Member	Number of Respondents
SLP	18/18 (100%)
otolaryngologist	17/18 (94%)
social worker	17/18 (94%)
nurse	16/18 (89%)
physical therapist	10/18 (56%)
other[a]	10/18 (56%)
other physician	7/18 (39%)
psychologist/psychiatrist	7/18 (39%)
dietitian	6/18 (33%)
occupational therapist	5/18 (28%)

a. Other members included homecare workers, individuals with a laryngectomy, prosthodontists, and pain management specialists.

Procedure

A copy of the survey was mailed to 80 SLPs or speech-language pathology departments across Canada between January and February 2002. As noted previously, the selected centres were identified as facilities that offered services for individuals with laryngeal/head and neck cancer. The survey was directed either to a specific SLP known to work with the laryngeal/head and neck cancer population or to the head of the speech-language pathology department.

Data Analysis

Survey data were collated and analysed descriptively for each of the specific categories of inquiry addressed in the survey.

Results

Of the 80 surveys distributed, seven surveys were returned due to incorrect addresses. Of the remaining 73 surveys, 37 (51%) were not returned, and 36 (49%) were completed and returned within 60 days by respondents representing nine provinces (all except PEI). Six of the 36 respondents were from British Columbia, six from Alberta, one from Saskatchewan, three from Manitoba, nine from Ontario, five from Quebec, two from New Brunswick, one from Nova Scotia, and three from Newfoundland and Labrador. Of the 36 completed surveys, 18 respondents (50%) reported having formal laryngeal/head and neck cancer care teams at their

Table 2
Types of Educational Services Offered to Patients with Laryngeal/Head and Neck Cancer

Types of Educational Services	Number of Respondents Providing Services (*N* = 36)
New Voice Options	33 (92%)
Postoperative Information	31 (86%)
Speech Rehabilitation	29 (81%)
Preoperative Information	24 (67%)
Support Groups	21 (58%)
Stoma Care	19 (53%)

facilities. Team members included SLPs, occupational therapists, otolaryngologists, nurses, physical therapists, psychologists/psychiatrists, social workers, other physicians, dietitians, and individuals who had undergone laryngectomy. See Table 1 for a distribution of team members.

Caseload Distribution

All 36 respondents provided services to patients with laryngeal/head and neck cancer to some extent. They also were asked to identify the percentage of time spent in each of their different clinical service areas including head and neck cancer, acquired neurological disorders (i.e., stroke, traumatic brain injury), and other (i.e., child language disorders, phonology, voice disorders, etc.). In addition to identifying each area of clinical care, respondents were also asked to identify the amount of time spent in each type of care provided (i.e., acute care, in-patient care, and out-patient care). Acute care services are those in which SLPs perform professional duties commencing immediately following surgery. In-patient services are those wherein SLPs provide services following the acute phase of recovery and during the time the patient stays at the hospital awaiting medical discharge. Outpatient care refers to SLP services provided to individuals at the hospital following his or her medical discharge.

Twenty-three of the 36 respondents (64%) indicated they provided services in an acute care environment. Of the 23 respondents, 20 reported spending less than 20% of their time working in the laryngeal/head and neck cancer acute care environment, while the other three respondents reported spending between 20-40% of their time working in the acute care environment with rehabilitation subsequent to treatment for laryngeal/ head and neck cancer.

Twenty-eight of the 36 respondents (78%) indicated they provided care to in-patients. Of the 28 respondents, 19 reported spending less than 20% of their time working with in-patients, while seven reported spending between 20-40%, one respondent reported spending between 40-60%, and one respondent reported spending between 60-80% of their time performing in-patient laryngeal/ head and neck cancer care.

Table 3
Types of Counselling Services Offered to Patients with Laryngeal/ Head and Neck Cancer

Types of Counselling Services	Number of Respondents Providing Services (*N* = 36)
Postoperative	32 (89%)
Individual	32 (89%)
Family	29 (81%)
Preoperative	25 (69%)
Group	15 (42%)

Table 4
Types of voice/ Speech Rehabilitation Services Offered to Patients with Laryngeal/ Head and Neck Cancer

Types of Voice/ Speech Rehabilitation Services	Number of Respondents Providing Services (*N* = 36)
Artificial Larynx	30 (83%)
Esophageal Speech	28 (78%)
Tracheoesophageal Speech	23 (64%)
Other[a]	9 (25%)

a. Other includes: breathing systems (humidifilter), speaking valves, AAC, swallowing (dysphagia), articulation (tongue resection), residual voice rehabilitation, voice synthesizer, and glossectomy.

Thirty-three of the 36 respondents (92%) indicated they provided care to outpatients. Of these 33 respondents, 15 reported spending less than 20% of their time with out-patient laryngeal/head and neck cancer, seven reported spending between 20-40%, four reported spending between 40-60%, five reported spending between 60-80%, and only two respondents reported spending between 80-100% of their time in out-patient laryngeal/head and neck cancer services.

Types of Services Provided to Patients with Head and Neck Cancer

Respondents were asked to identify all the types of services provided to patients with laryngeal/head and neck cancer within the specific areas of education (see Table 2), counselling (see Table 3), and voice/speech rehabilitation (see Table 4).

The distribution of data in Table 2 displays how most respondents (92%, 86%, 81%) offer information to those they treat in regard to new voice options, postoperative information, and speech rehabilitation, respectively. Fewer respondents (67%, 58%, 53%) reported offering preoperative information, support groups, and stoma care education, respectively. Similarly, Table 3 reveals that many respondents (89%, 89%, 81%) offer postoperative, individual, and family counseling, respectively, to those treated for laryngeal/ head and neck cancer. Fewer respondents offer preoperative (69%) and group counseling (42%). With respect to types of voice/ speech rehabilitation services offered, Table 4 shows that the majority of respondents (83%) offer the artificial larynx as a rehabilitation option, followed by esophageal speech (78%) and tracheoesophageal speech (64%). Twenty-five percent of the respondents indicated that they provide other related rehabilitation services (i.e., augmentative and alternative communication [AAC], swallowing, etc.).

Table 5
Distribution of Time for Services Within the Head and Neck/ Laryngeal Cancer Population

Percentage of Time Spent (within head and neck/laryngeal cancer population)	Number of Respondents Spending time in Alaryngeal Voice and Speech Rehabilitation	Number of Respondents Spending Time in Counseling	Number of Respondents Spending Time Educating
<20%	6	14	10
20-40%	5	19	22
40-60%	11	2	4
60-80%	10	*	*
80-100%	1	*	*

* no respondents in this category; *N* = 36

Table 6
Sources of Respondents' Education and Training in Laryngeal/Head and Neck Cancer

Source of Education and Training	Number of Responses
Required university course	27/36 (75%)
Portion of required course	21/36 (58%)
Required full course	4/36 (11%)
Postgraduate continuing education course	23/36 (64%)
Clinical practicum while at university	15/36 (42%)
Elective university seminar	5/36 (14%)
On-the-job training	31/36 (86%)
Self-taught	22/36 (61%)
From senior clinician	16/36 (44%)
Other[a]	7/36 (19%)

a. Other sources of training included specialty fellowships, conferences, workshops and self-study readings and audio/video tapes.

Service Provision to Individuals with Laryngeal / Head and Neck Cancer

Respondents were asked to identify the percentage of time they spent providing services to those treated for laryngeal/head and neck cancer in each of the areas including alaryngeal voice/speech rehabilitation, counselling, and education. A summary of this information is provided in Table 5.

As can be seen in Table 5, 11 respondents spent between 40-60% of their time providing alaryngeal voice and speech rehabilitation, 10 respondents spent 60-80% and only one respondent spent 80-100% of his/her time providing voice and speech rehabilitation services. Five respondents spent between 20-40% of their time providing voice and speech rehabilitation, while only six respondents spent less than 20% of their time. However, when asked how much time respondents spent providing counselling and education services, 33 and 32 respondents reported spending 40% or less of their time, respectively. Only two and four respondents reported spending 40% and 60% of their time providing counselling and education services, respectively.

Table 7
Specialized Topics in Respondents' Education and Training in Head and Neck/ Laryngeal Cancer

Topic	Number of responses
Alaryngeal voice and speech options	35/36 (97%)
Anatomy	33/36 (92%)
Surgical procedures	28/36 (78%)
Psycho-social impact	27/36 (75%)
Counselling	27/36 (75%)
Dysphagia	25/36 (69%)
Quality of life	23/36 (64%)
Other (stoma care)	1/36 (3%)

Table 8
Respondents' Perceived Level of Preparedness with Laryngeal/ Head and Neck Cancer at Entry to Clinical Practice

		Inadequate	Adequate but not comprehensive	Adequate and comprehensive
Voice-Speech Rehabilitation	Esophageal	18/36 (50%)	9/36 (25%)	6/36 (17%)
	T-E Speech	18/36 (50%)	10/36 (28%)	3/36 (8%)
	Artificial Larynx	8/36 (22%)	15/36 (42%)	10/36 (28%)
Stoma Care		24/36(67%)	6/36 (17%)	3/36 (8%)
TE Puncture Voice Restoration and Care		19/36 (53%)	7/36 (19%)	4/36 (11%)
Counselling		13/36 (36%)	14/36 (39%)	4/36 (11%)

Levels of Education and Training

The number of years of experience of each respondent varied widely (M= 12 years, range 2-25 years). Thirty-four of the 36 respondents identified the country from which they received their degrees. Thirteen obtained their degree from universities in the United States, 20 were educated at Canadian universities, and one respondent was educated in Europe.

Respondents were asked to indicate where they received specialized education, training, or exposure to the clinical population with head and neck cancer, either during or following their university training. Table 6 summarizes the training respondents received with this population.

Interestingly, 31 respondents (86%) received some form of on-the-job training, where 22 respondents (61%) reported being self-taught and 16 (44%) were taught from senior clinicians while on the job. A majority of respondents (27/36) received some training as a part of their required university program. Five respondents received specialized education as an elective seminar in university. Fifteen respondents were exposed to those with laryngeal/head and neck cancer in their clinical practicum at university, while 23 acquired some form of postgraduate continuing education course. Seven received training from other sources (self-study course, workshops, specialty fellowships, and/or conferences).

Respondents also were asked to indicate the topics that were addressed during their education and training in laryngeal/head and neck cancer. These topics are presented in Table 7.

The majority of respondents received training in alaryngeal voice and speech, anatomy, counselling, quality of life, dysphagia, the psychosocial impact of head and neck cancer, and surgical procedures, while only one respondent reported receiving training in the other category (i.e., stoma care).

Overall Level of Preparation

Thirty-three of 36 individuals provided responses regarding their overall level of preparedness when they began clinical practice treating individuals with laryngeal/head and neck cancer. Of these, 13 (39%) felt inadequately prepared, whereas 15 (45%) stated they were adequately prepared but did not feel their education and training were sufficiently comprehensive to include all issues related to laryngeal/head and neck cancer; five of the 33 respondents (15%) stated they were adequately prepared.

Respondents also were asked to rate their level of preparedness in each of the different areas within laryngeal/head and neck cancer. Table 8 displays the number of responses in each specific area.

Generally, respondents felt they were inadequately prepared in all areas of laryngeal/head and neck cancer including voice and speech rehabilitation, stoma care, counselling, and tracheoesophageal (TE) puncture and associated care. Although respondents identified an overall inadequacy of preparedness, two exceptions including artificial larynx and counselling were identified as areas where respondents felt least inadequate within laryngeal/head and neck cancer care upon entry to clinical practice. Eight respondents (22%) and 13 respondents (36%) felt least inadequate in areas including the artificial larynx and counselling, respectively.

Areas of Laryngeal/head and Neck Cancer Most Prepared by Respondents

Respondents also were asked to report on which clinical areas they felt most prepared for when they entered practice. The majority (72%) indicated they were most prepared in the area of voice/speech rehabilitation. Within this category, 24 respondents (67%) indicated they felt most prepared to teach artificial laryngeal speech, while 13 respondents (36%) and 11

respondents (31%) felt most prepared to teach esophageal speech and TE voice restoration, respectively. Fourteen respondents (39%) felt they were prepared to counsel those with laryngeal/head and neck cancer.

Areas of Laryngeal/head and Neck Cancer Least Prepared by Respondents

Respondents were asked to identify areas in which they felt least prepared to work with individuals with laryngeal/head and neck cancer. Seventeen respondents (47%) indicated they felt least prepared in the areas of stoma care and TE puncture care. Fifteen respondents (42%) also indicated that they felt least prepared in voice and speech rehabilitation. Of those 15 individuals, 13 indicated the more specific category of TE voice restoration, nine indicated esophageal speech, and one indicated artificial larynx as the area of least clinical preparedness. Five respondents (14%) indicated counselling as the area in which they were the least prepared.

The Need for Greater Formal Training?

The overwhelming majority of respondents (94%) indicated that there is need for greater formal education and training of SLPs in the area of laryngeal/head and neck cancer. Respondents reported that such specialized education and training should take place in various contexts. Thirty-one respondents (86%) indicated continuing education as an appropriate venue of further learning. Twenty-six respondents (72%) indicated a course within a speech-language pathology program, 18 (50%) indicated clinical practicum placement, and 13 (36%) indicated that on-the-job training would be appropriate. In addition, nine respondents (25%) suggested other venues for training such as a specialty fellowship, mentorship, postgraduate elective seminar, and distance education opportunities.

Elements for Continuing Education Seminars

Respondents were asked to indicate which elements they would include in a continuing education seminar related to laryngeal/head and neck cancer. Thirty-three (92%) indicated they would include voice-speech rehabilitation, 31 (86%) indicated TE voice restoration, 29 (81%) indicated esophageal speech, and 28 (78%) indicated artificial larynx. Additionally, 32 respondents (89%) indicated TE puncture care and 26 respondents (72%) indicated a need in each category of stoma care, quality of life issues, and patient education. Twenty-five respondents (69%) included counselling and 12 respondents (33%) indicated other elements that include dysphagia, tracheostomy communication options, speaking valves, medical aspects of disease, end of life care, alternative treatments, and food preparation as areas where additional education and training are necessary.

Discussion

The goal of this project was to obtain information concerning the level of clinical preparedness via the formal education and training of SLPs currently employed in Canadian facilities serving those with laryngeal cancer. Thirty-six responses were received from a total of 80 surveys mailed to SLPs or speech-language pathology departments across Canada. The majority of the 36 respondents reported that individuals treated for head and neck cancer constitute a large proportion of their caseload, more so than with other speech and language disorder areas. The responses from these respondents constituted the database for the investigation of issues about education and training and the areas of care for those with laryngeal/head and neck cancer.

Outpatient services constitute the largest part of respondents' caseloads in comparison to acute care and in-patient services. The types of educational services most commonly provided by respondents are postoperative information, which includes providing general information to individuals regarding physical, psychosocial, and communicative changes following surgery, new voice options, and speech rehabilitation. Education regarding stoma care was least frequently provided by the SLP respondents. Speech-language pathologists may not provide this information as other members of the laryngeal/head and neck cancer team (e.g., nurses) may assume primary responsibility for educating the patient regarding this topic. However, SLPs also may not be sufficiently trained to provide this information and further education in this important area of postlaryngectomy care may be a valuable adjunct to current university programs.

All respondents reported offering several types of counselling services to those with laryngeal/head and neck cancer. Of the counselling types offered, group counselling was offered least frequently. This rating can be explained by several possibilities such as: (a) individuals may be receiving group counselling from other members of the team with specific counselling expertise (e.g., social workers, psychologists); (b) they may be receiving support through agencies outside the hospital setting (e.g., the Lost Cord Club); (c) some SLPs may not have more than one person on his or her caseload at any given time; or (d) an individual's specific needs (i.e., not all individuals desire group counselling).

In terms of voice and speech rehabilitation services, respondents provided treatment most frequently for the artificial larynx (e.g., electrolarynx) followed by esophageal speech (ES). These results are somewhat surprising given that poor outcomes are reported in the literature for ES training (Hillman, Walsh, Wolf, Fisher, & Hong, 1998; Schaefer & Johns, 1982), where failure rates to acquire ES are quite high. However, this finding could also reflect the relative amounts of time needed to achieve success in each of these areas. That is, from a treatment perspective, ES generally requires a greater amount of training prior to the acquisition of verbal communication relative to artificial laryngeal or TE speech acquisition (Hillman et al., 1998). This finding also could be partially explained by the relative increases that have been seen in those undergoing primary or secondary TE punctures over the past decade. From a purely communicative standpoint, TE speech is likely the quickest and easiest intrinsic means of acquiring alaryngeal communication for individuals who undergo a laryngectomy. Therefore, TE speech may require significantly less treatment time to achieve verbal communication compared with ES. However, the acquisition of functional artificial laryngeal speech also is very efficient from the standpoint of the training time required.

The fact that direct voice and speech rehabilitation are services provided more often versus postlaryngectomy education and counselling may be the result of time constraints faced by SLPs. In the early stages of treatment, providing the means to communicate verbally may take priority over other broader forms of service such as counselling.

Recall, when asked where respondents received their education and training in laryngeal/head and neck cancer populations, on-the-job education and training were reportedly the most common sources of knowledge advancement among respondents. Of those who reported on-the-job training, the greatest number of SLPs reported being self-taught versus being taught by a senior clinician. This finding raises the concern that both the efficiency and the effectiveness of clinical care, at least to some extent, may be compromised due to the lack of formal training within either an academic or clinical environment. Similarly, although some respondents (58%) reported receiving training as part of a required university course, the depth and breadth of the exposure and training are unknown. This finding may lead to questions regarding the standard of care provided within the formal professional education of SLPs across the nation.

The high proportion of respondents who felt their training was inadequate (39%) or adequate, but not comprehensive (45%) indicates a clear need for increased levels of education and training in the field of laryngeal/head and neck cancer care. Specific areas in which respondents felt their education and training were particularly inadequate included stoma care, TE puncture voice restoration and care, and esophageal and TE speech rehabilitation. The perceived inadequacy of training in the area of TE speech rehabilitation could be based on the fact that this alaryngeal method is a relatively new speech option compared to esophageal and artificial laryngeal speech and that those who have not been educated recently may have limited background and knowledge in this area. Regardless of the relative age of alaryngeal speech options, all will be relatively new to the SLP student. However, a given professor or clinical supervisor may favour some alaryngeal options over others, and hence, this bias may influence the quality and quantity of information taught regarding postlaryngectomy speech options. Further, the relative dearth of education and training of the respondents in the area of TE voice restoration may be a contributing factor as to why this speech option is not more widely recommended in speech rehabilitation. The lack of education and training also can result in less than ideal outcomes because of inexperience and the resultant difficulties that arise from inadequate problem solving. Thus, the TE method may be viewed more negatively in some environments. Although the decision to proceed with TE puncture voice restoration as a rehabilitation option may ultimately lie with the surgeon in some centres, its application is ideally the outcome of a combined decision by the person treated for laryngeal cancer, the surgeon, and the SLP. In fact, the SLP may influence significantly the surgeon's decision by assisting in the assessment of the individual's likelihood for success with the TE speech option.

Not surprisingly, stoma care, TE puncture care and surgical-prosthetic voice restoration were the areas in which respondents felt least prepared at entry to practice. The results reflect the inadequacy of education and training in these areas and provide a rich area for educational programs to target as curriculum needs are (re)evaluated in the contemporary context of a comprehensive education and training curriculum.

In contrast, respondents indicated clearly they felt most prepared to teach the use of the artificial larynx as a primary mode of communication. This may be due to several factors including the ease of its implementation, reduced time in training, fewer complications associated with its use, and it being a primary focus in their education and training program. Also, according to the findings

reported by Hillman et al. (1998), the electrolarynx is the method requested and consistently used by a majority (55%) of clients even at one year postlaryngectomy. Hillman et al. also reported the use of the electrolarynx as a secondary means of communication for individuals who cannot use TE or ES as their primary mode of communication for a short period of time.

In line with respondents' reports of perceived inadequate levels of education and training in many areas of laryngeal/head and neck cancer, an overwhelming majority indicated the need for greater formal training of SLPs relative to this clinical population. Continuing education and formal, required university course(s) were frequently cited as preferred approaches. This sentiment is reflected in the comments of one respondent: "I feel that it is important to provide a comprehensive course at university on communication and swallowing issues in head and neck cancer, but few SLPs will specialize in this area, so an over-emphasis at graduate school will be lost on most. Most valuable...an overview and exposure to resources where one could pursue further education if required."

It is interesting to note that when asked which elements should be included in continuing education relative to laryngeal/head and neck cancer rehabilitation, the respondents identified a need to include all identified categories with nearly equal representation. Respondents also offered suggestions for additional topics to be addressed (e.g., "Dysphagia should be integrated into all laryngeal/head and neck cancer care. Dysphagia to varying degrees is not uncommon in laryngectomees as well."). Taken together, the responses indicate that there is a perceived need for comprehensive education and training across all domains of care and rehabilitation for those diagnosed and treated for laryngeal cancer.

Study Limitations and Future Considerations

Based on the findings from this survey, several additional questions have been raised. First, what remains unknown is the influence of certain factors such as the preference(s) of those treated for head and neck cancer, institutionally based financial concerns, and associated time constraints, as well as the SLP's comfort/familiarity with particular issues and/or techniques pertaining to direct service provision. Second, although half of the respondents reported they were not members of a *formal* laryngeal/head and neck cancer team, this does not necessarily mean that an *informal*, yet effective team does not exist at those facilities. Third, many questions regarding SLP training and education of laryngeal/head and neck cancer were addressed with a particular emphasis on laryngeal cancer because laryngeal cancer has the most complicated and dramatic impact on communication. However, there are other areas of head and neck cancer such as cancers of the tongue, lip, palate, etc., where SLPs are required to provide clinical service and where the level of education and training may be lacking and may even be less than that associated with laryngeal cancer. This would also include an expansion of information in areas such as dysphagia relative to this particular clinical population. Therefore, further study should seek to ascertain the level of education and training in other areas of head and neck cancer and larger needs relative to contemporary and effective clinical service provision (Doyle, 1994, 1999).

Although the current study has identified the need for greater education and training in laryngeal/head and neck cancer in a broad sense, further exploration could identify what specific types of training would be most valuable and effective. For example, would certain areas lend themselves to on-line courses, while others require direct hands-on experience? The use of open-ended questions in future surveys may allow for additional insights into which factors constitute a comprehensive postdegree training program for head and neck cancer and how these factors can be best addressed at an educational level. Such information could then lead to initial educational guidelines and the options for providing this information to the greatest number of students or practitioners. The direct benefit of such endeavours will likely have a significant impact on the quality and comprehensiveness of clinical services to those individuals treated for laryngeal/head and neck cancer.

Conclusions

The results of this study, based on the 36 respondents from across Canada, suggest that there is a clear need for systematic, core academic education and training, as well as more comprehensive postgraduate degree continuing education on issues related to laryngeal/head and neck cancer in speech-language pathology. A general consensus from all respondents suggests that every new SLP should have a basic understanding of laryngeal/head and neck cancer. Thus, at a minimum, academic programs must strive to provide an equal level of "introductory" exposure to the area of laryngeal/head and neck cancer for all SLP students.

According to the present respondents, there also appears to be a need to share information, both among clinicians working in the laryngeal/head and neck cancer population, and between clinicians and researchers, so that clinicians can keep abreast of the latest technological developments. Given this concern, technology (e.g.,

video-conferencing, on-line courses, etc.) could be used to facilitate continuing education in an efficient and cost-effective manner. Respondents also commented on the need for Canadian organizations to provide continuing education and training (e.g., professional and scholarly conferences). Currently the American Speech-Language-Hearing Association (ASHA) provides the main source of postgraduate courses and seminars. Some respondents commented on the difficulty of obtaining continuing education in specialized communication disorder areas similar to laryngeal and head and neck cancer such as cleft palate, augmentative and alternative communication, etc. Others suggested establishing an informal network of clinicians to provide support and mentorship to novice clinicians and to increase collaboration between facilities. Given the laryngeal/head and neck cancer population is more specialized and that few SLPs will dedicate their careers to work with this clinical population, it is important that continuing education and training resources are made available and accessible to those who need it most on an ongoing bases. This type of availability and accessibility will increase the likelihood that the services provided to those with head and neck cancer are as comprehensive as possible.

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Appendix

Survey of Speech-Language Pathologists' Education and Training In Head and Neck Cancer

Authors: Beaudin, P. G., Godes, J. R., Gowan, A. C., and Minuk, J. L.

1. Respondent's Title _____

2. What percentage of your time is spent in the following areas of patient care? (Please use the letter options presented below to answer)
   a. < 20%
   b. 20-40%
   c. 40-60%
   d. 60-80%
   e. 80-100%

3. What services do you provide to patients with head and neck cancer? (Check all that apply)

a) *Education*
- ☐ Preoperative information
- ☐ Postoperative information
- ☐ New voice options
- ☐ Speech rehabilitation
- ☐ Support groups
- ☐ Stoma care

b) *Counselling*
- ☐ Preoperative
- ☐ Postoperative
- ☐ Individual
- ☐ Group
- ☐ Family

c) *Voice-speech rehabilitation*
- ☐ Artificial larynx
- ☐ Esophageal speech
- ☐ T-E speech
- ☐ Other (please specify) _____

	Head & Neck Cancer	Acquired Neurological Disorders (e.g., stroke, TBI)	Other (e.g., child language disorders, phonology) - please specify
Acute Care			
Inpatient			
Outpatient			

4. For the head and neck cancer patient population, what percentage of your time do you spend in the following areas? (Please use the letter options presented below)
   a. < 20%
   b. 20-40%
   c. 40-60%
   d. 60-80%
   e. 80-100%

   Alaryngeal voice and speech rehabilitation _____
   Counselling _____
   Education _____

5. Approximately how many head and neck cancer patients have you seen in the last 12 months? (Check appropriate box)
   ☐ 0 ☐ 1-10 ☐ 11-20 ☐ 21-30 ☐ 31-40 ☐ 41-50 ☐ more than 50

6. Do you have a head and neck cancer care **team** at your facility? (Check one): ☐ Yes ☐ No
   a. If yes, who are the team members? (Check all that apply)
   - ☐ SLP
   - ☐ ENT
   - ☐ social worker
   - ☐ physical therapist
   - ☐ other physician
   - ☐ psychologist/psychiatrist
   - ☐ occupational therapist
   - ☐ nurse
   - ☐ other (please specify) _____

7. Number of years in current position: _____

8. Highest degree obtained:
   ☐ bachelor's ☐ master's ☐ doctorate

9. Year last degree obtained: (please check one)
☐ before 1970 ☐ 1970-1975 ☐ 1976-1980 ☐ v1981-1985
☐ 1986-1990 ☐ 1991-1995 ☐ 1996-2001

10. Name of degree-granting institution _____

11. Please indicate where you received education/training/exposure to the head and neck cancer population (Please check all that apply):
☐ required university course (if yes, check one): ☐ full course ☐ portion of course
☐ elective seminar
☐ clinical practicum experience while at university
☐ postgraduate continuing education course (e.g., CASLPA, ASHA, other)
☐ on-the-job training (if yes, check one): ☐ from senior clinician ☐ self-taught
☐ other (please specify)

12. What specific topics were addressed in some manner for the above cited education/training vis-à-vis head and neck cancer? (Please check all that apply)
☐ alaryngeal voice and speech options ☐ anatomy ☐ quality of life
☐ surgical procedures ☐ counselling ☐ other (please specify) _____
☐ psycho-social impact ☐ dysphagia

13. Please rate your **overall** level of preparedness when you initially practiced in the area of head and neck cancer, in terms of the above training (Please check one).
☐ inadequate
☐ adequate but not comprehensive
☐ adequate and comprehensive

14. Please rate your level of preparedness when you initially practiced in the area of head and neck cancer, in each of the following domains:

		Inadequate	Adequate but not comprehensive	Adequate and comprehensive
Voice-speech Rehabilitation	Esophageal T-E Speech Artificial Larynx			
Stoma Care				
Counselling				
TE Puncture Voice Restoration & Care				

15. In which of the above clinical areas did you feel **most** prepared when you entered practice in head and neck cancer?
☐ stoma care
☐ counselling
☐ TE puncture care
☐ voice-speech rehabilitation (if checked, please check one of the following)
☐ esophageal speech
☐ TE voice restoration
☐ artificial larynx

16. In which of the above clinical areas did you feel **least** prepared when you entered practice in head and neck cancer?
- ☐ Stoma care
- ☐ Counselling
- ☐ TE puncture care
- ☐ Voice-speech rehabilitation (if checked, please check one of the following)
- ☐ Esophageal speech
- ☐ TE voice restoration
- ☐ Artificial larynx

17. In your opinion is there a need for greater formal training of speech language pathologists in the area of head and neck cancer?
Yes____ No____

If yes, please indicate **where** such training should take place? (Check all that apply)
- ☐ formal, required university course as part of a speech-language pathology program
- ☐ clinical practicum placement
- ☐ on-the-job
- ☐ continuing education
- ☐ other (e.g., specialty fellowship; please specify) _____

18. What elements would you include in a continuing education seminar related to head and neck cancer? (Please check all that apply)
- ☐ voice-speech rehabilitation
- ☐ esophageal speech
- ☐ TE voice restoration
- ☐ artificial larynx
- ☐ stoma care
- ☐ quality of life issues
- ☐ patient education
- ☐ counselling
- ☐ TE puncture care
- ☐ other (please specify) _____

19. Any additional comments are welcome. Please feel free to use the space below and attach a separate sheet if necessary.