The Royal College of Pathologists
Pathology: the science behind the cure

Standards and datasets for reporting cancers

Dataset for the histopathological reporting of nodal excisions and neck dissection specimens

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Comments	This document will, in part, replace the 1st edition of the *Dataset for the histopathological reporting of nodal excisions and neck dissection specimens associated with head and neck carcinomas*, published in November 2013. In accordance with the College's pre-publications policy, this document was on the Royal College of Pathologists' website for consultation from 7 December 2023 to 4 January 2024. Owing to additions to the document (Section 6, Core data items) the document was on the Royal College of Pathologists' website for an additional consultation from 3 February to 3 March 2026. Responses and authors' comments are available to view at www.rcpath.org/profession/publications/documents-in-development.html **Dr Brian Rous and Sarah Davies** **Clinical Leads for Guideline Review**

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Foreword

The cancer datasets published by the Royal College of Pathologists (RCPath) are a combination of textual guidance, educational information and reporting proformas. The datasets enable pathologists to report the most clinically relevant information on cancer specimens, including grade and stage, in a consistent manner, in compliance with international standards and provide prognostic information, thereby allowing clinicians to provide a high standard of care for patients and appropriate management for specific clinical circumstances. This guideline has been developed to cover most common circumstances. However, we recognise that guidelines cannot anticipate every pathological specimen type and clinical scenario. Occasional variation from the practice recommended in this guideline may therefore be required to report a specimen in a way that maximises benefit to the patient.

Each dataset contains core data items (see Appendices C and D) that are mandated for inclusion in the Cancer Outcomes and Services Dataset (COSD – previously the National Cancer Data Set) in England. Core data items are those that are supported by robust published evidence and are required for cancer staging, optimal patient management and prognosis. Core data items are items that are supported by robust published evidence and are required for cancer staging, optimal patient management and prognosis. Core data items meet the requirements of professional standards. It is recommended that at least 95% of reports on cancer resections should record a full set of core data items. Other, non-core, data items are described. These may be included to provide a comprehensive report or to meet local clinical or research requirements. All data items should be clearly defined to allow the unambiguous recording of data.

The following stakeholders were contacted to consult on this document:

- the British Association of Head and Neck Oncologists
- ENT-UK
- the British Association of Oral and Maxillofacial Surgeons
- the UK and Ireland Association of Cancer Registries
- British Society of Oral and Maxillofacial Pathology.

The information used by the authors to develop this dataset was obtained by undertaking a search of the PubMed database for relevant primary research evidence and systematic

reviews on regional lymph node metastasis, neck dissection and sentinel lymph node biopsy (SLNB) in head and neck malignancies from January 2010 to April 2025 (inclusive). Key search terms searched included ‘cervical node metastasis’, ‘neck metastasis’, ‘neck dissection’, ‘lymph node dissection’, ‘sentinel lymph node’, ‘clinical trial’, ‘prognosis’, ‘survival’, ‘surgery’, ‘chemotherapy’ and ‘radiotherapy’. In addition, abstracts from selected conference proceedings from American Society of Clinical Oncology were screened. The recommendations are in line with those of other national pathology organisations (College of American Pathologists, the Royal College of Pathologists of Australasia) and the ENT-UK Consensus document for the management of patients with head and neck malignancies (www.entuk.org/publications).[1] They incorporate the core data items and commentary from the International Collaboration on Cancer Reporting (ICCR).[2] Evidence evaluation is weighted towards upper aerodigestive tract squamous cell carcinoma (SCC), but also takes into consideration publications relating to management of regional lymph nodes in head and neck cutaneous malignancies and head and neck mucosal melanoma, as well as thyroid and salivary cancers. The level of evidence for the recommendations has been summarised according to modified SIGN guidance (see Appendix G) and the grade of evidence is indicated in the text. No major conflicts in the evidence have been identified and minor discrepancies between studies have been resolved by expert consensus. Gaps in the evidence will be identified by College members via feedback received during consultation.

The laboratory handling of SLNB for early-stage oral cavity SCC (OCSCC) incurs significant cost. Input from pathology services during all stages of multidisciplinary business planning is necessary prior to implementing a local SLNB service.[3]

A formal revision cycle for all cancer datasets takes place on a 3-yearly basis. However, each year, the College will ask the authors of the dataset, in conjunction with the relevant sub-specialty adviser to the College, to consider whether the dataset needs to be revised. A full consultation process will be undertaken if major revisions are required, i.e. revisions to core data items (the only exception being changes to international tumour grading and staging schemes that have been approved by the Specialty Advisory Committee on Cellular Pathology and affiliated professional bodies; these changes will be implemented without further consultation). If minor revisions or changes to non-core data items are required, an abridged consultation process will be undertaken, whereby a short note of the proposed changes will be placed on the College website for 2 weeks for Fellows’ attention. If members do not object to the changes, the short notice of change will be incorporated

into the dataset and the full revised version (incorporating the changes) will replace the existing version on the College website.

The dataset has been reviewed by the Professional Guidelines team, Working Group on Cancer Services and members of the Lay Advisory Group and was placed on the College website for consultation with the membership from 7 December 2023 to 4 January 2024. Following changes to the document (see pages Section 6 Core data items), it was placed on the College website for an additional consultation from 3 February to 3 March 2026. All comments received from the Working Group and membership were addressed by the author to the satisfaction of the Chair of the Working Group and the Clinical Lead for Guideline Adjudication.

This dataset was developed without external funding to the writing group. No major organisational changes or cost implications have been identified that would hinder the implementation of the dataset. The College requires the authors of datasets to provide a list of potential conflicts of interest; these are monitored by the Professional Guidelines team and are available on request.

Abbreviations, alphabetical order	
American Joint Committee on Cancer	AJCC
Cancer Outcomes and Services Dataset	COSD
Epstein-Barr Virus	EBV
Extra-nodal extension	ENE
Human papillomavirus	HPV
International Collaboration on Cancer Reporting	ICCR
Isolated tumour cells	ITCs
National Cancer Intelligence Network	NCIN
Neuroendocrine carcinoma	NEC
Neuroendocrine tumour	NET
Nasopharyngeal carcinoma	NPC
Oral cavity squamous cell carcinoma	OCSCC
Sentinel European Node Trial	SENT
Sentinel lymph node biopsy	SLNB
Tumour, Node, Metastasis	TNM
Union for International Cancer Control	UICC

1 Introduction

The dataset has been developed for the reporting of lymph node dissection specimens for carcinoma and melanoma of the head and neck. Lymph node biopsies and nodal excisions for lymphomas and sarcomas are beyond the scope of this dataset. While SLNB for melanoma and Merkel cell carcinoma are established procedures, any reference to SLNB in this dataset only relates to SCC of the oral cavity.

The primary purpose of this document is twofold:

- to define the set of data necessary for the uniform recording and staging of the core pathological features in lymph node dissections and SLNB for head and neck tumour resections
- to describe its application in sufficient detail and clarity so that reports from different departments will contain equivalent information, allowing comparison of clinical practice and outcomes.

Certain features of metastases to the regional lymph nodes are strong predictors of clinical outcome.[4–14] These features may be important in:

- deciding the most appropriate treatment for individual patients, including the extent of surgery and adjuvant treatment regimes
- monitoring epidemiological changing patterns of disease; the core data items are incorporated into the COSD and are collected for epidemiological analysis by Cancer Registries on behalf of the National Cancer Intelligence Network (NCIN)
- providing sufficiently accurate pathological information that can be used in conjunction with clinical data for the patient to be given a prognosis
- allowing the accurate and equitable comparison of surgeons in different surgical units
- identifying good surgical and histopathology practice
- comparing patient outcomes in clinical trials.

1.1 Design of this protocol

The College recognises the authority of internationally accepted guidance documents (e.g. WHO, AJCC/UICC TNM and ICCR) and, to promote consistent reporting practice, adopts the recommendations of these organisations. This structured reporting protocol has been

developed using the framework and data items specified in the ICCR *Dataset for the reporting of nodal excisions and neck dissection specimens for head and neck tumours* (published in 2024).[15] This protocol includes all the ICCR cancer dataset elements as well as additional information, elements and commentary. Core references have been updated to include relevant new information from 2018 to 2025.

ICCR dataset elements for these cancers have been included verbatim and are indicated by the blue ICCR logo. ICCR core elements are mandatory, form part of the COSD data and are therefore represented as standards in this document. ICCR (and RCPath) non-core elements are recommended and may be included as guidelines or used routinely according to local practice.

These guidelines are presented as a proforma that lists the core data items that may be applied across the head and neck region. The proforma may be used as the main reporting format or may be combined with free text as required. Individual centres may wish to expand the detail in some sections to facilitate the recording of the data for particular tumour types.

1.2 Target users and health benefits of this guideline

The dataset is primarily intended to be used by consultant and trainee pathologists when reporting neck dissection specimens. Surgeons and oncologists may refer to the dataset when interpreting histopathology reports and core data should be available at multidisciplinary meetings to inform discussions on the management of head and neck cancer patients.

1.3 Changes since the second edition

The first edition of this dataset (November 2013) incorporated neck dissection specimens. In this revision, the guidance has been revised to include recent recommendations evidence supporting the inclusion of specific data items, including adoption of the 9th edition of the AJCC and UICC TNM classification and categorisation of extranodal extension (ENE) into major (ENE_{ma}) and minor (ENE_{mi}) forms.[16–18]

Block identification key has been added as a non-core item, in line with the ICCR. While margin status is listed as a core item in the ICCR, it is now included as a non-core item in the current dataset. Lymph node ratio is neither a core nor a non-core item in the ICCR dataset but is listed here a non-core item, the evidence base of which is detailed in section 8.4.

The current edition also contains a section detailing the laboratory handling and reporting of SLNB for OCSCCs with supporting evidence.

The strength of the basis in published evidence for the recommended core data items has been reviewed (see Appendix E). The primary reasons for inclusion of core data are the need for accurate classification and staging and the desire to predict those carcinomas that are likely to recur at nodal sites so that appropriate surveillance, surgery, radiotherapy and/or chemotherapy can be delivered to mitigate the effects of recurrence. The UICC TNM staging, in isolation, does not provide sufficient information for management and prognosis and additional factors need to be considered.[17]

1.4 Key changes from previous guideline

Key changes made from the previous guideline are outlined in the table below:

Section	Explanation
SLNB (sections 3.4, 5.1.6 and 7.6)	The current edition of this dataset provides standards for the reporting of SLNB, since this procedure is recommended by several authorities as part of the management of cT1-2 cN0 OCSCC.[19,20] SLNB status is a non-core item.
Block identification key (sections 5.1.4 and 7.4)	Block identification key is important when internal or external histopathological review is required. It also facilitates retrieval of blocks for further ancillary studies for diagnostic, research and/or clinical trials. Block identification key is a non-core item.
ENE category (section 6.5)	ENE is a determinant for staging in TNM8 and TNM9, and is therefore included as a core item in this dataset.
Lymph node ratio (section 7.3)	Lymph node ratio (the ratio of positive lymph nodes to the total lymph node yield) provides greater prognostic utility compared to the absolute number of positive lymph nodes.[5,8–10,21] Lymph node ratio is a non-core item.

2 Terminology

2.1 Terminology of node groups

The best-known classification of lymph node groups in the neck is the so-called Robbins' classification, originally proposed by the American Academy of Otolaryngology – Head and Neck Surgery,[22] in which the lymph node basins of the neck are divided into levels I to VI, as per the anatomical boundaries described further below and illustrated in Figure 1.

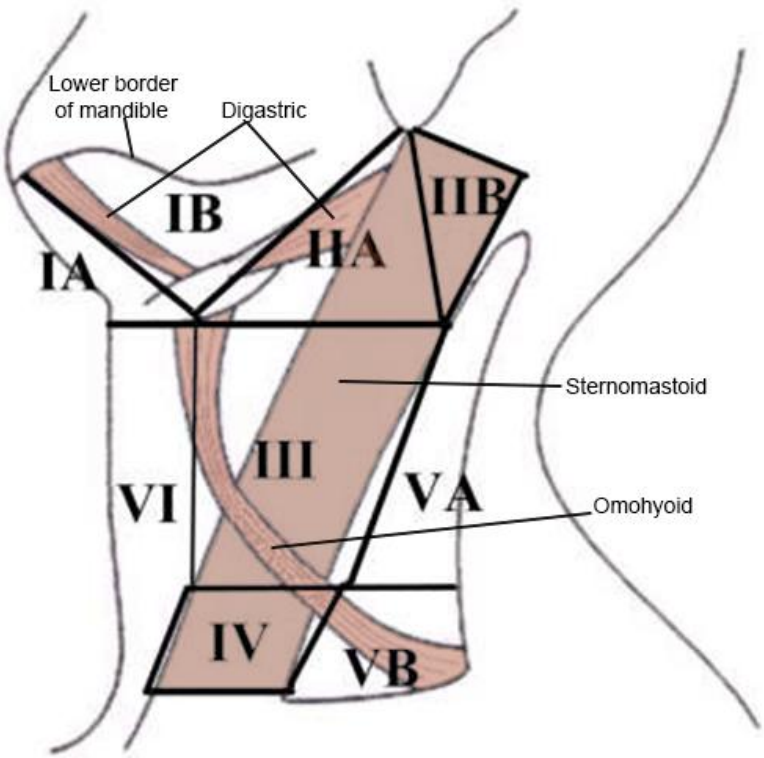

Figure 1: Diagrammatic representation of lymph node levels in the neck.

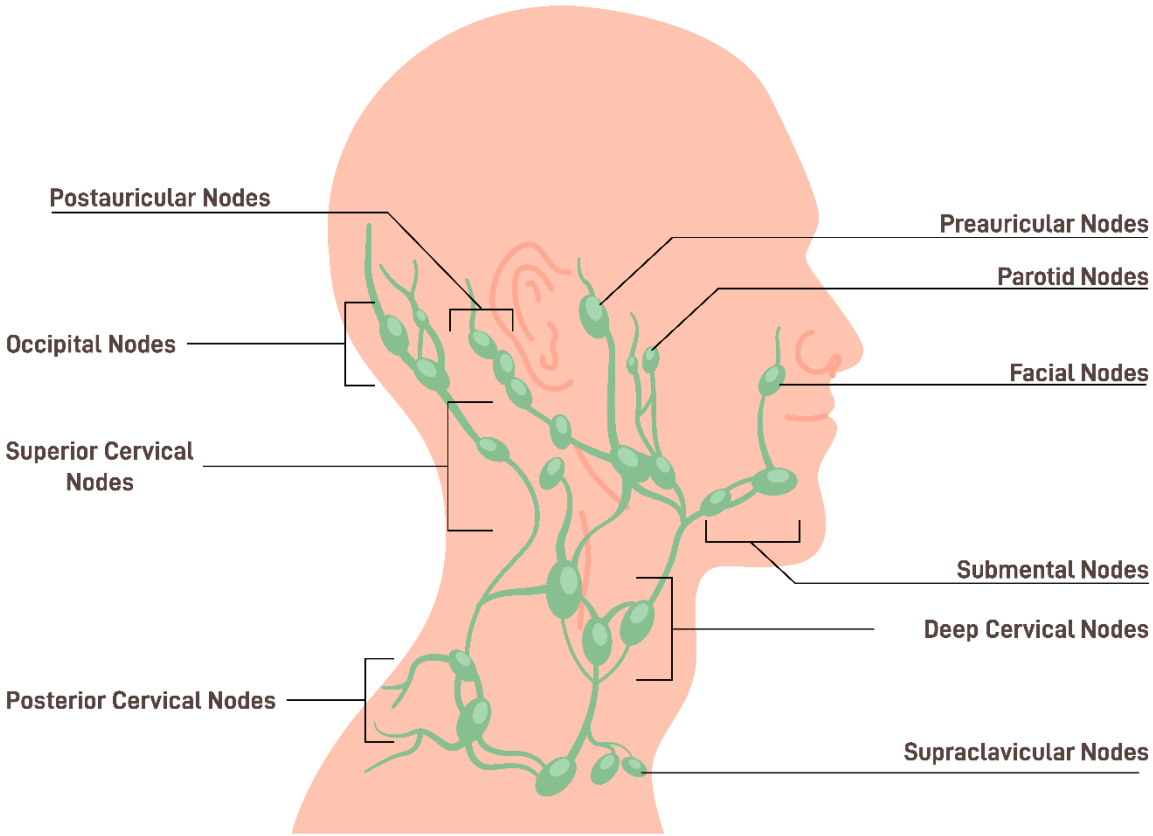

Figure 2: Head and neck lymph node groups of the facial and superior cervical area, demonstrating the pre- and post-auricular, occipital, parotid, facial, submental, superior cervical, deep cervical, posterior cervical and supraclavicular nodal groups. Note that the facial, supraclavicular and parotid groups are not part of the neck levels.

This classification only includes lymph nodes commonly removed during neck dissection procedures; therefore, it does not include all the head and neck node groups such as the facial nodes. Level VII (the superior mediastinal lymph node compartment) is included in the illustration for completeness but, except for thyroid cancer, it is rarely involved by head and neck cancer. Additional node groups described in the TNM atlas terminology not included in the levels listed below are retropharyngeal, parotid, bucco-facial and retroauricular groups (Figure 2).[17] Further subdivisions of several node levels, based on specific anatomical landmarks, have clinical significance because they tend to be involved preferentially by tumours of specific primary sites. For instance, level IIB is more commonly involved by primary tumours of the oropharynx or nasopharynx, than by primaries of the oral cavity, hypopharynx or larynx.[23]

The boundaries of the lymph node groups found within the levels and sublevels of the neck are as follows.

2.1.1 Submental (sublevel IA)

Lymph nodes within the triangular boundary of the anterior belly of the digastric muscles and the hyoid bone. These nodes are at the greatest risk for harbouring metastases from cancers arising from the floor of the mouth, anterior oral tongue, anterior mandibular alveolar ridge and lower lip.

2.1.2 Submandibular (sublevel IB)

Lymph nodes within the boundaries of the anterior belly of the digastric muscle, the stylohyoid muscle and the body of the mandible. It includes the pre-glandular and the post-glandular nodes, and the pre-vascular and post-vascular nodes. The submandibular gland is included in the specimen when the lymph nodes within the triangle are removed. These nodes are at the greatest risk for harbouring metastases from cancers arising from the oral cavity, anterior nasal cavity, soft tissue structures of the midface and submandibular gland.

2.1.3 Upper jugular (level II, including sublevels IIA and IIB)

Lymph nodes located around the upper third of the internal jugular vein and adjacent spinal accessory nerve extending from the level of the skull base (above) to the level of the inferior border of the hyoid bone (below). The anterior (medial) boundary is the stylohyoid muscle (the radiologic correlate is the vertical plane defined by the posterior surface of the submandibular gland) and the posterior (lateral) boundary is the posterior border of the sternocleidomastoid muscle. Sublevel IIA nodes are located anterior (medial) to the vertical plane defined by the spinal accessory nerve. Sublevel IIB nodes are located

posterior (lateral) to the vertical plane defined by the spinal accessory nerve. The upper jugular nodes are at the greatest risk for harbouring metastases from cancers arising from the oral cavity, nasal cavity, nasopharynx, oropharynx, hypopharynx, larynx and parotid gland.

2.1.4 Middle jugular (level III)

Lymph nodes located around the middle third of the internal jugular vein extending from the inferior border of the hyoid bone (above) to the inferior border of the cricoid cartilage (below). The anterior (medial) boundary is the lateral border of the sternohyoid muscle, and the posterior (lateral) boundary is the posterior border of the sternocleidomastoid muscle. These nodes are at the greatest risk for harbouring metastases from cancers arising from the oral cavity, nasopharynx, oropharynx, hypopharynx and larynx.

2.1.5 Lower jugular (level IV)

Lymph nodes located around the lower third of the internal jugular vein extending from the inferior border of the cricoid cartilage (above) to the clavicle below. The anterior (medial) boundary is the lateral border of the sternohyoid muscle, and the posterior (lateral) boundary is the posterior border of the sternocleidomastoid muscle. The point at which the omohyoid muscle crosses deep to the sternocleidomastoid muscle is a useful landmark that separates levels III and IV. These nodes are at the greatest risk for harbouring metastases from cancers arising from the hypopharynx, thyroid, cervical oesophagus and larynx.

2.1.6 Posterior triangle group (includes sublevels VA and VB)

The group is composed predominantly of the lymph nodes located along the lower half of the spinal accessory nerve and the transverse cervical artery. The supraclavicular nodes are also included in posterior triangle group. The superior boundary is the apex formed by convergence of the sternocleidomastoid and trapezius muscles; the inferior boundary is the clavicle; the anterior (medial) boundary is the posterior border of the sternocleidomastoid muscle; and the posterior (lateral) boundary is the anterior border of the trapezius muscle. Sublevel VA is separated from sublevel VB by a horizontal plane that marks the inferior border of the anterior cricoid arch. Thus, sublevel VA includes the spinal accessory nodes, whereas sublevel VB includes the nodes following the transverse cervical vessels and the supraclavicular nodes with the exception of the Virchow node, which is located in level IV. The posterior triangle nodes are at the greatest risk for

harbouring metastases from cancers arising from the nasopharynx, oropharynx and cutaneous structures of the posterior scalp and neck.

2.1.7 Anterior compartment group (level VI)

Lymph nodes in this compartment include the pretracheal and paratracheal nodes, precricoid (Delphian) node and the perithyroidal nodes, including the lymph nodes along the recurrent laryngeal nerves. The superior boundary is the hyoid bone, the inferior boundary is the suprasternal notch and the lateral boundaries are the common carotid arteries. These nodes are at the greatest risk for harbouring metastases from cancers arising from the thyroid gland, glottic and subglottic larynx, apex of the piriform sinus and cervical oesophagus.

2.1.8 Superior mediastinal (level VII)

Lymph nodes in this group include pretracheal, paratracheal and oesophageal groove lymph nodes, extending from the level of suprasternal notch cephalad and up to the innominate artery caudad. These nodes are at greatest risk of involvement by thyroid cancer and cancer of the oesophagus.

2.2 Terminology of neck dissection specimens

The most widely used classification of neck dissection procedures is based on the original system proposed by the Committee for Head and Neck Surgery and Oncology of the American Academy of Otolaryngology – Head and Neck Surgery, which has undergone several revisions.[22,24–26] The classification includes 4 basic procedures: radical neck dissection, modified radical neck dissection, extended neck dissection and selective neck dissection.

2.2.1 Radical neck dissection

A radical neck dissection involves removal of levels I–V, as well the sternocleidomastoid muscle, spinal accessory nerve and internal jugular vein.

2.2.2 Modified radical neck dissection

A modified radical neck dissection spares at least 1 of the following structures: sternocleidomastoid muscle, spinal accessory nerve and internal jugular vein.

2.2.3 Extended neck dissection

An extended neck dissection involves removal of additional lymph nodes groups (e.g. levels VI and VII) or non-lymphatic structures, beyond those removed as part of a radical neck dissection.

2.2.4 Selective neck dissection

This involves removal of the nodal group(s) considered to be the most likely site for metastasis, preserving 1 or more nodal groups that are typically removed in a radical dissection. A selective neck dissection is a more limited procedure, in which 1 or more of the level I to V lymph node groups are spared, typically for malignancies of specific locations and with no or limited clinical evidence of lymph node involvement (N0 or N1).[1]

The subtypes of selective neck dissection are:

- supraomohyoid neck dissection, which refers to removal of levels I to III and is commonly performed for tumours of the oral cavity. Lateral neck dissection refers to removal of levels II to IV, performed for tumours of the larynx, oropharynx and hypopharynx. Posterolateral neck dissection refers to removal of levels II to V, for example for skin malignancies of the posterior scalp or upper, posterolateral neck.
- central or anterior compartment neck dissection removes level VI nodes (pretracheal, paratracheal, precricoid/Delphian and perithyroidal nodes) and is most commonly performed during surgery for thyroid carcinoma. Level VI lymph nodes are uncommonly received as neck dissections for head and neck skin or mucosal malignancies, but these nodes may be involved by primary cancers of the larynx or hypopharynx. Superior mediastinal nodes (level VII) may also be removed in central neck dissections, particularly for thyroid cancer.

2.2.5 Comprehensive neck dissection

The term comprehensive neck dissection refers to any neck dissection in which all nodes in levels I to V are removed and, therefore, it includes radical, modified radical and extended neck dissections.

3 Pathology request form

Optimal reporting of specimens from the head and neck area requires a partnership between the pathologist and surgeon/oncologist. The surgeon can help the pathologist to provide the information necessary for patient management by the appropriate handling

and labelling of the specimen in the operating theatre. The regular discussion of cases at clinicopathological or multidisciplinary team meetings and correlation with pre-operative imaging studies are important in maintaining and developing this partnership.

3.1 Patient demographic data

The request form should include patient demographic data, which includes:

- the patient's name
- date of birth
- sex
- hospital and NHS/CHI number (where appropriate), or other patient identification number.

3.2 Clinical information

Clinical information should include:

- the duration of symptoms
- details of the surgery and whether the intent is curative, salvage or palliative
- details of previous histopathology and cytopathology reports
- site, laterality and histological type of the primary tumour
- clinical TNM stage (for correlation with pathological findings)
- a history of previous biopsy, resection, radiotherapy, chemotherapy, targeted or immunotherapy should be included as this may influence the interpretation of the histological changes and should prompt a comment on the extent of any response to treatment
- if metastasis is expected or suspected, the node group/level, size of the metastasis and clinical ENE status should be stated
- whether the patient is currently enrolled in a clinical trial (give details of the trial).

3.3 Specimen details

Specimen details should include:

- the name of the clinician requesting the investigation

- the date and time of the operation
- the date and time at which the specimen was fixed
- the date and time the specimen was received in the laboratory
- laterality (right, left or bilateral)
- type of neck dissection. As the terminology applied to modified operations is potentially confusing, neck dissections should be described by specifying which node groups and non-lymphatic structures have been dissected and the relevant non-lymphatic structures that have been preserved or removed. To avoid misinterpretation, it is recommended that neck dissections should include:[24]
  - the levels and/or sublevels removed, e.g. I–III, II–IV
  - in functional neck dissections, any non-lymphatic structures removed, e.g. sternocleidomastoid muscle, internal jugular vein, submandibular gland.
- the request form should include the opportunity for surgeons to provide annotated diagrams of specimens, either as free-hand drawings or on standard diagrams. Macroscopic photographs of the specimen annotated by the surgical team may be used as an alternative to diagrams.

3.4 Sentinel lymph node biopsies

The following only apply to cT1-2 SCC of the oral cavity. For sentinel lymph node biopsies, the following information should be provided for each node:

- site and laterality of the primary tumour; the greatest dimension, depth and pattern of invasion, and the presence/absence of perineural and lymphovascular invasion of the primary carcinoma should be included, if known[27]
- laterality
- anatomical neck level; if more than 1 sentinel lymph node is removed from the same level, the nodes should be clearly distinguished
- the size of the lymph node as measured peri-operatively
- the intra-operative nodal and background scintigraphy counts
- if non-sentinel lymph nodes are submitted, these should be clearly distinguished from sentinel nodes

- any lymph node with a scintigraphy count 10 times that of the background may be considered a sentinel node. The average number of sentinel lymph nodes per procedure is between 3–4.[2] For midline tumours, up to 8 sentinel nodes may be submitted per procedure and scintigraphy counts may allow for prioritisation of the laboratory processing.[28] An example of a sentinel lymph node request form is provided in Appendix D.

4 Receipt and preparation of specimens prior to sampling

Neck dissections should be orientated by the surgeon and should be pinned or sutured to an appropriate mount (e.g. cork board, polystyrene block, foam sponge, KliniTray). The surgeon should indicate surgically critical margins using metal tags or sutures, and identify the boundaries between adjacent neck levels by placing markers such as metal tags or sutures at the centre of each anatomical group. Fixation is in neutral buffered formalin for 24–48 hours in a container of adequate size (the volume of fixative should be 10 times that of the tissue). Resection specimens identified as a biohazard risk should be fixed for at least 48 hours (e.g. HIV, tuberculosis). If tissue is sent fresh from theatres, this should reach the pathology laboratory promptly. Photography of the specimen may be used to record the extent of the disease and the sites from which tissue blocks are selected (see also Section 8.5).

A practical alternative for selective dissections is for the surgeon to separate the node groups, mark the superior margin of each group with a suture and place each group in a separately labelled container. Nodes in addition to the main groups, e.g. parapharyngeal nodes, should be sent as separate specimens.

[Level of evidence – GPP.]

5 Specimen handling and block selection

The specimen handling and preparation protocol described below is based on contemporary practice and should be regarded as a guide only; it may require modifying in individual cases. A detailed dissection protocol is beyond the scope of these guidelines, but a summary of dissection methods and block selection is included to facilitate recording

of the core data items. Greater detail can be found in the relevant sections of the RCPath *Tissue pathways for head and neck pathology*.[29]

It is frequently not possible to accurately subdivide the anatomical levels of the neck ex vivo, since the structural landmarks may not be part of the specimen. Therefore, accurate anatomical level subdivision of the neck dissection specimen should be undertaken by the surgical team prior to receipt in the histopathology laboratory. Knowledge of current radiological imaging or reports may inform the approach to specimen sampling and block selection. For example, the radiology report may mention the neck levels where metastases are expected, matted lymph nodes, ENE or involvement of extranodal structures, all of which should be correlated with macroscopic and microscopic findings.

ICCR notes

Correct submission of neck dissection specimens is required to obtain the most accurate and clinically useful information. The number of lymph nodes obtained in a neck dissection specimen can be used as a quality metric that is associated with loco-regional recurrence and overall survival in patients with head and neck cancer.[30]

5.1 Specimen dissection, selection and recording of blocks for histology for neck dissection specimens

5.1.1 Overall assessment, identification and description of component structures

From the outer aspect: if included in the specimen, the submandibular salivary gland, the sternocleidomastoid muscle, the omohyoid muscle, the external jugular vein, the spinal accessory nerve, the tail of the parotid gland may be identified. Some dissections may include skin or other structures such as the stylohyoid and digastric muscles. From the deep aspect, identify the internal jugular vein. Care should be given to avoid transecting the tumour during separation of the neck dissection from the main specimen. The points of separation on the main specimen and neck dissection should be inked.

Most neck dissections without lymph node involvement or with limited involvement (in which nodes are freely mobile and not matted or grossly involving non-lymphatic structures) will not need to be inked. However, as margin assessment is recommended, specimens with large tumour deposits, particularly in which ENE is considered likely, should be inked (at least surrounding the mass itself). Known or suspected margins of interest may be inked with an appropriate dye to facilitate the later recording of the proximity of tumour to the margin.

It is important to identify if the patient has been enrolled in a clinical trial before starting to undertake a macroscopic examination of the tumour and the selection of blocks, as the clinical trial protocol may dictate specific requirements in this regard.

5.1.2 Lymph node identification

Lymph nodes are identified by inspection and palpation around the vein, and around the submandibular gland and adipose tissue of the anterior and posterior triangles and assigned to the appropriate anatomical level. Each discrete node is dissected out with attached pericapsular adipose tissue. Grossly negative lymph nodes should be submitted in toto. Nodes 5 mm or more should be bisected through the hilum or multisected to give tissue sections of 2−3 mm thickness. Grossly involved lymph node and soft tissue metastases need not be submitted in toto, but 1 section per cm in greatest dimension is a reasonable approach. Sections should focus on potential areas of ENE, involvement of non-lymphatic structures and the margin. More than 1 piece of tissue can be processed in a cassette provided slices from the same lymph node are readily identifiable. If there is obvious metastatic tumour, the slice(s) with the most extensive tumour should be processed, together with perinodal tissues to show the extent of ENE. For lymph node dissection specimens, it is important to record the macroscopic dimensions of the tumour deposit, the closest margins and any gross invasion of muscle, nerve or vessel wall. If the node appears negative, all slices should be processed. Several small nodes (from the same anatomical level) may be processed in the same cassette. A single haematoxylin and eosin-stained section from each block is usually sufficient for routine assessment.

Some centres may receive each anatomical level of the neck dissection as separate specimens. In these circumstances, lymph nodes may be dissected as described above or the specimen may be bisected or serially sliced and submitted in their entirety.

In previously irradiated necks surgically removed as part of a salvage procedure, consideration may be given to serially slicing the fixed specimen and submission of the entire specimen for embedding. Careful macroscopic description, with an estimate of the number of nodes in each anatomical level, is recommended. Care should be taken at dissection and microscopy not to double count nodes that are present across multiple slices or blocks.

ICCR notes

Several points regarding submission of neck dissection specimens are emphasised, as follows:

- inking of neck dissection specimens. Most neck dissections without lymph node involvement or with limited involvement (in which nodes are freely mobile and not matted or grossly involving non-lymphatic structures), will not need to be inked. However, as margin assessment is recommended, specimens with large tumour deposits, in which ENE is considered likely, should be inked.
- grossly negative lymph nodes should be submitted in toto. Nodes 5 mm or more should be bisected or multisected to give tissue sections of 2–3 mm thickness. Grossly involved lymph node and soft tissue metastases need not be submitted in toto, but 1 section per centimetre (10 mm) in greatest dimension is a reasonable approach. Sections should focus on potential areas of ENE, involvement of non-lymphatic structures, and the margin.
- careful gross examination is required when attempting to estimate the number of lymph nodes involved by a soft tissue mass or matted group of lymph nodes. When submitting lymph nodes that cannot be removed from the surrounding tissue (e.g. parotidectomy specimens), care should be taken not to 'double count' nodes that may be bisected and presented in 2 cassettes. An estimate of the number of nodes in each section is recommended. In general, the gross estimate of the number of lymph nodes is most accurate, except when tissue originally designated as node is clearly another tissue (e.g. parathyroid gland).

5.1.3 Lymph node yield

Lymph node yield corresponds to prognosis. Nodal yield varies according to specimen type. For example, in previously unirradiated necks, a radical neck dissection usually yields an average of 20 nodes (range 10−30, although on occasion 50−100 nodes may be identified), whereas a selective neck dissection normally contains 18 or more nodes. The recommended nodal yield should be ≥18 per previously unirradiated neck dissection specimen. It is expected that all palpable nodes greater than 3 mm in diameter should be sampled.[31–35]

UICC TNM9 states that, for oral cavity, HPV-independent oropharyngeal, laryngeal, nasal cavity and paranasal sinuses primaries, and carcinomas of unknown primary, selective neck dissections should contain ≥6 lymph nodes, whereas radical and modified radical neck dissections should contain ≥15 lymph nodes. For salivary primaries, selective neck dissections should contain ≥10 lymph nodes, whereas radical and modified radical neck

dissections should contain ≥15 lymph nodes. Nodal dissections for mucosal malignant melanoma should contain ≥6 lymph nodes.[16]

5.1.4 Block identification key

As part of the macroscopic description and overall finalised report, a detailed block key should be provided. This may be important in the instance of a further internal or external review or if block retrieval for additional testing (immunohistochemical or molecular), clinical trials or research studies is required. A photograph of the specimen, especially in the case of orientated specimens, may also be used to illustrate the site of block selection.

5.1.5 Other blocks for histology

The submandibular gland, internal jugular vein and sternocleidomastoid muscle should be sampled if there is macroscopic suspicion of tumour involvement. The submandibular gland may also be involved by direct spread from the primary tumour or in cases of high neck node burden with ENE.[36]

5.1.6 Sentinel lymph nodes

There is currently no agreed consensus protocol for the handling of laboratory handling and processing of sentinel lymph nodes from OCSCC. Protocols for other tumour sites, such as breast and melanoma, are not directly applicable to the head and neck. Serial step sections with immunohistochemistry improves diagnostic accuracy. The following briefly describes the protocol utilised in the multicentre Sentinel European Node Trial (SENT) that has been adopted by most UK centres.

- Sentinel lymph nodes <3 mm thickness are submitted whole. Those between 3−6 mm are hemisected along the hilum and nodes >6 mm are sliced into 3 mm pieces in the plane of the hilum.
- Following shallow trimming, 4 serial step sections are obtained, 1 of which is stained for H&E. If carcinoma is detected, no further laboratory procedure is required for this lymph node.
- If no carcinoma is detected in the index H&E section, 125 µm of the paraffin block is trimmed and discarded. Then, 4 serial sections are obtained, 1 of which is immunohistochemically stained for pan-cytokeratin (e.g. AE1/AE3). This process is repeated until all tissue within the block is exhausted. The remaining 3 unstained sections at each 125 µm interval provide spare material should further ancillary staining be required.

Some centres utilise modifications of the above protocol, including limiting the procedure to 4–6 serial step sections. There are currently no studies comparing the clinical efficacy of different laboratory protocols. Therefore, all centres providing a SLNB service should be subjected to regular audit to assess the sensitivity of the technique against clinical outcomes.

6 Core data items

We have set out to use the ICCR dataset in its current form, with appropriate qualifications and clarifications for implementation in UK clinical practice. In addition to the main dataset items, as outlined below, demographic and clinical data should be collected, as per the ICCR dataset. This includes the patient's name, date of birth, sex, hospital and NHS/CHI number (where appropriate), or other patient identification number. It is also recommended to include information regarding any previous surgery, chemotherapy, radiotherapy, targeted or immunotherapy.

6.1 Specimens submitted

1 ICCR	**Descriptor**	**Core/Non-core**	**Responses**
	Specimens submitted	Core	Multi selection value list (select all that apply): Right • Lymph nodes – Not specified – Submental (IA) – Submandibular (IB) – Upper jugular (II) – Middle jugular (III) – Lower jugular (IV) – Posterior triangle (V) – Retropharyngeal – Parotid/periparotid – Perifacial – Other, specify • Non-lymphoid tissue • Nerve • Muscle • Vein • Salivary gland • Other, specify

			Left • Lymph nodes – Not specified – Submental (IA) – Submandibular (IB) – Upper jugular (II) – Middle jugular (III) – Lower jugular (IV) – Posterior triangle (V) – Retropharyngeal – Parotid/periparotid – Perifacial – Other, specify • Non-lymphoid tissue • Nerve • Muscle • Vein • Salivary gland • Other, specify Central compartment (VI +/- VII) • Non-lymphoid tissue • Thymus • Parathyroid • Other, specify

Specimens submitted commentary

This section provides a listing of all lymph node groups and the associated non-lymphoid tissue received as part of a single surgery and should correlate with the 'operative procedure' designation. Accurate identification of the lymph node levels requires orientation of the specimen(s) by the surgeon, either with the use of sutures, a diagram, or by submitting each level in a separate specimen container. In cases in which orientation is not possible, it is recommended to review the specimen with the surgeon prior to gross submission of the lymph nodes. The designation of non-lymphoid tissue is non-specific, but more accurate naming of these tissues is desirable, when possible.

The lymph node groups may be received as multiple specimens from a single operative procedure. It is of benefit to combine the node findings from multiple specimens into one comprehensive report. If a patient is known to have had a prior lymph node excisional biopsy (for example, for diagnostic purposes), a comment to this effect is suggested. The result should be considered in the pN category assigned, with reference to the surgical pathology report number, when possible.

RCPath comments

If submitted together, non-sentinel should be clearly distinguished from sentinel nodes.

[Level of evidence – GPP.]

6.2 Histological tumour type

2 ICCR	Descriptor	Core/Non-core	Responses
	Histological tumour type	Core	Multi selection value list (select all that apply): • Not specified/Not known • Known (e.g. oral cavity, larynx), specify SCC • SCC, conventional • HPV-associated oropharyngeal carcinoma • Basaloid SCC • Papillary SCC • Spindle cell squamous carcinoma (sarcomatoid carcinoma) • Adenosquamous cell carcinoma • Acantholytic SCC • Undifferentiated (lymphoepithelial) carcinoma Salivary gland carcinoma • Mucoepidermoid carcinoma • Adenoid cystic carcinoma • Acinic cell carcinoma • Secretory carcinoma • Microsecretory adenocarcinoma • Polymorphous adenocarcinoma • Hyalinising clear cell carcinoma • Basal cell adenocarcinoma • Intraductal carcinoma • Salivary duct carcinoma • Myoepithelial carcinoma • Epithelial–myoepithelial carcinoma • Mucinous adenocarcinoma • Sclerosing microcystic adenocarcinoma • Carcinoma ex pleomorphic adenoma • Carcinosarcoma of the salivary glands • Sebaceous adenocarcinoma • Lymphoepithelial carcinoma • SCC • Sialoblastoma • Salivary gland carcinoma NOS

			Neuroendocrine neoplasm (single selection value list): • Neuroendocrine tumour (NET) • Neuroendocrine Carcinoma (NEC) – Small cell – Large cell Mucosal melanoma NPC (single selection value list): • SCC, keratinising • SCC, non-keratinising, differentiated • SCC, non- keratinising, undifferentiated • SCC, basaloid Nasopharyngeal papillary adenocarcinoma Other (e.g. primary adnexal skin cancers), specify type

Histological tumour type commentary

Primary tumour site is a core item as it is relevant to both treatment and prognosis. Identification of the histological tumour type is crucial for several reasons, including: 1) confirmation that a metastasis is of the same type as the resected primary tumour, 2) facilitating a clinical search in cases of unknown primary tumours, 3) determining the correct T and N categories, and 4) guiding treatment, which varies by tumour type and lymph node status.

Histological type is typically determined from the histology at the primary site, but this is not possible for tumours of unknown origin. Tissue from a neck metastasis may be required for ancillary testing (e.g. p16 immunohistochemistry [followed by HPV-specific testing if positive][37] or in situ hybridisation for Epstein-Barr virus [EBV] encoded RNA/EBER). For patients with occult primary SCC in level II or III, the cN or pN categories are influenced by EBV and HPV status.[38] EBV-associated and HPV-associated carcinomas are given the N category that applies to nasopharyngeal and HPV-associated oropharyngeal carcinomas, respectively.

Verrucous carcinoma and carcinoma cuniculatum are not included in the above list of SCC subtypes, as they are not considered SCC subtypes in the WHO Classification and they have no capacity to metastasise to lymph nodes.

The classification system for neuroendocrine neoplasms (subdivided into tumours and carcinomas) is included, as per the most recent edition of the WHO Classification of Head and Neck Tumours, 5th edition, 2024.[39]

RCPath comments

Due to the suboptimal specificity of p16 immunohistochemistry as a surrogate marker for high-risk HPV, the College recommends that HPV-specific testing should be performed on all p16 positive metastatic SCC.[37]

[Level of evidence – A. Histological tumour type is a prognostic indicator.]

6.3 Histological tumour grade

3 ICCR	Descriptor	Core/Non-core	Responses
	Histological tumour grade	Core	Single selection value list: • Not applicable • Grade 1, well differentiated, low grade • Grade 2, moderately differentiated, intermediate grade • Grade 3, poorly differentiated, high grade • Undifferentiated • High grade transformation Salivary gland carcinoma • Mucoepidermoid carcinoma (single selection value list): – Low grade mucoepidermoid carcinoma – Intermediate grade mucoepidermoid carcinoma – High grade mucoepidermoid carcinoma • Adenoid cystic carcinoma (single selection value list): – Tubular/cribriform pattern predominant – Solid pattern >30% • Polymorphous adenocarcinoma (single selection value list): – Classic – Grade, specify – Cribriform • Intraductal carcinoma (single selection value list): – Low grade – High grade Grading system used • Specify Cannot be assessed • Specify

Histological tumour grade commentary

When possible, tumour grade should be determined from the primary tumour, not from a metastasis. Some tumours are high grade or undifferentiated by definition (e.g. non-keratinising NPC), while others do not require grading because behaviour is defined by pathogenesis and is not apparently influenced by morphology (e.g. HPV-associated oropharyngeal carcinoma). For most malignancies, the WHO grading system is most practical and widely utilised. Still, several grading systems are available for many tumours (e.g. mucoepidermoid carcinoma), with differing merits and, as such, recording which system has been applied is more clinically meaningful (use 'specify' to state system used).

RCPath comments

The ICCR recommends that the grading of neuroendocrine tumours is non-core. They advise using only Grades 1, 2 and 3 for neuroendocrine tumours. Neuroendocrine carcinomas are considered high grade by definition and are therefore not graded.

[Level of evidence – B. Histological tumour grade is a prognostic indicator]

6.4 Ancillary studies

NC3	Descriptor	Core/Non-core	Responses
ICCR	Ancillary studies	Non-core	Single selection value list: • Not performed • Performed, specify

Ancillary testing commentary

Ancillary testing for head and neck cancers most commonly refers to testing for high-risk human papilloma virus (HPV) status in tumours of the oropharynx (typically using the surrogate marker of p16 immunohistochemistry and HPV specific testing in p16 positive cases) and EBV status in tumours of the nasopharynx (typically using in situ hybridisation for EBV-encoded RNA, EBER). If ancillary testing is performed, it is recommended to include the type of testing, the result and interpretive guidelines if applicable.[40]

Where possible, ancillary testing should be performed on the primary tumour. Tumours presenting with a lymph node metastasis of SCC and an unknown primary require testing on the lymph node specimen.

Oropharyngeal carcinoma is frequently HPV-associated, with these tumours having improved survival versus HPV-negative cases.[18] Testing for p16 status in oropharyngeal SCC is a requirement of the 8th and 9th editions of the AJCC TNM staging system[18] and UICC TNM staging system,[16] and separate staging categories have been devised for p16 negative and p16 positive tumours. p16 status should be reported in all oropharyngeal primary SCCs (testing either the primary site or from a metastatic focus).

Overexpression of p16 is defined as diffuse, strong nuclear and often cytoplasmic expression (2–3+ intensity) in ≥70% of tumour cells. The specificity of p16 expression is dependent on the antibody clone and local centres should have validated protocols in place. All p16-positive carcinomas should be subject to HPV specific testing since the former lacks optimal specificity for the virus.[41–44] p16 expression is currently not

applicable as a surrogate for HPV in non-oropharyngeal head and neck subsites as HPV is infrequent and p16 expression is non-specific.

p16 immunohistochemistry should be performed on all metastatic carcinomas to lymph nodes in the head and neck from an unknown primary, followed by HPV-specific testing if positive. While HPV positivity in metastatic carcinomas from an unknown primary strongly suggests an oropharyngeal origin, non-oropharyngeal cannot be entirely excluded since HPV-associated carcinomas are known to arise in the oral cavity, sinonasal tract, nasopharynx, hypopharynx, larynx and ocular surface. HPV-associated metastasis outside the jugular chain (e.g. retropharyngeal or parotid), should prompt the search for a non-oropharyngeal origin. In situ hybridisation for EBER is recommended for p16 negative, non-keratinising or undifferentiated carcinomas, or if there is clinical suspicion of a nasopharyngeal primary.

RCPath comments

HPV-specific testing should be undertaken on all p16 positive carcinomas where available.

[Level of evidence – A. HPV status is a strong prognostic indicator in oropharyngeal SCC. Metastatic HPV-associated SCC in a neck lymph node is strongly indicative of an oropharyngeal primary]

6.5 Lymph node status

4 ICCR	Descriptor	Core/Non-core	Responses
	Lymph node status	Core and Non-core	Right-sided lymph nodes See right-sided lymph node table Text/numeric: • Maximum dimension of largest lymph node metastasis (if applicable) ___ mm • Maximum dimension of largest involved lymph node (if applicable) ___mm • Soft tissue metastasis – Not identified – Present, specify site (level) Left-sided lymph nodes See l1eft-sided lymph node table Text/numeric: • Maximum dimension of largest lymph node metastasis (if applicable) ___ mm • Maximum dimension of largest involved lymph node (if applicable) ___mm • Soft tissue metastasis – Not identified – Present, specify site (level)

			Central compartment lymph nodes Text/numeric: • Number of lymph nodes examined* ___ • Number of lymph nodes positive* ___ • ENE** (single selection value list): – Not identified – ENE_{mi} (≤2 mm) – ENE_{ma} (>2 mm) • Maximum dimension of largest lymph node metastasis (if applicable) ___ mm • Maximum dimension of largest involved lymph node (if applicable) ___mm • Soft tissue metastasis – Not identified – Present, specify site (level) * Insert 'cannot be determined' when applicable.

Lymph node status commentary

Lymph node status may be presented in tabular form for ease of interpretation as follows:

Level and side	Number of nodes examined	Number of nodes positive	ENE minor or major	Number of nodes with ENE
II right				
III right				
etc				

For cases in which an involved lymph node or tumour deposit straddles more than 1 lymph node level, it is recommended to include it in the level in which the bulk of the deposit is found, with an explanatory comment. In other cases, it may not be possible to precisely divide the neck dissection into individual levels, and more than 1 level may need to be combined. If a neck dissection is received without any level designation, clarification from the surgeon is suggested. If this is not obtained, the data may be reported without further qualification, such as 'right neck dissection, not further specified'.

Soft tissue metastasis

Soft tissue metastasis refers to a deposit of tumour in connective tissue, without a microscopically identifiable residual lymph node. It does not refer to intralymphatic tumour emboli in adipose tissue surrounding the lymph nodes. Soft tissue metastasis has been found to negatively impact survival in patients who are otherwise node-negative or in those with positive nodes lacking ENE. In many cases, a soft tissue metastasis is the largest focus of tumour in the specimen. This is presumed to represent 1 or more completely replaced lymph nodes and should be recorded as such. Less

commonly, small soft tissue metastases (e.g. < 1 mm in greatest dimension) are identified that do not appear to be of nodal origin. Special stains and deeper levels may help to identify a vascular origin for these deposits; the pathologist must use discretion as to their designation as positive lymph nodes, with the use of a clarifying comment.

A soft tissue deposit should be considered as at least 1 lymph node with ENE if it occurs at a site where a regional lymph node would be expected.[16]

Size measurement

The maximum dimension of the largest involved lymph node may not be the same as the maximum dimension of the largest metastatic deposit. For instance, this may be due to the presence of an enlarged reactive lymph node in the tumour basin with a microscopic tumour deposit. Both measurements are considered 'core' items in this dataset so as to avoid confusion, to facilitate correlation with imaging studies and to provide the maximum amount of data that may be relevant for clinical decision-making. The greatest dimension of the largest tumour deposit should be used to determine the pN category. In occasional cases, the largest lymph node in the specimen may not even contain tumour. The pathologist may elect to make a comment to this effect. However, it is not considered a necessary reporting element.

Neck dissections may be performed as salvage surgery for a persistent neck mass following adjuvant radiation therapy. In this circumstance, only viable tumour – not necrotic keratinous debris or keratin granulomas – should be considered as a positive lymph node. Extra sampling of residual neck deposits may be required to evaluate these specimens. The prefix 'yp' should be added to the TNM category. The presence and number of necrotic lymph nodes should be added.

For tumour deposits in which there is residual lymph node tissue with widespread ENE, a combined gross and microscopic estimate of the number of involved lymph nodes is suggested. Correlation with pre-surgical imaging studies may be of benefit. The largest metastatic focus may be an intranodal or a soft tissue metastasis. Often, the maximum dimension of the largest metastatic tumour deposit is determined at gross examination of the specimen. Determination of the greatest dimension of a metastasis may be difficult in cases where multiple microscopic intranodal deposits are identified. Options including measuring the greatest dimension of the largest microscopic deposit, combining the sizes of the deposits to give an aggregate dimension, and measuring the greatest dimension 'end-to-end' from a single slide, including discontinuous tumour deposits. The latter is recommended.

ENE

ENE refers to extension of tumour outside the capsule of a lymph node and into the perinodal soft tissue. It is also known as 'extracapsular extension/spread'. ENE is an adverse prognostic factor for locoregional relapse and survival in cervical node positive head and neck SCC, including HPV-associated oropharyngeal carcinoma and NPC.[45–47] It is an important factor for oncologists when considering treatment with postoperative radiotherapy or chemoradiotherapy.

ENE subcategorisation commentary

ENE is subcategorised pathologically as microscopic (ENE_{mi}, less than or equal to 2 mm in extent) and major (ENE_{ma}, more than 2 mm in extent – Figures 3 and 4). These subcategories are not required for N categorisation but are core items as they can impact treatment decisions,[45] and are relevant for data collection and future analysis.[18]

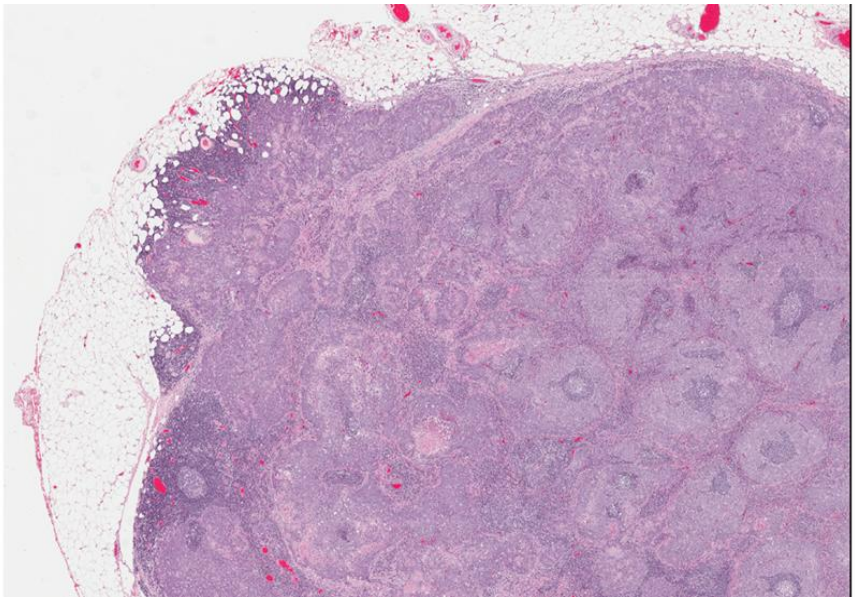

Figure 3: Low power image of a lymph node containing metastatic SCC, with ENE into perinodal adipose tissue (20x). © Dr Martin Bullock. Reproduced with permission.

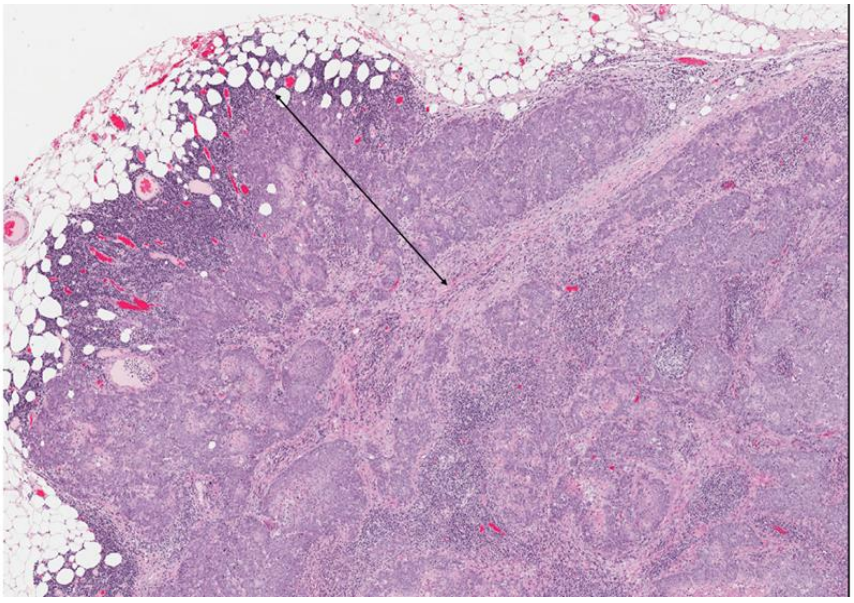

Figure 4: The extent of ENE should be measured from external aspect of the capsule, or estimated site thereof, to the furthest point of tumour extension into the surrounding tissue. © Dr Martin Bullock, reproduced with permission.

Interobserver variation in the determination of ENE may be minimised if the following guidance is used.

- Lymph nodes, especially smaller nodes and those in the parotid area, may not have a complete capsule. The node hilum may merge with adipose tissue, or there may be a rim of lymphoid tissue external to the capsule. Generally speaking, a conservative approach is recommended. For instance, tumour within fat near the hilum of a node should be considered intranodal if benign lymphoid tissue is identified nearby. Tumour within lymphatics near an involved lymph node should not be considered ENE. However, tumour extending beyond a clearly identifiable node

capsule is extranodal, even if there is a surrounding lymphoid response. A stromal desmoplastic reaction is not necessarily required.

- Grossly 'matted' lymph nodes. Grossly adherent lymph nodes may represent true macroscopic ENE or several closely aggregated lymph nodes with thickened nodal capsules without microscopic evidence of ENE. Additional levels and sections are recommended to exclude ENE. The presence of matted nodes, their site, size and an estimate of the number involved should be included in the gross description and may be mentioned in a comment. One study has shown that radiographically matted lymph nodes are a risk factor for distant metastases and decreased survival in oropharyngeal cancer.[48]
- Lymphatic spread to lymph nodes versus direct extension from the primary tumour. Some tumours may extend directly into adjacent lymph nodes without intervening normal tissue. This is not uncommon in parotid tumours as there are multiple lymph nodes within the parotid parenchyma itself and the concept of ENE will not apply. Rare instances of direct extension into a lymph node from a mucosal site – for example, from a large floor of mouth primary to a level I node – is more controversial and potentially more difficult to evaluate. The general rule of choosing the lower stage in equivocal circumstances should apply, but a clarifying comment and/or discussion with the treating physicians is suggested.
- The lymph node capsule is often markedly thickened and altered by large metastases with obliteration of the subcapsular sinus. ENE is measured as the greatest extent of tumour spread perpendicular to the external aspect of the node capsule. The exact site of the latter is subjective but may be estimated by examination of the remaining intact capsule and contour of the node (see Figures 3 and 4).

RCPath comments

Further guidance on reporting soft tissue deposits and ENE is provided by the Head and Neck Cancer International Group.[49]

Pathological pENE should only be diagnosed when tumour that is present within the confines of a lymph node definitively transgresses through the entire thickness of the lymph node capsule into the surrounding connective tissue, with or without stromal reaction.[16]

A soft tissue deposit should be considered as at least 1 lymph node with extranodal extension if it occurs at a site where a regional lymph node would be expected.[16]

While the ICCR indicates that a tumour directly extending into an adjacent lymph node without intervening normal tissue is not considered nodal metastatic disease for staging purposes, the College recommends that, despite a lack of specific evidence in head and neck cancers, tumours directly extending into lymph nodes from the primary site should be considered positive for the purposes of pN staging.

[Level of evidence – A, C. The basis in evidence for inclusion is well-conducted case control or cohort studies]

6.6 Non-lymphatic structures

5 ICCR	Descriptor	Core/Non-core	Responses
	Non-lymphatic structures	Core	• Not identified • Vessel • Named vessel, specify • Nerve • Named nerve, specify • Skeletal muscle • Named skeletal muscle, specify • Other, specify

Non-lymphatic structures commentary

Non-lymphatic structures involved is a core item referring to the involvement of named tissues (such as the spinal accessory nerve, internal jugular vein or sternocleidomastoid muscle) that are identified either by virtue of the specimen designation or in consultation with the surgeon. Clinical or imaging involvement of some extranodal tissues may imply the need for more aggressive neck dissection, and pathological involvement should be documented in the final report.[50]

RCPath comment

None.

[Level of evidence – GPP]

6.7 Regional lymph node categorisation (staging)

6 ICCR	Descriptor	Core/Non-core	Responses
	Regional lymph node categorisation (staging, UICC TNM 9th Edition) TNM descriptors	Core	
	TNM descriptors (only if applicable)		Choose all that apply • r – recurrent • y – during or following multimodality therapy
Regional lymph nodes (pN)	Primary carcinomas of the lip and oral cavity, nasal cavity and paranasal sinuses, HPV-independent oropharynx, hypopharynx, larynx, cutaneous head and		• NX Regional lymph nodes cannot be assessed • N0 No regional lymph node metastasis • N1 Metastasis in a single ipsilateral lymph node, 3 cm or less in greatest dimension without ENE

	neck carcinomas (with the exception of Merkel cell carcinoma) and unknown primary SCCs that are p16 and EBV-negative.		• N2 Metastasis described as: – N2a Metastasis in a single ipsilateral lymph node, 3 cm or less in greatest dimension with ENE or, more than 3 cm but not more than 6 cm in greatest dimension, without ENE – N2b Metastasis in multiple ipsilateral nodes, none more than 6 cm in greatest dimension, without ENE – N2c Metastasis in bilateral or contralateral lymph nodes, none more than 6 cm in greatest dimension, without ENE • N3a Metastasis in a lymph node more than 6 cm in greatest dimension without ENE • N3b Metastasis in a lymph node more than 3 cm in greatest dimension with ENE, or multiple ipsilateral, or any contralateral or bilateral node(s) with ENE
	HPV-associated oropharyngeal SCC		• NX Regional lymph nodes cannot be assessed • N0 No regional lymph node metastasis • N1 Metastasis in 1 to 4 lymph node(s) – without definitive pathologic extranodal extension – pN1a Metastasis in 1 lymph node without definitive pathological extranodal extension – pN1b Metastasis in 2–4 lymph nodes without definitive pathological extranodal extension – N2 Metastasis described as 1–4 lymph nodes with definitive pathologic extranodal extension or in >4 lymph nodes without definitive pathological extranodal extension

			• N3 Metastasis in >4 lymph nodes with definitive pathological extranodal extension
	NPC		• NX Regional lymph nodes cannot be assessed • N0 No regional lymph node metastasis • N1 Unilateral metastasis in cervical lymph node(s) and/or unilateral or bilateral metastasis in retropharyngeal lymph node(s), 6 cm or smaller in greatest dimension, above the caudal border of cricoid cartilage and without advanced pathological extranodal extension • N2 Bilateral metastasis in cervical lymph node(s), 6 cm or smaller in greatest dimension, above the caudal border of cricoid cartilage and without advanced pathological extranodal extension • N3 Metastasis in cervical lymph node(s), greater than 6 cm in dimension, and/or extension below the caudal border of the cricoid cartilage or advanced pathological extranodal extension
	Salivary gland		• pNX Regional lymph nodes cannot be assessed • pN0 No regional lymph node metastasis • N1 Metastasis in 1–3 lymph node without definitive pathological extranodal extension • N2 Metastasis in >3 lymph nodes or metastasis in any lymph node with definitive pathological extranodal extension
	Mucosal melanoma		• NX Regional lymph nodes cannot be assessed • N0 No regional lymph node metastasis • N1 Regional lymph node metastasis present

Regional lymph node commentary

Information on lymph node status is crucial for the staging and treatment of head and neck malignancies. The staging described below conforms to the 9th edition of the Union for International Cancer Control (UICC)/American Joint Committee on Cancer (AJCC) Staging Manuals.

Note that (i) Midline nodes are considered ipsilateral nodes and (ii) ENE detected on histopathologic examination is designated as ENE_{mi} (microscopic ENE ≤2 mm) or ENE_{ma} (major ENE >2 mm). Both ENE_{mi} and ENE_{ma} qualify as ENE(+) for definition of pN.

Note that a designation of 'U' or 'L' may be used for any N category to indicate metastasis above the lower border of the cricoid (U) or below the lower border of the cricoid (L). Similarly, clinical and pathological ENE should be recorded as ENE(-) or ENE(+).

Assignment of a pN category is applicable for patients who are treated surgically with a cervical lymph node dissection, rather than single lymph node excisional biopsy, in which case the cN category is used.

NPC commonly presents with bulky nodal neck disease, and a lymph node biopsy may occasionally precede biopsy of the primary site. However, NPC is not a surgically treated disease,[51] and therefore pathologists are rarely called upon to provide a pN category for NPC. A single positive lymph node biopsy would contribute to the cN categorisation.

The reference document *TNM Supplement: A Commentary on Uniform Use, 5th Edition* may be of assistance when staging.[52]

RCPath comment

UICC TNM 8th edition staging criteria may be used as a non-core item in addition to UICC TNM 9th edition for continuity purposes in audit and research (e.g. ongoing clinical trials and cancer registry databases).

Negative pathological examination of lymph nodes fewer than the expected minimum is acceptable for pN0 designation.

[Level of evidence – A. Regional lymph node categorisation is the basis for cancer staging]

7 Non-core data items

7.1 Operative procedure

NC1	Descriptor	Core/Non-core	Responses
ICCR	Operative procedure	Non-core	Multi selection value list (select all that apply): • Not specified OR • Selective neck dissection (single selection value list): – Supraomohyoid – Lateral

			– Posterolateral – Central (anterior) compartment • Comprehensive neck dissection (single selection value list): – Modified radical neck dissection – Radical neck dissection – Extended radical neck dissection – SLNB, specify number and laterality • Lymph node biopsy, specify site • Other, specify

Operative procedure commentary

Accurate designation of the operative procedure requires appropriate information from the head and neck surgeon, ideally with specimen orientation. A single operation may encompass more than 1 of the above-designated procedures, and the terminology may vary by institution. Some experts have proposed eliminating the above terminology, in favour of a more simplistic designation that includes the lymph node levels received and a listing of non-lymphatic structures that accompany them.[24] In some cases, it is not possible to specify or be certain of the operative procedure, thus this element is considered non-core.

Neck dissection classification

The best-known classification of lymph node groups in the neck is the so-called Robbins' classification, originally proposed by the American Academy of Otolaryngology – Head and Neck Surgery,[22] in which the lymph node basins of the neck are divided into levels I–VI, as per the anatomical boundaries described further below and in Figure 1. This classification only includes lymph nodes commonly removed during neck dissection procedures, therefore it does not include all the head and neck node groups such as the facial nodes. Level VII (the superior mediastinal lymph node compartment) is included in the illustration for completeness, but except for thyroid cancer, it is rarely involved by head and neck cancer. Additional node groups are described in the TNM Atlas terminology, which divides the nodes into 12 groups, including retropharyngeal, parotid, buccal, retroauricular and occipital nodes.[53] Further subdivisions of several node levels, based on specific anatomical landmarks, has clinical significance because they tend to be involved preferentially by tumours of specific primary sites. For instance, level IIb is more commonly involved by primary tumours of the oropharynx or nasopharynx, than by primaries of the oral cavity, hypopharynx or larynx.[23] The boundaries of the lymph node groups found within the levels and sublevels of the neck are described in Section 6.

The most widely used classification of neck dissection procedures is based on the original system proposed by the Committee for Head and Neck Surgery and Oncology of the American Academy of Otolaryngology – Head and Neck Surgery in 1991.[22] This was revised in 2002[25] and updated in 2008.[26] The classification includes 4 basic procedures: radical neck dissection, modified radical neck dissection, extended neck dissection and selective neck dissection. The term comprehensive neck dissection refers to any neck dissection in which all nodes in levels I–V are removed, therefore it includes radical, modified radical and extended neck dissections, as explained below.[54]

Radical neck dissection

A radical neck dissection involves removal of levels I–V, as well the sternocleidomastoid muscle, spinal accessory nerve and internal jugular vein. A modified radical neck dissection spares at least 1 of the above non-lymphatic structures. An extended neck dissection involves removal of additional lymph nodes or non-lymphatic structures, beyond those removed as part of a radical neck dissection.

Selective neck dissection

A selective neck dissection is a more limited procedure, in which 1 or more of the levels I–V lymph node groups are spared, typically for malignancies of specific locations and with no or limited clinical evidence of lymph node involvement (N0 or N1).[55] Supraomohyoid neck dissection refers to removal of levels I–III and is commonly performed for tumours of the oral cavity. Lateral neck dissection refers to removal of levels II–IV, performed for tumours of the larynx, oropharynx and hypopharynx. Posterolateral neck dissection refers to removal of levels II–V, for example for skin malignancies of the posterior scalp or upper, posterolateral neck.

Central or anterior compartment dissection

Central or anterior compartment neck dissection removes level VI nodes (pretracheal, paratracheal, precricoid/Delphian and perithyroidal nodes) and is most commonly performed during surgery for thyroid carcinoma. Level VI lymph nodes are uncommonly received as neck dissections for head and neck skin or mucosal malignancies, but these nodes may be involved by primary cancers of the larynx or hypopharynx. Superior mediastinal nodes (level VII) may also be removed in central neck dissections, particularly for thyroid cancer.

Other

A conspicuous member of the ‘other’ category is the parotid lymph node basin, which is usually received as part of a parotidectomy specimen for primary salivary gland tumours or for metastatic skin cancers of the face and scalp.

RCPath comment

None.

[Level of evidence – GPP.]

7.2 Margin status

NC2	Descriptor	Core/Non-core	Responses
ICCR	Margin status	Non-Core	Single selection value list: • Involvement of perinodal surgical margin – Involved by carcinoma – Not involved by carcinoma Multi selection value list (select all that apply):

			• Left • Central • Right • Laterality not specified • Cannot be assessed, specify

Margin status commentary

Margin status of the neck dissection is typically only relevant when ENE is present, as nodes without ENE are presumed to be removed in toto. Clinical correlation and orientation by the surgeon are required if the neck dissection is received as multiple specimens to avoid a misinterpretation of the location of the true surgical margin.

Margin positivity increases the risk of local recurrence and is an indication for additional radiotherapy to that site.[56–58] The site of margin positivity can be used by the radiation oncologist to direct treatment to the area of greatest risk.

RCPath comment

Margin status is an ICCR core item but listed as a non-core item in this dataset. The evidence indicates that margin status is of prognostic utility in cases where neck dissections are performed with curative intent in regional recurrences following adjuvant treatment. There is a lack of published reports evaluating margin status in cases in non-ENE or in patients where adjuvant treatment is not indicated. Therefore, the RCPath considers this item as non-core pending further evidence and consultation with the wider head and neck surgical and oncology community.

[Level of evidence – C. Margin status is a prognostic indicator in salvage neck dissections]

7.3 Lymph node ratio

NC4	Descriptor	Core/Non-core	Responses
ICCR	Lymph node ratio	Non-core	[Number of lymph nodes with metastasis]/ [Total number of lymph nodes retrieved]

Lymph node ratio commentary

The lymph node ratio (also known as the lymph node density) is defined as the ratio of positive lymph nodes to the total number of lymph nodes evaluated.[59] This item has been included as a non-core item in this current dataset since several recent meta-analyses indicate lymph node ratio to be an independent prognostic factor. The lymph node ratio does not currently influence the nodal stage, but demonstrates greater prognostic utility compared to current staging criteria alone.

RCPath comment

The lymph node ratio is currently not an ICCR dataset item. However, the RCPath considers there be sufficient evidence of the prognostic value of the lymph node ratio to include as a non-core item.

[Level of evidence – B. Lymph node ratio is a prognostic indicator]

7.4 Block identification key

NC5	Descriptor	Core/Non-core	Responses
ICCR	Block identification key	Non-core	List indicating the nature and origin of all tissue blocks.

Block identification key commentary

The origin/designation of all tissue blocks should be recorded. This information should ideally be documented in the final pathology report and is particularly important when further internal or external review is required. The reviewing pathologist needs to have unequivocal description of the origin of each block to provide an informed specialist opinion. If this information is not included in the final pathology report, it should be available on the laboratory computer system and relayed to the reviewing pathologist. It is highly encouraged to have a digital image (photograph) of the specimen and record of the key of the tumour blocks.

Recording the origin/designation of tissue blocks also facilitates retrieval of blocks for further immunohistochemical or molecular analysis, research studies or clinical trials.

RCPath comment

None.

[Level of evidence – GPP.]

7.5 Other pathology

NC6	Descriptor	Core/Non-core	Responses
ICCR	Other pathology	Non-core	Comments on any other relevant pathological findings.

Other pathology commentary

Additional findings should be reported at the discretion of the reporting pathologist. Certain findings that relate to the immune status of the patient and which may be of prognostic and/or therapeutic importance are recommended to be noted. This includes concurrent lymphoma (particularly small lymphocytic lymphoma/chronic lymphocytic lymphoma, Castleman disease and granulomatous inflammation. The presence and number of necrotic lymph node following neoadjuvant therapy may also be recorded here.

RCPath comment

None.

[Level of evidence – GPP.]

7.6 SLNB staging

NC7	Descriptor	Core/Non-core	Responses
ICCR	SLNB	Non-core	• Carcinoma cells present – Metastasis – Micrometastasis – ITCs • No carcinoma cells present, pN0(sn)

SLNB commentary

The use of SLNB is gaining wider recognition within the head and neck oncology community for accurate staging of the neck in cT1-2 cN0 OCSCC. Several national and international professional organisations now recommend SLNB either as an alternative, or in preference, to elective neck dissection for cT1-2 cN0 OCSCC.[19,20,60–62] There are currently no validated studies for the utility of SLNB for other head and neck malignancies. SLNB is a non-core element for OCSCC only. In general, the same principles of lymph node reporting as listed in this dataset can be applied to SLNs, except where additional information is required by local convention or study protocols. A negative SLNB supports the cN0 category, assuming a formal neck dissection has not been performed.[63]

Serial step sections with pan-cytokeratin immunohistochemistry increases the efficacy the technique,[64] but there is currently no international consensus for the optimal histopathology laboratory handling of SLNs in OCSCC.

An SLN is positive when at least 1 node on 1 side of the neck contains viable carcinoma cells. If positive, the report should qualify this by stating whether the metastatic deposit is a metastasis (>2 mm), micrometastases (0.2–2 mm) or ITCs (single cells or small clusters <0.2 mm). The low-end diagnostic cut-offs for ITCs in OCSCC remain controversial, but their presence in SLNs have prognostic value and indicate the need for completion neck dissection. In cases of positive SLN, the final neck staging should consider the completion neck dissection, whereas a negative SLN biopsy is staged as pN0(sn).

RCPath comment

For sentinel nodes, the following suffixes are used after the pN stage:

- (sn) to indicate sentinel node biopsy. This is applied only in cases where SLNB is performed in the absence of the completion neck dissection. Therefore, for oral cavity SCCs, the (sn) suffix should only be reserved for negative SLNB cases only, i.e. pN0(sn).
- (mi) to indicate micrometastases
- (i+) to indicate ITCs.

When different sizes of metastases are present, only the size of the largest deposit should be considered for staging purposes.

While TNM8 and TNM9 state that ITCs ‘usually are categorised as N0’, it also acknowledges that there are site-specific exceptions, staging of SLNBs continues to evolve warranting further study and the ‘clinical judgement of the managing physician

should prevail' for final staging purposes.[18] ITCs in OCSCC should, therefore, be considered positive and staged as metastases, e.g. pN1(sn)(i+).

In pN1(sn) and pN2(sn) scenarios, the SLNB report should state that final staging ought to take into account pathological findings of the completion neck dissection. Conversely, when the completion neck dissection is negative, staging needs to include all sentinel nodes assessed according to protocol, as upstaging might be relevant in informing the decision to provide adjuvant therapy.

[Level of evidence – GPP.]

8 Support of research and clinical trials

It is important to be aware of local protocols for tissue banking and engagement with national initiatives for the further classification of tumours. Pathology support in clinical trials should comply with current national guidelines.[65] Other features, such as assessment of the effects of biological therapy/immunotherapy may be important but are currently beyond the remit of this dataset.

9 Criteria for audit

As recommended by the RCPath Key assurance indicators (see *Key assurance indicators for pathology services*, November 2019) and those in other relevant standards (e.g. ISO 15189:2022), a structured program of audit and service evaluation is recommended to cover all aspects of the reporting of these specimens. The standards to be employed were previously stated in the RCPath Key performance indicators (KPIs) documentation (see *Key Performance Indicators – Proposals for implementation*, July 2013). While this document has been replaced, many of the standards therein are useful benchmarks for a quality service. These recommendations should only be taken as a guide and standards audited should be subject to local agreement of quality parameters.

The following are recommended by the RCPath as key assurance indicators and KPIs.

- Cancer resections must be reported using a template or proforma, including items listed in the English COSD which are, by definition, core data items in RCPath cancer datasets. English trusts are required to implement the structured recording of core 16 pathology data in the COSD:
  - standard: 95% of reports must contain structured data

  - standard: 80% of resection specimens will include 100% data items presented in a structured format.

- The RCPath KPI document requires a statement of agreement between the laboratory and users of the laboratory services regarding turnaround times for specific patient pathways. Suggested turnaround times for biopsies and resection specimens are presented below, but these should be subject to local agreement:
  - standard: 80% diagnostic biopsies will be reported within 7 calendar days of the biopsy being taken
  - standard: 80% of all histopathology specimens (excluding those requiring decalcification) will be reported within 10 calendar days of the specimen being taken.
- The inclusion of SNOMED-CT codes:
  - standard: 95% reports should have body structure and morphological SNOMED-CT codes.
- The availability of pathology reports and data at MDT meetings:
  - standard: 90% of cases discussed at MDT meetings where biopsies or resections have been taken should have pathology reports/core data available for discussion
  - standard: 90% of cases where pathology has been reviewed for the MDT meeting should have the process of review recorded.
- Utilisation of ancillary tests:
  - standard: 90% of metastatic carcinomas of unknown primary are tested using p16 immunohistochemistry and/or EBV in situ hybridisation and are reported as p16/HPV or EBV positive or negative according to the recommended cut offs.
- Diagnostic sensitivity of SLNB:
  - standard: overall diagnostic sensitivity of 87% using neck lymph node recurrence as the reference standard.[66] This audit criterion requires multidisciplinary histopathological, surgical and nuclear medicine input. Failure to reach this standard may result from errors in laboratory processing, histological interpretation, or the perioperative pathway.

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Appendix A SNOMED coding

Versions of SNOMED prior to SNOMED-CT ceased to be licenced by the International Health Terminology Standards Development Organisation from 26 April 2017. Note: this is not a comprehensive list of all malignancies and other codes should be used as necessary.

Topographical codes	SNOMED RT	SNOMED-CT terminology	SNOMED-CT code
Lymph node	T-C4000	Structure of lymph node (body structure)	59441001
Skeletal muscle	T-13000	Skeletal muscle system structure (body structure)	79984008
Submandibular salivary gland	T-55200	Oropharyngeal structure (body structure)	31389004

Morphology

Morphological codes	SNOMED RT	SNOMED-CT terminology	SNOMED-CT code
Metastatic SCC and variants			
SCC	M-80706	SCC, metastatic (morphologic abnormality)	64204000
Keratinising SCC	M-80713	SCC, keratinising (morphologic abnormality)	18048008
Non-keratinising SCC	M-80723	SCC, large cell, non-keratinising (morphologic abnormality)	45490001
Spindle cell SCC	M-80743	SCC, spindle cell (morphologic abnormality)	10288008
Adenoid SCC	M-80753	Adenoid SCC (morphologic abnormality)	85956000
Adenosquamous carcinoma.	M-85603	Adenosquamous carcinoma (morphologic abnormality)	59367005
Metastatic salivary malignancies			

Acinic cell carcinoma	M-85503	Acinar cell carcinoma (morphologic abnormality)	45410002
Mucoepidermoid carcinoma	M-84303	Mucoepidermoid carcinoma (morphologic abnormality)	4079000
Adenoid cystic carcinoma	M-82003	Adenoid cystic carcinoma (morphologic abnormality)	11671000
Polymorphous adenocarcinoma	M-85253	Polymorphous low-grade adenocarcinoma (morphologic abnormality)	128702009
Epithelial–myoepithelial carcinoma	M-85623	Epithelial–myoepithelial carcinoma (morphologic abnormality)	9618003
Basal cell adenocarcinoma	M-81473	Basal cell adenocarcinoma (morphologic abnormality)	34603009
Sebaceous carcinoma	M-84103	Sebaceous adenocarcinoma (morphologic abnormality)	54734006
Papillary cystadenocarcinoma	M-84503	Papillary cystadenocarcinoma (morphologic abnormality)	2735009
Mucinous adenocarcinoma	M-84803	Mucinous adenocarcinoma (morphologic abnormality)	72495009
Oncocytic carcinoma	M-82903	Oxyphilic adenocarcinoma (morphologic abnormality)	57596004
Salivary duct carcinoma	M-85003	Infiltrating duct carcinoma (morphologic abnormality)	82711006
Myoepithelial carcinoma	M-89823	Malignant myoepithelioma (morphologic abnormality)	128884000

Carcinoma ex pleomorphic adenoma	M-89413	Carcinoma ex pleomorphic adenoma (morphologic abnormality)	17264009
SCC	M-80703	SCC, no International Classification of Diseases for Oncology (ICO-O) subtype (morphologic abnormality)	1162767002
Small cell carcinoma	M-80413	Small cell carcinoma (morphologic abnormality)	74364000
Undifferentiated carcinoma	M-80203	Carcinoma, undifferentiated (morphologic abnormality)	38549000

Procedure

Local P codes should be recorded. At present, P codes vary according to the SNOMED system used in different institutions.

Appendix B TNM 9 classification for nodal status

Mucosal lip and oral cavity primary

pNX Regional lymph nodes cannot be assessed pN0No regional lymph node metastasis.

pN1 Metastasis in a single ipsilateral lymph node, 3 cm or less in greatest dimension without pathological extranodal extension.

pN2 Metastasis described as:

- pN2a Metastasis in a single ipsilateral lymph node, 3 cm or less in greatest dimension with pathological extranodal extension or, more than 3 cm but not more than 6 cm in greatest dimension without pathological extranodal extension.
- pN2b Metastasis in multiple ipsilateral lymph nodes, none more than 6 cm in greatest dimension, without pathological extranodal extension.
- pN2c Metastasis in bilateral or contralateral lymph nodes, none more than 6 cm in greatest dimension, without pathological extranodal extension.

pN3 Metastasis described as:

- pN3a Metastasis in a lymph node more than 6 cm in greatest dimension without pathological extranodal extension.
- pN3b Metastasis in a single lymph node more than 3 cm in greatest dimension with pathological extranodal extension or, multiple ipsilateral, or any contralateral or bilateral node(s) with pathological extranodal extension.

Pathological extranodal extension should only be diagnosed when tumour that is present within the confines of a lymph node definitively transgresses through the entire thickness of the lymph node capsule into the surrounding connective tissue, with or without stromal reaction.

A soft tissue deposit should be considered as at least 1 lymph node with extranodal extension if it occurs at a site where a regional lymph node would be expected.

In sentinel lymph node biopsies (SLNBs), isolated tumour cells (ITCs) should be regarded as pN1(sn) if present in a single ipsilateral sentinel node, pN2b(sn) if present in multiple

ipsilateral sentinel nodes and pN2c(sn) if present in bilateral or contralateral sentinel nodes.

Oropharynx – HPV-independent and hypopharynx primary

pNX Regional lymph nodes cannot be assessed.

pN0 No regional lymph node metastasis.

pN1 Metastasis in a single ipsilateral lymph node, 3 cm or less in greatest dimension without pathological extranodal extension.

pN2 Metastasis described as:

pN2a Metastasis in a single ipsilateral lymph node, 3 cm or less in greatest dimension with pathological extranodal extension or more than 3 cm but not more than 6 cm in greatest dimension without pathological extranodal extension.

pN2b Metastasis in multiple ipsilateral lymph nodes, none more than 6 cm in greatest dimension, without pathological extranodal extension.

pN2c Metastasis in bilateral or contralateral lymph nodes, none more than 6 cm in greatest dimension, without pathological extranodal extension.

pN3 Metastasis described as:

pN3a Metastasis in a lymph node more than 6 cm in greatest dimension without pathological extranodal extension.

pN3b Metastasis in a single lymph node more than 3 cm in greatest dimension with pathological extranodal extension or, multiple ipsilateral, or any contralateral or bilateral node(s) with pathological extranodal extension.

Oropharynx – HPV-associated primary

pNX Regional lymph nodes cannot be assessed.

pN0 No regional lymph node metastasis.

pN1 Metastasis in 1 to 4 lymph node(s) without definitive pathologic extranodal extension.

pN1a Metastasis in 1 lymph node without definitive pathological extranodal extension.

pN1b Metastasis in 2–4 lymph nodes without definitive pathological extranodal extension.

pN2 Metastasis described as:

1–4 lymph nodes with definitive pathologic extranodal extension or in >4 lymph nodes without definitive pathological extranodal extension.

pN3 Metastasis in >4 lymph nodes with definitive pathological extranodal extension.

Nasopharynx primary

pNX Regional lymph nodes cannot be assessed.

pN0 No regional lymph node metastasis.

pN1 Unilateral metastasis, in cervical lymph node(s), and/or unilateral or bilateral metastasis in retropharyngeal lymph nodes, and 6 cm or less in greatest dimension, above the caudal border of cricoid cartilage and without advanced pathological extranodal extension.

pN2 Bilateral metastasis in cervical lymph node(s), 6 cm or less in greatest dimension, above the caudal border of cricoid cartilage and without advanced pathological extranodal extension.

pN3 Metastasis in cervical lymph node(s) greater than 6 cm in dimension or extension below the caudal border of cricoid cartilage or advanced pathological extranodal extension.

Larynx primary

pNX Regional lymph nodes cannot be assessed.

pN0 No regional lymph node metastasis.

pN1 Metastasis in a single ipsilateral lymph node, 3 cm or less in greatest dimension without pathological extranodal extension.

pN2 Metastasis described as:

pN2a Metastasis in a single ipsilateral lymph node, 3 cm or less in greatest dimension with pathological extranodal extension or more than 3 cm but not more than 6 cm in greatest dimension without pathological extranodal extension.

pN2b Metastasis in multiple ipsilateral lymph nodes, none more than 6 cm in greatest dimension, without pathological extranodal extension.

pN2c Metastasis in bilateral or contralateral lymph nodes, none more than 6 cm in greatest dimension, without pathological extranodal extension.

pN3 Metastasis described as:

pN3a Metastasis in a lymph node more than 6 cm in greatest dimension without pathological extranodal extension.

pN3b Metastasis in a single lymph node more than 3 cm in greatest dimension with pathological extranodal extension or multiple ipsilateral, or any contralateral or bilateral node(s) with pathological extranodal extension.

Nasal cavity and paranasal sinus primary

pNX Regional lymph nodes cannot be assessed.

pN0 No regional lymph node metastasis.

pN1 Metastasis in a single ipsilateral lymph node, 3 cm or less in greatest dimension without pathological extranodal extension.

pN2 Metastasis described as:

pN2a Metastasis in a single ipsilateral lymph node, 3 cm or less in greatest dimension with pathological extranodal extension or, more than 3 cm but not more than 6 cm in greatest dimension without pathological extranodal extension.

pN2b Metastasis in multiple ipsilateral lymph nodes, none more than 6 cm in greatest dimension, without pathological extranodal extension.

pN2c Metastasis in bilateral or contralateral lymph nodes, none more than 6 cm in greatest dimension, without pathological extranodal extension.

pN3 Metastasis described as:

pN3a Metastasis in a lymph node more than 6 cm in greatest dimension without pathological extranodal extension.

pN3b Metastasis in a lymph node more than 3 cm in greatest dimension with pathological extranodal extension or multiple ipsilateral, or any contralateral or bilateral node(s) with pathological extranodal extension.

Carcinoma of unknown primary – EBV negative and HPV independent or unknown

pN1 Metastasis in a single ipsilateral lymph node, 3 cm or less in greatest dimension without pathological extranodal extension.

pN2 Metastasis described as:

pN2a Metastasis in a single ipsilateral lymph node, 3 cm or less in greatest dimension with pathological extranodal extension or more than 3 cm but not more than 6 cm in greatest dimension without pathological extranodal extension.

pN2b Metastasis in multiple ipsilateral lymph nodes, none more than 6 cm in greatest dimension, without pathological extranodal extension.

pN2c Metastasis in bilateral or contralateral lymph nodes, none more than 6 cm in greatest dimension, without pathological extranodal extension.

pN3 Metastasis described as:

pN3a Metastasis in a lymph node more than 6 cm in greatest dimension without pathological extranodal extension.

pN3b Metastasis in a lymph node more than 3 cm in greatest dimension with pathological extranodal extension or multiple ipsilateral, or any contralateral, or bilateral node(s) with pathological extranodal extension.

Carcinoma of unknown primary – HPV Associated

pNX Regional lymph nodes cannot be assessed.

pN0 No regional lymph node metastasis.

pN1 Metastasis in 1 to 4 lymph node(s) without definitive pathologic extranodal extension.

pN1a Metastasis in 1 lymph node without definitive pathological extranodal extension.

pN1b Metastasis in 2–4 lymph nodes without definitive pathological extranodal extension.

pN2 Metastasis described as1–4 lymph nodes with definitive pathologic extranodal extension or in >4 lymph nodes without definitive pathological extranodal extension.

pN3 Metastasis in >4 lymph nodes with definitive pathological extranodal extension.

Carcinoma of unknown primary – EBV positive

pNX Regional lymph nodes cannot be assessed.

pN0 No regional lymph node metastasis.

pN1 Unilateral metastasis, in cervical lymph node(s), and/or unilateral or bilateral metastasis in retropharyngeal lymph nodes, and 6 cm or less in greatest dimension, above the caudal border of cricoid cartilage and without advanced pathological extranodal extension.

pN2 Bilateral metastasis in cervical lymph node(s), 6 cm or less in greatest dimension, above the caudal border of cricoid cartilage and without advanced pathological extranodal extension.

pN3 Metastasis in cervical lymph node(s) greater than 6 cm in dimension or extension below the caudal border of cricoid cartilage or advanced pathological extranodal extension.

Salivary gland primary

pNX Regional lymph nodes cannot be assessed.

pN0 No regional lymph node metastasis.

pN1 Metastasis in 1–3 lymph node without definitive pathological extranodal extension.

pN2 Metastasis in >3 lymph nodes or metastasis in any lymph node with definitive pathological extranodal extension.

Head and neck skin carcinoma primary

pNX Regional lymph nodes cannot be assessed.

pN0 No regional lymph node metastasis.

pN1 Metastasis in a single ipsilateral lymph node, 3 cm or less in greatest dimension without extranodal extension.

pN2 Metastasis described as:

pN2a Metastasis in a single ipsilateral lymph node, less than 3 cm in greatest dimension with extranodal extension or, more than 3 cm but not more than 6 cm in greatest dimension without extranodal extension.

pN2b Metastasis in multiple ipsilateral lymph nodes, none more than 6 cm in greatest dimension, without extranodal extension.

pN2c Metastasis in bilateral or contralateral lymph nodes, none more than 6 cm in greatest dimension, without extranodal extension.

pN3 Metastasis described as:

pN3a Metastasis in a lymph node more than 6 cm in greatest dimension without extranodal extension.

pN3b Metastasis in a lymph node more than 3 cm in greatest dimension with extranodal extension or multiple ipsilateral, or any contralateral or bilateral node(s) with extranodal extension.

Malignant melanoma of the upper aerodigestive tract

pNX Regional lymph nodes cannot be assessed.

pN0 No regional lymph node metastasis.

pN1 Regional lymph node metastasis.

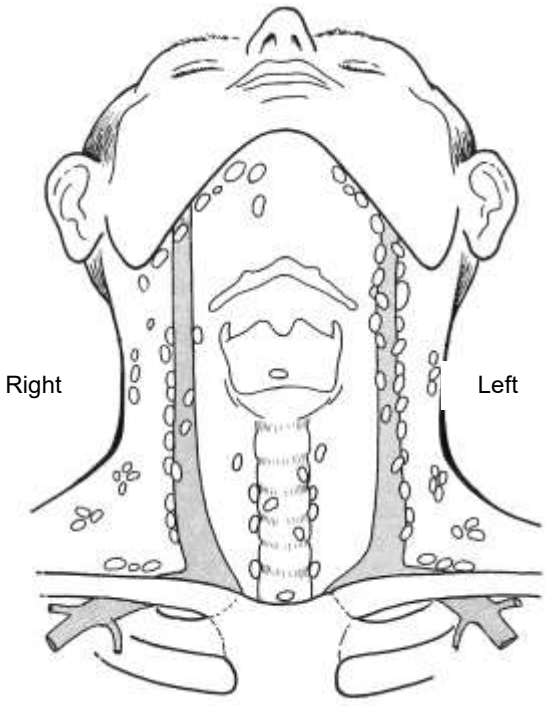
Appendix C Draft request form for node dissections

Surname:	**Consultant:**
Forename:	**Location:**
Date of birth:	
Sex:	
Hospital no.:	**NHS/CHI no.:**

Relevant medical or dental history	**Clinical diagnosis**
Site of lesion:	Previous reports (lab no. if known)
Duration of symptoms:	
Predisposing factors:	Other information (e.g. previous surgery, radiotherapy, chemotherapy, targeted or immunotherapy)
Date of operation:	
Signature:	

Please tick appropriate boxes:

	Right neck dissection	**Left neck dissection**
Levels submitted		
I		
II (total)		
IIA		
IIB		
III		
IV		
V		
VI		
Other (specify)		
Non-nodal structures		
Sternomastoid		
Submandibular gland		
Internal jugular vein		
Other (specify)		



Appendix D Draft request for sentinel node biopsies

Please give patient details	Surname:		Forename(s):
	Hospital/Unit No:		NHS number:
	Date of birth:	Sex:	Date of biopsy:
	Clinical information:		

Please give contact details	Hospital:		Consultant surgeon:
	Phone no.:	Mobile no.:	Fax no.:
	Address for report:		

Site of primary oral cavity T1 or T2 OCSCC: ……

Date of proposed MDT discussion: ……

Right sentinel node(s)					**Left sentinel node(s)**				
	Neck level	**Scint. count**	**Bed count**	**Blue (Y/N)**		**Neck level**	**Scint. count**	**Bed count**	**Blue (Y/N)**
Node 1					**Node 1**				
Node 2					**Node 2**				
Node 3					**Node 3**				
Node 4					**Node 4**				

Is this part of a training or validation program?	Yes □ No □
If part of training or validation program, please state hospital pathology department where elective neck dissection sent:	
Has patient consented for additional tissue to be banked for research?	Yes □ No □

Use the table below if any non-sentinel nodes were removed at time of procedure and submitted together with sentinel node to the same pathology laboratory.

Right non-sentinel node(s)					Left non-sentinel node(s)				
	Neck level	**Scint. count**	**Bed count**	**Blue (Y/N)**		**Neck level**	**Scint. count**	**Bed count**	**Blue (Y/N)**
Node 1					**Node 1**				
Node 2					**Node 2**				
Node 3					**Node 3**				
Node 4					**Node 4**				

Appendix E Reporting proforma for nodal excisions and neck dissection specimens

Surname: ……. Forenames: ...…… Date of birth: ……..…….

Sex: ……..... Hospital: …...…….…… Hospital no.: ……..…..

NHS/CHI no.: ...…… Date of receipt: …..…… Date of reporting: ……..……...

Report no.:……..... Pathologist: ……..…… Surgeon: ……

Specimens submitted and lymph node status (part)

Right neck

Levels submitted	**IA□ IB□ IIA□ IIB□ III□ IV□ V□ Central compartment (VI+/-VII) □ Retropharyngeal□ Parotid/periparotid □ Perifacial □ Not specified □ Other (specify ……) □**		
Node level	**No. nodes examined**	**No. positive nodes**	**No. of positive nodes with ENE†**
IA			
IB			
II (total)			
IIA			
IIB			
III			
IV			
V			
VI+/-VII			
Retropharyngeal			
Parotid/periparotid			
Perifacial			
Not specified			
Other			
Totals			
Non-lymphoid tissue	Nerve □ Muscle □ Vein □ Salivary gland □ Other □, (specify……)		

†State ‘cannot be determined’ when applicable.

Left neck

Levels submitted	**IA□ IB□ IIA□ IIB□ III□ IV□ V□ Central compartment (VI+/-VII) □ Retropharyngeal□ Parotid/periparotid □ Perifacial □ Not specified □ Other (specify ……) □**		
Node level	**No. nodes examined**	**No. positive nodes**	**No. of positive nodes with ENE†**
IA			
IB			
II (total)			
IIA			
IIB			
III			
IV			
V			
VI+/-VII			
Retropharyngeal			
Parotid/ periparotid			
Perifacial			
Not specified			
Other			
Totals			
Non-lymphoid tissue	Nerve □ Muscle □ Vein □ Salivary gland □ Other □, (specify……)		

†State “cannot be determined” when applicable

Histological tumour type

Primary tumour site

Not specified/Not known □

Known (e.g. oral cavity, larynx) □, specify …….

SCC

SCC, conventional □

HPV-associated oropharyngeal carcinoma □

Basaloid SCC □

Papillary SCC □

Spindle cell squamous carcinoma (sarcomatoid carcinoma) □

Adenosquamous cell carcinoma □

Acantholytic SCC □

Undifferentiated (lymphoepithelial) carcinoma □

Salivary gland carcinoma

Mucoepidermoid carcinoma □

Adenoid cystic carcinoma □

Acinic cell carcinoma □

Secretory carcinoma □

Microsecretory adenocarcinoma □

Polymorphous adenocarcinoma □

Hyalinising clear cell carcinoma □

Basal cell adenocarcinoma □

Intraductal carcinoma □

Salivary duct carcinoma □

Myoepithelial carcinoma □

Epithelial–myoepithelial carcinoma □

Mucinous adenocarcinoma □

Sclerosing microcystic adenocarcinoma □

Carcinoma ex pleomorphic adenoma □

Carcinosarcoma of the salivary glands □

Sebaceous adenocarcinoma □

Lymphoepithelial carcinoma □

SCC □

Sialoblastoma □

Salivary gland carcinoma NOS □

Other □, specify……..……..…

Neuroendocrine neoplasm

Neuroendocrine tumour (NET) □

Neuroendocrine carcinoma (NEC) □

Small cell □

Large cell □

Mucosal melanoma □

NPC

SCC, keratinising □

SCC, non-keratinising differentiated □

SCC, non- keratinising, undifferentiated □

SCC, basaloid □

Nasopharyngeal papillary adenocarcinoma □

Other □ (e.g. primary adnexal skin cancers), specify type……..……..…

Histological tumour grade

Not applicable □

Grade 1, well differentiated, low grade □

Grade 2, moderately differentiated, intermediate grade □

Grade 3, poorly differentiated, high grade □

Undifferentiated □

High grade transformation □

Salivary gland carcinoma

Mucoepidermoid carcinoma

Low grade mucoepidermoid carcinoma □

Intermediate grade mucoepidermoid carcinoma □

High grade mucoepidermoid carcinoma □

Adenoid cystic carcinoma

Tubular/cribriform pattern predominant □

Solid pattern >30% □

Polymorphous adenocarcinoma

Classic □

Grade, specify ……

Cribriform □

Intraductal carcinoma

Single selection value list:

High grade □

Low grade □

Grading system used

Specify, ……..

Cannot be assessed □,

Specify, ……..

Ancillary studies

Not performed □

Performed □

HPV testing □ specify method and results ……..

EBV testing □ specify method and results ……..

Lymph node status and non-lymphatic structures

Right sided lymph node status

Maximum dimension of largest lymph node metastasis (if applicable) _____ mm

Maximum dimension of largest involved lymph node (if applicable) _____mm

Soft tissue metastasis

Not identified □ Present, specify site (level) □ ……..……..

Non-lymphoid tissue

Nerve □ Muscle □ Vein □ Salivary gland □ Other □, specify …….

Left sided lymph nodes status

Maximum dimension of largest lymph node metastasis (if applicable) _____ mm

Maximum dimension of largest involved lymph node (if applicable) _____mm

Soft tissue metastasis

Not identified □ Present, specify site (level) □ ……..……..

Non-lymphoid tissue

Nerve □ Muscle □ Vein □ Salivary gland □ Other □, specify …….

Regional lymph node categorisation (UICC TNM 9th edition) TNM descriptors

Choose if applicable: r (recurrent) □ y (post-therapy) □

For primary carcinomas of the lip and oral cavity, nasal cavity and paranasal sinuses, oropharynx (HPV-independent), hypopharynx, larynx, cutaneous head and neck carcinomas (with the exception of Merkel cell carcinoma) and unknown primary SCCs that are p16 and EBV-negative.

NX Regional lymph nodes cannot be assessed □

N0 No regional lymph node metastasis □

N1 Metastasis in a single ipsilateral lymph node, 3 cm or less in greatest dimension without ENE □

N2 Metastasis described as:

N2a Metastasis in a single ipsilateral lymph node, 3 cm or less in greatest dimension with ENE or more than 3 cm but not more than 6 cm in greatest dimension without ENE □

N2b Metastasis in multiple ipsilateral nodes, none more than 6 cm in greatest dimension, without ENE □

N2c Metastasis in bilateral lymph nodes, none more than 6 cm in greatest dimension, without ENE □

N3 Metastasis described as:

N3a Metastasis in a lymph node more than 6 cm in greatest dimension, without ENE □

N3b Metastasis in a lymph node more than 3 cm in greatest dimension, with ENE or, multiple ipsilateral, or any contralateral or bilateral node(s) with ENE □

HPV-associated oropharyngeal carcinoma

NX Regional lymph nodes cannot be assessed □

N0 No regional lymph node metastasis □

N1 Metastasis in 1 to 4 lymph node(s) without definitive pathologic extranodal extension □

N1a Metastasis in 1 lymph node without definitive pathological extranodal extension □

N1b Metastasis in 2–4 lymph nodes without definitive pathological extranodal extension □

N2 Metastasis described as 1–4 lymph nodes with definitive pathologic extranodal extension or in >4 lymph nodes without definitive pathological extranodal extension □

N3 Metastasis in >4 lymph nodes with definitive pathological extranodal extension □

NPC

NX Regional lymph nodes cannot be assessed □

N0 No regional lymph node metastasis □

N1 Unilateral metastasis in cervical lymph node(s) and/or unilateral or bilateral metastasis in retropharyngeal lymph node(s), 6 cm or less in greatest dimension, above the caudal border of cricoid cartilage and without advanced pathological extranodal extension □

N2 Bilateral metastasis in cervical lymph node(s), 6 cm or smaller in greatest dimension, above the caudal border of cricoid cartilage and without advanced pathological extranodal extension □

N3 Metastasis in cervical lymph node(s), greater than 6 cm in dimension, and/or extension below the caudal border of the cricoid cartilage or advanced pathological extranodal extension □

Salivary gland

NX Regional lymph nodes cannot be assessed □

N0 No regional lymph node metastasis □

N1 Metastasis in 1–3 lymph node without definitive pathological extranodal extension □

N2 Metastasis in >3 lymph nodes or metastasis in any lymph node with definitive pathological extranodal extension □

Mucosal melanoma

NX Regional lymph nodes cannot be assessed □

N0 No regional lymph node metastasis □

N1 Regional lymph node metastasis present □

Sentinel lymph node biopsy

Carcinoma cells present □

Metastasis □

Micrometastasis □

ITCs □

No carcinoma cells present, pN0(sn) □

Appendix F Reporting proforma for nodal excisions and neck dissection specimens in list format

Element name	Values	Implementation notes	COSD v9
Submitted specimens Right neck	Multi selection value list (select all that apply): • Submental (IA) • Submandibular (IB) • Upper jugular (II) • Middle jugular (III) • Lower jugular (IV) • Posterior triangle (V) • Central compartment (VI+/-VII) • Retropharyngeal • Parotid/periparotid • Perifacial • Not specified • Other, specify • Totals		
Specimen submitted, other (specify)	Free text	Only applicable if 'Specimen submitted, Other' is selected	
No. lymph nodes examined	Free text	Insert 'cannot be determined' when applicable.	pCR0890
No. lymph positive nodes	Free text	Insert 'cannot be determined' when applicable.	pCR0900
No. positive lymph nodes with ENE**	Free text	** Non-core item for HPV-associated oropharyngeal cancer and nasopharyngeal cancer. Insert 'cannot be determined' when applicable.	pHN9430

Element name	Values	Implementation notes	COSD v9
		• ENEmi (≤2 mm) • ENEma (>2 mm)	
Non-lymphoid tissue	Single selection value list: • Nerve • Muscle • Vein • Salivary gland • Other		
Non-lymphoid tissue, Specify	Free text		
Submitted specimens Left neck	Multi selection value list (select all that apply): • Submental (IA) • Submandibular (IB) • Upper jugular (II) • Middle jugular (III) • Lower jugular (IV) • Posterior triangle (V) • Central compartment (VI+/-VII) • Retropharyngeal • Parotid/periparotid • Perifacial • Not specified • Other, specify • Totals		
Specimen submitted, other (specify)	Free text	Only applicable if 'Specimen submitted, Other' is selected	
No. lymph nodes examined	Free text	Insert 'cannot be determined' when applicable.	pCR0890
No. lymph positive nodes	Free text	Insert 'cannot be determined' when applicable.	pCR0900

Element name	Values	Implementation notes	COSD v9
No. positive lymph nodes with ENE**	Free text	** Non-core item for HPV-associated oropharyngeal cancer and nasopharyngeal cancer. Insert 'cannot be determined' when applicable.	pHN9430
Non-lymphoid tissue	Single selection value list: • Nerve • Muscle • Vein • Salivary gland • Other		
Non-lymphoid tissue, specify	Free text		
Primary tumour site	Single selection value list: • Not specified/not known • Known (e.g. oral cavity, larynx), specify		
Primary tumour site, known, specify	Free text		
SCC	• Single selection value list: • SCC, conventional • HPV-associated oropharyngeal carcinoma • Basaloid SCC • Papillary SCC • Spindle cell squamous carcinoma (sarcomatoid carcinoma) • Adenosquamous carcinoma • Acantholytic SCC • Undifferentiated (lymphoepithelial) carcinoma		
Salivary gland carcinoma	Single selection value list: • Mucoepidermoid carcinoma • Adenoid cystic carcinoma		

Element name	Values	Implementation notes	COSD v9
	• Acinic cell carcinoma • Secretory carcinoma • Microsecretory adenocarcinoma • Polymorphous adenocarcinoma • Hyalinizing clear cell carcinoma • Basal cell adenocarcinoma • Intraductal carcinoma • Salivary duct carcinoma • Myoepithelial carcinoma • Epithelial–myoepithelial carcinoma • Mucinous adenocarcinoma • Sclerosing microscystic adenocarcinoma • Carcinoma ex pleomorphic adenoma • Carcinosarcoma of the salivary glands • Sebaceous adenocarcinoma • Lymphoepithelial carcinoma • SCC • Sialoblastoma • Salivary gland carcinoma NOS • Other, specify		
Salivary gland carcinoma, Other, specify	Free text		
Neuro-endocrine neoplasm	Single selection value list: • Neuroendocrine tumour (NET) • Neuroendocrine carcinoma (NEC) – Small cell – Large cell		
Mucosal melanoma	Single selection value list: • Mucosal melanoma		
NPC	Single selection value list:		

Element name	Values	Implementation notes	COSD v9
	• SCC, keratinising • SCC, non-keratinising, differentiated • SCC, non-keratinising, undifferentiated • SCC, basaloid • Nasopharyngeal papillary adenocarcinoma • Other (e.g. primary adnexal skin cancers), specify type		
NPC, Other, specify	Free text		
Histological tumour grade	Single selection value list: • Not applicable • Grade 1, well differentiated, low grade • Grade 2, moderately differentiated, intermediate grade • Grade 3, poorly differentiated, high grade • Undifferentiated • High grade transformation		
Muco-epidermoid carcinoma	Single selection value list: • Low grade mucoepidermoid carcinoma • Intermediate grade mucoepidermoid carcinoma • High grade mucoepidermoid carcinoma		
Adenoid cystic carcinoma	Single selection value list: • Tubular/cribriform pattern predominant • Solid pattern >30%		
Polymorphous adeno-carcinoma	Single selection value list: • Classic • Grade, specify • Cribriform		
Polymorphous adeno-	Free text		

Element name	Values	Implementation notes	COSD v9
carcinoma, Grade, specify			
Intraductal carcinoma	Single selection value list: • High grade • Low grade		
Grading system used	Free text		
Cannot be assessed	Free text		
Ancillary studies	Multi selection value list (select all that apply): • Not performed • Performed • HPV testing, specify method and results • EBV testing, specify method and results		
HPV testing, specify method and results	Free text		
EBV testing, specify method and results	Free text		
Right sided lymph node status Maximum dimension of largest lymph node metastasis (if applicable)	Size in mm		pHN9420
Maximum dimension of largest involved lymph node (if applicable)	Size in mm		
Soft tissue metastasis	Single selection value list: Not identified Present, specify site (level)		

Element name	Values	Implementation notes	COSD v9
Soft tissue metastasis, present, specify site	Free text		
Non-lymphoid tissue	Multi selection value list (select all that apply): • Nerve • Muscle • Vein • Salivary gland • Other		
Non-lymphoid tissue, Specify	Free text		
Left sided lymph node status Maximum dimension of largest lymph node metastasis (if applicable)	Size in mm		pHN9410
Maximum dimension of largest involved lymph node (if applicable)	Size in mm		
Soft tissue metastasis	Single selection value list: Not identified Present, specify site (level)		
Soft tissue metastasis, present, specify site	Free text		
Non-lymphoid tissue	Multi selection value list (select all that apply): • Nerve • Muscle • Vein • Salivary gland • Other		

Element name	Values	Implementation notes	COSD v9
Non-lymphoid tissue, specify	Free text		
Regional lymph node categorisation (UICC TNM 8th edition) TNM descriptors	Multi selection value list (select all that apply): • r – recurrent • y – post-therapy		
For primary carcinomas of the lip and oral cavity, etc.	Single selection value list: • NX Regional lymph nodes cannot be assessed • N0 No regional lymph node metastasis • N1 Metastasis in a single ipsilateral lymph node, 3 cm or less in greatest dimension without ENE • N2a Metastasis in a single ipsilateral lymph node, 3 cm or less in greatest dimension with ENE or more than 3 cm but not more than 6 cm in greatest dimension without ENE • N2b Metastasis in multiple ipsilateral nodes, none more than 6 cm in greatest dimension, without ENE • N2c Metastasis in bilateral lymph nodes, none more than 6 cm in greatest dimension, without ENE • N3a Metastasis in a lymph node more than 6 cm in greatest dimension without ENE • N3b Metastasis in a lymph node more than 3 cm in greatest dimension with ENE or, multiple ipsilateral, or any contralateral or bilateral node(s) with ENE		pCR0920
HPV-associated	Single selection value list:		pCR0920

Element name	Values	Implementation notes	COSD v9
oropharyngeal carcinoma	• NX Regional lymph nodes cannot be assessed • N0 No regional lymph node metastasis • N1 Metastasis in 1 to 4 lymph node(s) without definitive pathologic extranodal extension – N1a Metastasis in 1 lymph node without definitive pathological extranodal extension – N1b Metastasis in 2–4 lymph nodes without definitive pathological extranodal extension • N2 Metastasis described as 1–4 lymph nodes with definitive pathologic extranodal extension or in >4 lymph nodes without definitive pathological extranodal extension • N3 Metastasis in >4 lymph nodes with definitive pathological extranodal extension		
Naso-pharyngeal carcinoma	Single selection value list: • NX Regional lymph nodes cannot be assessed • N0 No regional lymph node metastasis • N1 Unilateral metastasis in cervical lymph node(s) and/or unilateral or bilateral metastasis in retropharyngeal lymph node(s), 6 cm or smaller in greatest dimension, above the caudal border of cricoid cartilage and without advanced pathological extranodal extension • N2 Bilateral metastasis in cervical lymph node(s), 6 cm or smaller in greatest dimension, above the caudal		pCR0920

Element name	Values	Implementation notes	COSD v9
	border of cricoid cartilage and without advanced pathological extranodal extension • N3 Metastasis in cervical lymph node(s), greater than 6 cm in dimension, and/or extension below the caudal border of the cricoid cartilage or advanced pathological extranodal extension		
Salivary gland	• NX Regional lymph nodes cannot be assessed • N0 No regional lymph node metastasis • N1 Metastasis in 1–3 lymph node without definitive pathological extranodal extension • N2 Metastasis in >3 lymph nodes or metastasis in any lymph node with definitive pathological extranodal extension		
Mucosal melanoma	Single selection value list: • NX Regional lymph nodes cannot be assessed • N0 No regional lymph node metastasis • N1 Regional lymph node metastasis present		pCR0920
Sentinel lymph node biopsy	Single selection value list: • Carcinoma cells present • Metastasis • Micrometastasis • ITCs • No carcinoma cells present, pN0(sn)		

Comment: There is emerging evidence to suggest that lymph node ratio is a predictor of poor prognosis in head and neck SCC. It may be clinically useful to provide information on non-lymphatic structures involved by tumour within the neck dissection specimen. This can also provide correlation with pre-operative radiological findings. If available, the primary

site of tumour should be recorded and a summary of the overall staging provided including any previous resections.

Appendix G Summary table – Explanation of grades of evidence

(modified from Palmer K *et al. BMJ* 2008; 337:1832)

Grade (level) of evidence	Nature of evidence
Grade A	At least 1 high-quality meta-analysis, systematic review of randomised controlled trials or a randomised controlled trial with a very low risk of bias and directly attributable to the target population or A body of evidence demonstrating consistency of results and comprising mainly well-conducted meta-analyses, systematic reviews of randomised controlled trials or randomised controlled trials with a low risk of bias, directly applicable to the target cancer type.
Grade B	A body of evidence demonstrating consistency of results and comprising mainly high-quality systematic reviews of case-control or cohort studies and high-quality case-control or cohort studies with a very low risk of confounding or bias and a high probability that the relation is causal and which are directly applicable to the target population or Extrapolation evidence from studies described in A.
Grade C	A body of evidence demonstrating consistency of results and including well-conducted case-control or cohort studies and high-quality case-control or cohort studies with a low risk of confounding or bias and a moderate probability that the relation is causal and which are directly applicable to the target population or Extrapolation evidence from studies described in B.
Grade D	Non-analytic studies such as case reports, case series or expert opinion or Extrapolation evidence from studies described in C.
Good practice point (GPP)	Recommended best practice based on the clinical experience of the authors of the writing group.

Appendix H AGREE II guideline monitoring sheet

The guidelines of The Royal College of Pathologists comply with the AGREE II standards for good quality clinical guidelines. The sections of this guideline that indicate compliance with each of the AGREE II standards are indicated in the table.

AGREE standard	Section of guideline
Scope and purpose	
1 The overall objective(s) of the guideline is (are) specifically described	Introduction
2 The health question(s) covered by the guideline is (are) specifically described	Introduction
3 The population (patients, public, etc.) to whom the guideline is meant to apply is specifically described	Foreword
Stakeholder involvement	
4 The guideline development group includes individuals from all the relevant professional groups	Foreword
5 The views and preferences of the target population (patients, public, etc.) have been sought	Foreword
6 The target users of the guideline are clearly defined	Introduction
Rigour of development	
7 Systematic methods were used to search for evidence	Foreword
8 The criteria for selecting the evidence are clearly described	Foreword
9 The strengths and limitations of the body of evidence are clearly described	Foreword
10 The methods for formulating the recommendations are clearly described	Foreword
11 The health benefits, side effects and risks have been considered in formulating the recommendations	Foreword and Introduction
12 There is an explicit link between the recommendations and the supporting evidence	All sections
13 The guideline has been externally reviewed by experts prior to its publication	Foreword
14 A procedure for updating the guideline is provided	Foreword
Clarity of presentation	
15 The recommendations are specific and unambiguous	All sections
16 The different options for management of the condition or health issue are clearly presented	All sections
17 Key recommendations are easily identifiable	All sections

Applicability	
18 The guideline describes facilitators and barriers to its application	Foreword
19 The guideline provides advice and/or tools on how the recommendations can be put into practice	Appendices
20 The potential resource implications of applying the recommendations have been considered	Foreword
21 The guideline presents monitoring and/or auditing criteria	Section 10
Editorial independence	
22 The views of the funding body have not influenced the content of the guideline	Foreword
23 Competing interest of guideline development group members have been recorded and addressed	Foreword