Head and neck cancer – guidance

Key points

- Speech and language therapists (SLTs) have expertise in the assessment, diagnosis, management and rehabilitation of voice, speech and swallowing difficulties resulting from, head and neck cancer and its treatment. They are involved at all stages of the care pathway from pre-treatment to survivorship and end of life care.
- SLTs are core members of the head and neck cancer multidisciplinary team and collaborate with other healthcare professionals to optimise patient outcomes.
- SLTs provide information and support to the patient, family and carers. They support patient involvement in decision-making regarding their treatment and rehabilitation goals.
- SLTs have a unique and essential role to help facilitate alaryngeal voice restoration post laryngectomy.
- SLTs are essential to the Surgical Voice Restoration service (SVR) post laryngectomy by contributing to decisions around patient candidacy, voice prosthesis selection and ongoing care and management.
- SLT intervention for swallowing problems associated with head and neck cancer requires a thorough instrumental assessment in addition to clinical assessment which may take place prior to any treatment.
- SLTs are involved in research and audit aimed at improving the outcomes and service delivery for head and neck cancer patients.
- This guidance focuses on head and neck cancer in adults; head and neck cancer in children is considered outside of the scope of this document.

Head and Neck Cancer and its treatment

The term 'head and neck cancer' includes tumours of the oral cavity, oropharynx, lip, nasopharynx, hypopharynx, larynx, mandible, maxilla, nasal cavity, paranasal sinuses and of the salivary glands (Baijens et al, 2021). Incidence of each sub-site varies depending on geographic region, population and levels of exposure to risk factors (Pezzuto et al, 2015). More than 90% of these tumours are squamous cell carcinomas (Baijens et al, 2021).

Head and neck cancer occurs mainly in adults, with 12,422 cases diagnosed on average per year in the UK and an increase of 37% in cases since the early 1990's (CRUK, 2021). Head and neck cancer accounted for over 700,000 new cases (3.9% of all cancer cases) and over 350,000 deaths (3.8% of all cancer cases) worldwide in 2018 (Bravi et al, 2021). Head and neck cancer, although relatively uncommon, carries a high level of morbidity and mortality; the tenth most common cancer worldwide but the seventh most common cause of cancer mortality (WHO, 2004). It is the 15th most common cause of cancer death in the UK (CRUK, 2021).

The five-year survival rate in 2007 was 44% for oropharyngeal cancer (Orlandi et al, 2019). Based on 2009-2013 data, 19-59% of people in the UK diagnosed with head and neck cancer survive for more than 10 years (CRUK, 2021a). However, human papilloma virus-related oropharyngeal squamous cell carcinoma five-year survival rates can be as high as 70-80% (Huang et al, 2015).

Surgery and/or (chemo)radiotherapy are the most common head and neck cancer treatments (Mehenna et al, 2010). Patients with advanced disease may be offered multimodality treatment e.g. surgery and adjuvant (chemo) radiotherapy.

Surgery may include:

- transoral surgery
- open surgery, which may be combined with reconstructive techniques such as microvascular free-flaps.

Oncological treatments may include:

- radiotherapy
- chemotherapy
- chemoradiotherapy

Types of radiotherapy include intensity-modulated radiotherapy (IMRT) which can reduce the dose to the pharyngeal constrictors, parotid glands and oral cavity (Price et al, 2019) or proton beam therapy which improves precision and targeting of radiation dose to the tumour volume, sparing healthy tissue.

Choice of treatment is a result of multidisciplinary team discussion, and depends on tumour site, stage, histopathology, patient preference and individual factors as well as treatment intent (curative or palliative). Treatment also depends on what standard treatments and clinical trials are currently available at each individual cancer centre. Treatment decisions should take into account the likely effects on voice, speech and swallowing, as well as survival (Clarke et al, 2016).

Functional impact

Impairment

Dysphagia and persistent hoarseness are red flag symptoms of head and neck cancer (Mehenna et al, 2010; Tikka 2016). Up to 75% of head and neck cancer patients have difficulty or alteration to their swallowing at diagnosis (Patterson et al, 2013, Russi et al, 2012). Each treatment modality has the potential to negatively affect speech, voice and swallowing function. 60-75% of patients have dysphagia post-head and neck cancer treatment (Malagelada et al, 2015). Minimally invasive surgery will often result in early post-operative dysfunction, depending on baseline function, tumour stage and volume (Stephen, 2022). The severity of voice, speech and swallowing impairment following open surgery depends on factors such as tumour site, volume resected, and nature of the reconstruction. Radiotherapy often results in fibrotic and oedematous tissues, significantly affecting their movement and coordination. Function may gradually or suddenly deteriorate in the long-term, with a continuation of the fibrotic process, neuropathy, intractable oedema, and atrophy (Hutcheson, 2015, Hutcheson, 2012).

Psychosocial effects

Functional changes after head and neck cancer treatment are strongly associated with low mood and distress (Goff et al, awaiting publication). Nayak et al (2002)'s systematic review found that head and neck cancer patients are psychosocially distressed during radiotherapy, and the distress steadily increases during the therapy. Eating and drinking problems may result in substantial embarrassment, heightened anxiety and avoidance of eating with others (Lang, 2013) and poorer overall wellbeing (Bressan et al, 2017). Head and neck cancer treatment can result in persistent and complex dysphagia and poorer self-reported quality of life outcomes, with people reporting swallowing as one of their highest concerns following treatment (Clunie et al, 2023, Rathod et al, 2015).

An acquired communication impairment post-treatment affects the way a person interacts and engages with others. It can reduce the breadth and frequency of social contacts, increasing the likelihood of withdrawal and loneliness (Palmer, 2019). Furthermore, people are less likely to return to work if they have voice, speech or eating issues (Zecena, 2022). In head and neck cancer, restricted social eating and social contact has a strong relationship with depression and poor quality of life overall (Patterson, 2022).

Risk factors

The aetiology of head and neck cancer is complex with the evidence base in this area continuing to evolve. A person's risk of developing cancer may be influenced by many elements including age, genetics, and exposure to environmental factors.

Risk factors with sufficient evidence to increase the chance of developing head and neck cancer may include:

- alcohol
- tobacco
- betel quid
- smokeless tobacco
- Human Papillomavirus (HPV)
- Epstein Barr Virus (EPV)
- formaldehyde
- radiation
- asbestos
- salted fish (Chinese style)
- wood dust.

The adoption of a healthy lifestyle is associated with a reduction in cancer morbidity and mortality (Zhang et al 2020, Nicoletti et al 2011, Bravi et al 2021). Health professionals can play an important role in supporting healthy lifestyle choices.

Download the risk factors for head and neck cancer (PDF)

Role of Speech and Language Therapy

Multi-disciplinary team working

Speech and language therapists (SLTs) are an integral part of a multi-disciplinary team (MDT) working with patients with head and neck cancer. These collaborative multi-disciplinary teams (MDTs) are essential for optimal patient outcomes and responsible for assessment, intervention planning and management of every individual, with their involvement in decision-making. SLTs will also be part of coordinated local support teams to provide long-term support and rehabilitation for individuals in the community. These teams will work closely with every level of the service from primary care teams to the specialist MDT.

SLTs working, as part of an integrated MDT, are involved in all stages of the patient care pathway:

- pre-diagnosis
- diagnosis and care planning
- treatment
- post-treatment
- monitoring and survivorship
- late effects of treatment
- palliative care
- end of life.

The SLT at each of these stages aims to contribute to the assessment, treatment, maximising and maintenance of abilities relating to: speech, voice, swallowing and communication; cognitive and psychological factors; and nutrition.

This will involve information provision (including on likely treatment effects, local support groups, charitable organisations such as cancer support centres or online resources), support to patients and carers, referral to other teams (such as the lymphoedema service or clinical psychology) and liaison with other members of the MDT (such as head and neck clinical nurse specialists, dietitians, radiographers, surgeons or oncologists).

SLTs make a unique contribution to the MDT through completing technical assessments that may include clinical dysphagia assessments e.g. 100 ml water swallow test (Patterson, 2009) or instrumental assessments such as FEES or videofluoroscopy. In addition, SLTs working with laryngectomy patients may have additional competencies in tracheal manometry, selection and fitting of voice prosthesis for SVR post-laryngectomy, teaching patients to self-change voice prostheses, videofluoroscopy for laryngectomy patients and air insufflation testing (RCSLT, 2023, Patterson 2009, Carding et al, 2008, RCSLT 2008, RCSLT 1999).

SLTs can work in different multidisciplinary teams according to the needs of the individual. For example, SLTs may work with intensive care nurses to help to optimise the safety of swallow in patients, engender safe swallow and facilitate communication. They are involved in MDT tracheostomy weaning decisions post-surgery following SLT assessment of voice and swallowing. SLTs may also work with dietitians and oncologists to assess people's need for enteral feeding support and put in place prehabilitation swallowing exercises prior to commencing radiotherapy. SLTs work closely with the ENT surgeon and head and neck clinical nurse specialists to explain to the patient what laryngectomy surgery will involve, including changes in speaking, breathing, swallowing, olfaction, explaining care of the stoma and voice prosthesis. The SLT can advise on and can fit one-way valves to both aid communication and reduce the risk of aspiration in those with a long-term tracheostomy or intubation (Baumgartner, 2008).

The role of SLTs

Working as part of an MDT, SLTs can be involved in all stages of the patient care pathway providing a mixture of clinical expertise and practical support.

SLTs:

- have expertise in assessing, diagnosing, and managing disorders of communication, speech, voice and swallowing
- provide information and support to people with head and neck cancer regarding how head and neck cancer treatment may affect swallowing and communication
- provide pre-head and neck cancer treatment prehabilitation to maximise swallowing and communication outcomes
- may facilitate pre-treatment voice banking for patients where head and neck cancer treatment will significantly affect their voice e.g. total glossectomy or total laryngectomy
- have a unique and positive role to play in alaryngeal voice restoration post laryngectomy.
- have the lead responsibility within the MDT for the decision-making process of selection of voice prosthesis, care and management in Surgical Voice Restoration service (SVR) post-laryngectomy.
- develop and support the communication skills of both the patient and communicative partners
- support and facilitate patient involvement in decision-making regarding methods of communication (e.g. post-laryngectomy) or dysphagia management (e.g. helping patients make informed decisions about safest options for eating/ drinking with acknowledged risks and minimised choking risks)

- intervention for swallowing problems associated with head and neck cancer requires a thorough assessment that may include both clinical and instrumental assessment e.g. videofluoroscopy and/or FEES (fibreoptic endoscopic evaluation of swallowing).
- contribute to better health outcomes through their unique role in assessing, diagnosing and managing oropharyngeal dysphagia for patients at all stages of head and neck cancer treatment and those who are post-treatment.
- are actively involved in service evaluations, audits, collection of outcome measure data, high-quality research and clinical trials which contribute to improved outcomes and evidence-based treatment and service improvements for head and neck patients
- monitor and review patients progress over the long term, as the long-term risk and/or presence of transient, intermittent, or persistent dysphagia and late effects of treatment puts patients at risk of the complications that are associated with dysphagia, requiring a specialist SLT's intervention as required
- take into account the changing needs and pathways of care for persons with speech, voice or swallowing disorders associated with head and neck cancer and focus interventions as the condition alters or declines
- support head and neck cancer patients in survivorship and accessing support networks or organisations, enabling them to live fulfilling lives with improved quality of life outcomes
- contribute to palliative and end-of-life care, maximising and facilitating communication and managing dysphagia throughout the end stages, promoting quality of life.

Resources required

Specific resources required for SLT head and neck cancer services include:

- Surgical voice restoration equipment, pulmonary rehabilitation equipment e.g. baseplates/ HME systems and stoma accessories plus inflation related budget
- Voice recording equipment including microphone suitable for voice banking recording or FEES
- Acoustic analysis equipment
- Fibreoptic endoscopy facilities for voice and FEES and access to disinfection facilities for scope, suitable room and personal protective equipment for aerosol-generating procedure.
- Electrolarynxes, batteries and oral adaptors
- Voice amplifiers, communication aids
- Access to specialised services and equipment if not available on site, e.g. VF FEES, stroboscopy
- Equipment for tracheal manometry and air insufflation testing if undertaking these assessments
- Diagrams, models and web-based resources for explaining dysphagia, exercises and effects of surgery and local and national information on support groups/places where information, financial advice, details of complementary intervention can be accessed

- Equipment used for communication and dysphagia rehabilitation and assessment e.g. biofeedback devices, therapy spoons, specialist dysphagia equipment, measuring cup and syringes, mouth opening rehabilitative devices

The nature of speech and language therapy intervention with the head and neck cancer caseload requires SLTs to have specialist training and competencies in assessment and management of communication and swallowing, including specific skills in working with tracheostomy and laryngectomy. SLTs assess, rehabilitate and advise on: communication, safety of swallowing, swallowing rehabilitation, secretion management, tracheostomy weaning, laryngectomy voice and pulmonary rehabilitation. SLT rehabilitation, assessment, information and support enables psycho-social adjustment to communication and swallowing changes throughout the cancer pathway, including pre-treatment information and prehabilitation e.g pre-radiotherapy swallowing exercises.

Aims of intervention

The specific aims of intervention vary with the location of the cancer and the nature and extent of treatment, and the SLTs will work with an individual and their family as required, including determining their goals for SLT input. This period may be from the individual's referral to end of life; the SLT role includes palliative care such as providing support with quality of life decisions regarding eating and drinking whilst accepting risk of aspiration.

The SLT aims to complete a full assessment of communication, including an assessment of body structure/function and use of communication. SLTs assess the oro-motor and laryngeal motor function, language abilities (both receptive and expressive), sensory abilities (both auditory and visual), speech fluency, voice, cognition including insight and awareness, and para-linguistic abilities (NACT, 2009). SLT swallowing exercise programmes including mouth opening exercises are recommended for people having radiotherapy (NICE, 2016). Effective post-treatment swallowing interventions may be optimised with behavioural change strategies such as practical social support, behavioural practice, self-monitoring of behaviour and a skilled clinician delivering the intervention (Govender et al, 2017). Voice therapy should be considered for those whose voice has changed because of treatment (NICE, 2016). SLTs facilitate different methods of communication post-laryngectomy including mouthing, pseudo voice, gesture, facial expression, oesophageal voice, use of electrolarynx and surgical voice restoration (RCSLT, 2023).

See also **Voice**, **Dysphagia**.

Resources for SLTs

Outcome measures

Patient-reported outcome measures (PROMS) and clinician-reported outcomes measures for speech, voice and swallow should be collected at regular time intervals (e.g. at baseline, 3-6 months post-treatment and 6-12 months post-treatment) and stored in an appropriate system in line with information governance standards (Goff et al, to be published). PROMS inform treatment consequences e.g. swallowing related quality of life measures, that cannot be captured by objective clinician measures alone (Manduchi et al, 2022).

Please note, this list of SLT head and neck outcome measures is not exhaustive, not specifically for head and neck cancer patients and it is up to the clinician to weigh up the validity and clinical utility of these for their own practice:

- **Voice** – GRBAS (Hirano et al, 1991), Voice Handicap Index (Jacobson et al, 1997)
- **Communication** – Speech Handicap Index (Rinkel et al, 2008), PSS (Understandability of Speech, List et al, 1996)
- **Dysphagia** – Functional Oral Intake Scale (Crary et al, 2005), PSS (Normalcy of Diet, Eating in Public, List et al, 1996), 100ml Water Swallow Test (Patterson et al, 2011), MDADI (Chen et al, 2001), Swallowing Quality-of-Life Questionnaire (McHorney et al, 2002), EAT-10 (Belafsky et al, 2008, Sinn et al, 2020)
- **Instrumental assessment** – DIGEST (Hutcheson, 2017), Patterson Oedema Scale (Starmer et al, 2021), Penetration Aspiration Scale (Rosenbek, 1996), New Zealand Secretion Scale (Miles et al, 2019, Miles et al, 2018), Yale Residue Scale (Neubauer, 2015), Modified Barium Swallow Impairment Profile (MBSImP, Martin-Harris et al, 2008)
- **Laryngectomy** – Self-Evaluation of Communication Experiences after Laryngeal Cancer (Blood et al, 1993), Sunderland Tracheoesophageal Voice Perceptual Scale (Hurren et al, 2019), Swallowing Outcomes after Laryngectomy (Govender et al, 2016, Govender et al, 2012), Voice Prosthesis Questionnaire (Kazi et al, 2005 and 2006) and Robillard Schultz-Harrison Tracheoesophageal Puncture Rating Scale (Shultz and Harrison, 1992).
- **Mouth opening** – Maximum Interincisor Opening (mm).

In addition, a number of the TOMS rating scales (Enderby et al, 2013) will be relevant to SLT head and neck cancer outcomes (Crouch, 2014).

Please contact the multicentre Head and Neck Outcome Measures project group via the Head and Neck CEN basecamp if you are interested in participating in national data collection projects.

Service development

The main threats to UK head and neck SLT clinical services include increased patient complexity, delayed diagnosis and reduced access to instrumental procedures and inequitable care provision as a result of disruption to services during the COVID-19 pandemic (Patterson et al, 2020). 63% of patients are now diagnosed with T3 or T4 advanced disease (Cancer Research UK, 2022) which makes treatment more likely to be more extensive or multi-modality and result in poorer functional outcomes for swallowing and communication, requiring more SLT resources and input. However, opportunities include potential for new models of delivery (such as telehealth if suitable), SLT-led community care models, developing patient-led care, collaborative research and broader MDT working, service innovation and extended practice roles for SLTs. A pilot study of an extended SLT role of practice in an ENT SLT-led Two Week Wait clinic for suspected head and neck cancer demonstrated excellent records for cancer screening (Slade and McGlashan, 2019).

Head and neck SLT services work collaboratively with other members of the head and neck MDT. Reid et al (2019)'s project on implementing coordinated care for head and neck patients to receive both dietetic and speech and language therapy intervention during radiotherapy demonstrated benefits to the individual and service in terms of reduced length of stay, recovery from treatment and reduced weight loss. There should be clear pathways for access and re-referral to SLT with excellent communication between central and locality-based services with a robust training and supervision programme for specialist knowledge and skill development and maintenance (Goff et al, to be published, Hancock et al, 2020).

McLachlan et al (2021)'s three-year service evaluation of laryngectomy valve usage in a UK regional head and neck cancer unit is a useful resource for service planning, outlining costing, staff resources and a model of service delivery. Wilson et al (2022) discuss implementation of an MDT enhanced recovery programme for patients undergoing laryngectomy to improve consistency of patient care. The RCSLT resources on service planning and improvement are recommended, including the Resource Manual for Commissioning and Planning Services for SLCN (RCSLT, 2009). Macmillan have developed a Cancer Rehabilitation Service Improvement Tool (Macmillan, 2018).

Research

There are multiple ways for SLTs working in head & neck to participate in research activities. Currently, there are a number of SLTs who are chief or co-investigators on NIHR portfolio studies, including multidisciplinary, multi centre and single centre clinical trials. Examples of these include: PATHOS (Odawally et al, 2015); DARS (Petkar et al, 2016); and SIP SMART (Govender et al, 2020b). More information about these and other studies can be found online at: **www.isrctn.com**,

https://public-odp.nihr.ac.uk.

Several SLTs have also been recipients of individual fellowships available from funders such as NIHR, Wellcome Trust and other charities. These fellowships allow for individuals to progress from research internship level to post-doctoral awards. It is also possible for individuals to participate in others' studies by delivering interventions or collecting outcomes. Involvement of SLTs in clinical research drives improvements in patient care and should be a core part of our services. Dedicated time for research is therefore encouraged and seeking funding may facilitate this. See RCSLT **research** pages.

Innovations

The Covid-19 pandemic has highlighted the rapid changes that can be made in progressing patient care through service innovation. Examples of these include: delivery of care via telehealth, domiciliary care for people after laryngectomy, and the use of non-aerosol generating procedures such as ultrasound in the assessment of swallowing and voice. Post-pandemic, the challenges facing the NHS have also called for innovations in practice, for example use of SLT-led ENT clinics in the two weeks wait cancer pathway.

Alongside innovations, methods for developing new services include the use of co-production (e.g. Point of Care Foundation), Quality Improvement (e.g. Institute for Healthcare Improvement), and audit. These methods may expedite implementation of innovations at site level. SLTs are encouraged to use reliable data and process-mapping to inform and evaluate the development of local innovations.

Developments in head and neck cancer SLT interventions

Patterson and Lawton (2023) is recommended for a review of dysphagia advances in head and neck cancer. The following is a list of some recent developments within SLT interventions for

- **Expiratory Muscle Strength Training** (EMST, Hutcheson et al, 2018).
- **Biofeedback devices** g. surface electromyography (sEMG) with mobile app (Constantinescu et al, 2021), sEMG feedback (Cuicci et al, 2016), Iowa Oral Performance Instrument (IOPI, Lazarus et al, 2014).
- **Cognitive-behavioural therapy combined with swallowing therapy** (Patterson et al, 2018).
- **The McNeil Dysphagia Program** (bolus driven therapy, Crary et al, 2012).
- **Manual therapy** (Hutcheson et al, 2021, Krisciunas et al, 2019, Krisciunas, et al 2016).
- **MD Anderson's 'Swallow Boot camp' approach** (Malandraki and Hutcheson, 2018).

- **Pharyngocise** (Carnaby-Mann et al, 2012).
- **Prehabilitation** (Govender et al, 2020b, Baudelet et al, 2020, Guillen-Sola, 2019, Hajdú, 2019) including virtual coaching (Starmer et al, 2022) and use of apps (Baudelet, 2022, Constantinescu, 2021).
- **Respiratory-swallow training** (Martin Harris et al, 2015).
- **Voice banking** – pretreatment voice banking is becoming increasingly available and should be considered where the person's voice may be affected by treatment (such as for total laryngectomy or glossectomy patients). The **Mouth Cancer Foundation** is funding voice banking for people in the UK at risk of losing their voice through head and neck through their Saving Voices

In addition, there may be future changes to head and neck cancer treatments (with implications for effects on swallowing and communication) as the outcomes of current national and international research trials are analysed. These include Intensity Modulated Radiotherapy (IMRT) or dysphagia optimised IMRT, including the **Dysphagia-Aspiration Related Structures** (DARS) trial, Intensity Modulated Proton Therapy (IMPT) or de-escalation of post-operative adjuvant chemoradiotherapy for oropharyngeal cancer (Goff et al, to be published).

RCSLT Laryngectomy resources

Laryngectomy position paper

The laryngectomy position paper sets out the role of SLTs working in this clinical area and encompasses the following: background and evidence base, training and competencies, procedure and interpretation, health and safety, types of clinics, medico-legal aspects, patient populations and documentation.

Download the Laryngectomy Position Paper (2023) (PDF)

Laryngectomy competency framework

The laryngectomy competency framework reflects guiding principles in laryngectomy care, to ensure safe and best practice for SLTs working in the UK. The competency framework is for practising SLTs. It has been commissioned and written by the RCSLT and is for the use of the SLT profession only. This document does not address training or competency requirements for non-SLT professionals. It is aimed at qualified SLTs adhering to the HCPC guidelines, working with people with laryngectomy within a head and neck cancer caseload and with access to suitable clinical supervision.

Download the Laryngectomy Competency Framework (PDF)

Download the Laryngectomy Competency Framework (Word)

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