NODAL EXCISIONS, NECK DISSECTION, PAROTID GLAND BASIN SPECIMENS FOR HEAD AND NECK TUMOURS

STRUCTURED REPORTING PROTOCOL

(1st Edition 2019)

Incorporating the:

International Collaboration on Cancer Reporting (ICCR)

Nodal Excisions and Neck Dissection Specimens for Head & Neck Tumours Dataset

www.ICCR-Cancer.org
Core Document versions:

- ICCR dataset: Nodal Excisions and Neck Dissection Specimens for Head & Neck Tumours Dataset 1st edition
- AJCC Cancer Staging Manual 8th edition
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   - Additional items for local use may be added but must not be numbered as a Standard or Guideline, in order to avoid confusion with the RCPA checklist items.
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   - Commentary from the Protocol may be added or hyperlinked to the relevant checklist item.

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Scope

This protocol contains standards and guidelines for the structured reporting of Nodal Excisions and Neck Dissection Specimens for Head and Neck Tumours. The protocol has been developed for the reporting of lymph node resections from patients with carcinomas and melanomas of the head and neck. Carcinomas covered by the protocol include squamous cell carcinomas of both mucosal and cutaneous origin, sinonasal carcinomas, salivary and non-salivary type adenocarcinomas and neuroendocrine tumours including Merkel cell carcinoma. Pathologists may also apply the protocol to lymph node resections for other cutaneous carcinomas. This excludes nodal resections for thyroid malignancies (please refer to Thyroid protocol), lymphoma and sarcomas. It is not intended for use in reporting lymph node core biopsies or fine needle aspirations.

This protocol is to be used in conjunction with other protocols in the Head and Neck Series such as: Malignant salivary gland neoplasms, Carcinomas of the Larynx, Hypopharynx and Trachea, Ear and Temporal bone tumours, Mucosal melanomas, Nasal cavity and Paranasal sinuses, Nasopharynx and Oropharynx, Malignant Odontogenic tumours, and Oral cavity carcinomas. Lymph node excisional biopsies or neck dissections may precede, accompany or follow the biopsy or resection of a primary tumour. Concurrent reporting of the lymph node and primary tumour elements - ideally in the same report - is preferable, as it provides clinicians with the most comprehensive information for tumour stage categorisation. Pathologists should consider the impact of prior intervention (e.g., prior diagnostic lymph node excisional biopsy in a patient with a neck mass) on the pN category, making reference to the previous surgical pathology specimen, if available. Similarly, neck dissections may be performed as “salvage surgery” following radiation and/or chemotherapy. These adjuvant or non-adjuvant interventions may affect pN category by reducing the bulk of tumour, or perhaps eliminating it altogether.

Structured reporting aims to improve the completeness and usability of pathology reports for clinicians, and improve decision support for cancer treatment. This protocol can be used to define and report the minimum data set but the structure is scalable and can equally accommodate a maximum data set or fully comprehensive report.
Abbreviations

AJCC  American Joint Committee on Cancer
CG    Commentary for a guideline
CS    Commentary for a standard
EBER  Epstein Barr virus-encoded RNA
EBV   Epstein Barr virus
ENE   Extranodal extension
HPV   Human papilloma virus
ICCR  International Collaboration on Cancer Reporting
IHC   Immunohistochemistry
LIS   Laboratory information system
LVI   Lymphovascular invasion
PNI   Perineural invasion
RCPA  Royal College of Pathologists of Australasia
SCC   Squamous cell carcinoma
SLNB  Sentinel lymph node biopsy
TNM   Tumour-node-metastasis
UICC  International Union Against Cancer
WHO   World Health Organization
# Definitions

The table below provides definitions for general or technical terms used in this protocol. Readers should take particular note of the definitions for 'standard', 'guideline' and 'commentary', because these form the basis of the protocol.

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancillary study</td>
<td>An ancillary study is any pathology investigation that may form part of a cancer pathology report but is not part of routine histological assessment.</td>
</tr>
<tr>
<td>Clinical information</td>
<td>Patient information required to inform pathological assessment, usually provided with the specimen request form, also referred to as &quot;pre-test information&quot;.</td>
</tr>
<tr>
<td>Commentary</td>
<td>Commentary is text, diagrams or photographs that clarify the standards (see below) and guidelines (see below), provide examples and help with interpretation, where necessary (not every standard or guideline has commentary). Commentary is used to:</td>
</tr>
<tr>
<td></td>
<td>- define the way an item should be reported, to foster reproducibility</td>
</tr>
<tr>
<td></td>
<td>- explain why an item is included (e.g., how does the item assist with clinical management or prognosis of the specific cancer).</td>
</tr>
<tr>
<td></td>
<td>- cite published evidence in support of the standard or guideline</td>
</tr>
<tr>
<td></td>
<td>- state any exceptions to a standard or guideline.</td>
</tr>
<tr>
<td></td>
<td>In this document, commentary is prefixed with ‘CS’ (for commentary on a standard) or ‘CG’ (for commentary on a guideline), numbered to be consistent with the relevant standard or guideline, and with sequential alphabetic lettering within each set of commentaries (e.g., CS1.01a, CG2.05b).</td>
</tr>
<tr>
<td>General commentary</td>
<td>General commentary is text that is not associated with a specific standard or guideline. It is used:</td>
</tr>
<tr>
<td></td>
<td>- to provide a brief introduction to a chapter, if necessary</td>
</tr>
<tr>
<td></td>
<td>- for items that are not standards or guidelines but are included in the protocol as items of potential importance, for which there is currently insufficient evidence to recommend their inclusion. (Note: in future reviews of protocols, such items may be reclassified as either standards or guidelines, in line with diagnostic and prognostic advances, following evidentiary review).</td>
</tr>
</tbody>
</table>
Guideline

Guidelines are recommendations; they are not mandatory, as indicated by the use of the word 'should'. Guidelines cover items that are unanimously agreed should be included in the dataset but are not supported by the National Health and Medical Research Council (NHMRC) level III-2 evidence. These elements may be clinically important and recommended as good practice but are not yet validated or regularly used in patient management.

Guidelines include key information other than that which is essential for clinical management, staging or prognosis of the cancer such as macroscopic observations and interpretation, which are fundamental to the histological diagnosis and conclusion e.g., macroscopic tumour details, block identification key, may be included as either required or recommended elements by consensus of the expert committee. Such findings are essential from a clinical governance perspective, because they provide a clear, evidentiary decision-making trail.

Guidelines are not used for research items.

In this document, guidelines are prefixed with ‘G’ and numbered consecutively within each chapter (e.g., G1.10).

Macroscopic findings

Measurements, or assessment of a biopsy specimen, made by the unaided eye.

Microscopic findings

In this document, the term ‘microscopic findings’ refers to histomorphological assessment.

Predictive factor

A predictive factor is a measurement that is associated with response or lack of response to a particular therapy.

Prognostic factor

A prognostic factor is a measurement that is associated with clinical outcome in the absence of therapy or with the application of a standard therapy. It can be thought of as a measure of the natural history of the disease.

Standard

Standards are mandatory, as indicated by the use of the term ‘must’. Standards are essential for the clinical management, staging or prognosis of the cancer. These elements will either have evidentiary support at Level III-2 or above (based on prognostic factors in the NHMRC levels of evidence document). In rare circumstances, where level III-2 evidence is not available an element may be made a Standard where there is unanimous agreement in the expert committee. An appropriate staging system e.g., Pathological TNM staging would normally be included as a required element. These elements must be recorded and at the discretion of the pathologist included in the pathology report according to the needs of the recipient of the report.

The summation of all standards represents the minimum dataset for the cancer.

In this document, standards are prefixed with ‘S’ and numbered consecutively within each chapter (e.g., S1.02).
Structured report  A report format which utilises standard headings, definitions and nomenclature with required information.

Synoptic report  A structured report in condensed form (as a synopsis or precis).

Synthesis  Synthesis is the process in which two or more pre-existing elements are combined, resulting in the formation of something new.

The Oxford dictionary defines synthesis as “the combination of components or elements to form a connected whole”.

In the context of structured pathology reporting, synthesis represents the integration and interpretation of information from two or more modalities to derive new information.
Introduction

Nodal Excisions and Neck Dissection Specimens for Head & Neck Tumours

Neck dissection for lymph nodes forms an important part of management of most mucosal and cutaneous malignancies of the head and neck. The lymph node groups in the neck are classified as per Robbin’s system originally proposed by the American Academy of Otolaryngology – Head and Neck Surgery in which the lymph node basins of the neck are divided into levels I to VI, as per the anatomical boundaries illustrated in Figure 1. The lymph nodes of the neck form the regional lymphatic drainage basin of the oral cavity, oropharynx, nasopharynx and the larynx. Nearly 30% of carcinomas arising at these sites are metastatic to these regional lymph nodes at presentation. Thus, an elective lymph node dissection of levels I-IV is generally performed for all mucosal malignancies at the time of their primary resection.

Primary salivary gland malignancies are rare. These tumours show a similar pattern of regional metastases as mucosal malignancies. While some specific subtypes such as mucoepidermoid carcinoma, carcinoma ex pleomorphic adenoma, adenoid cystic carcinoma and salivary duct carcinoma show a higher rate of regional metastases as compared to other subtypes, this protocol of lymph node dissection should be used for all salivary gland neoplasms of major or minor salivary gland origin.

Primary cutaneous malignancies are extremely frequent in Australia and New Zealand, due to high index of solar induced ultraviolet damage in Fitzpatrick skin types I-III. The most common amongst these such as cutaneous squamous cell carcinoma and melanoma also metastasise to the neck lymph nodes. In addition, particularly those malignancies arising from the skin of the scalp and the temple can also metastasise to the intra and peri-parotid lymph nodes, facial and occipital nodes. Most malignancies of cutaneous origin also demonstrate soft tissue deposits that may represent either completely replaced and hence unrecognizable lymph nodes, or in-transit metastases. Other cutaneous malignancies such as basal cell carcinoma that metastasises rarely and rare skin cancers such as Merkel cell carcinoma, sebaceous carcinoma and cutaneous adnexal neoplasms demonstrate similar patterns of metastases to regional parotid and neck node basins. Most neck dissections for cutaneous malignancies are performed after the patient develops a metastases and elective lymph node dissection is generally reserved only for large and high risk cutaneous malignancies.

The number of lymph nodes retrieved from a lymph node dissection specimen, the number of involved nodes, and the size of the involved nodes provide prognostic information that guides adjuvant management of patients with head and neck mucosal, salivary gland, sinonasal and cutaneous malignancies. Extranodal extension (ENE) has been recognised as an important prognostic factor that leads to upstaging of the disease in American Joint Committee on Cancer 8 (AJCC 8). Currently, quantitative and qualitative assessment of ENE is not required. However, further data are required to determine if factors such as extent of the ENE in mms and margin, particularly if involved, provide additional prognostic information.
Benefits of structured reporting

The pathology report lays the foundation for a patient’s cancer journey and conveys information which:

- Provides the definitive diagnosis
- Includes critical information for Tumour-Node-Metastasis (TNM) staging
- Evaluates the adequacy of the surgical excision
- Provides morphological and biological prognostic markers which determine personalised cancer therapy

However, the rapid growth in ancillary testing such as immunohistochemistry, flow cytometry, cytogenetics, and molecular studies, have made the task of keeping abreast of advances on specific cancer investigations extremely difficult for pathologists. The use of structured reporting checklists by pathologists ensures that all key elements are included in the report specifically those which have clinical management, staging or prognostic implications. Consequently minimum or comprehensive datasets for the reporting of cancer have been developed around the world. Both the United Kingdom, United States and United States have produced standardised cancer reporting protocols or “datasets” for national use for many years.

The use of cancer reporting checklists improves completeness and quality of cancer reporting and thereby ensures an improved outcome for cancer patients. This has long term cost implications for public health by ensuring the most effective and timely treatment based on accurate and complete information.

The use of a structured reporting format also facilitates easy extraction of the necessary information by secondary users of the information i.e., cancer registries.

Importance of histopathological reporting

The information contained within a pathology report includes prognostic information for the patient and treating clinical team. The content will assist in subsequent management, whether this may be surveillance, further surgery, radiotherapy or chemotherapy, or a combination of these modalities.

International Collaboration on Cancer Reporting

The International Collaboration on Cancer Reporting (ICCR), founded in 2011 by the Royal College of Pathologists of Australasia (RCPA), United States College of Pathologists (US CAP), United Kingdom Royal College of Pathologists (RCPath) and the Canadian Association of Pathologists – Association Canadienne des pathologistes (CAP-ACP) in association with the Canadian Partnership Against Cancer (CPAC), was established to explore the possibilities of a collaborative approach to the development of common, internationally standardised and evidence-based cancer reporting protocols for surgical pathology specimens.

The ICCR, recognising that standardised cancer datasets have been shown to provide significant benefits for patients and efficiencies for organisations through the ease and completeness of data capture undertook to use the best international approaches and the knowledge and experience of expert pathologists, and produce cancer datasets which would ensure that cancer reports across the world will be of the same high quality – ensuring completeness, consistency, clarity, conciseness and above all, clinical utility.
Representatives from the four countries participating in the initial collaboration undertook a pilot project in 2011 to develop four cancer datasets - Lung, Melanoma, Prostate (Radical Prostatectomy), and Endometrium. Following on from the success of this pilot project, the ICCR was joined by the European Society of Pathology (ESP) in 2013, and in 2014 incorporated a not-for-profit organisation focussed on the development of internationally agreed evidence-based datasets developed by world leading experts. The ICCR Datasets are made freely available from its website www.ICCR-Cancer.org

Design of this protocol

This structured reporting protocol has been developed using the ICCR dataset on Nodal Excisions and Neck Dissection Specimens for Head & Neck Tumours as the foundation.

This protocol includes all of the ICCR cancer dataset elements as well as additional information, elements and commentary as agreed by the RCPA expert committee. It provides a comprehensive framework for the assessment and documentation of pathological features of nodal excisions and neck dissection specimens for head and neck tumours.

ICCR dataset elements for Nodal Excisions and Neck Dissection Specimens for Head & Neck Tumours are included verbatim. ICCR Core elements are mandatory and therefore represented as standards in this document. ICCR Non-core elements, that is, those which are not mandatory but are recommended, may be included as guidelines or upgraded to a standard based on the consensus opinion of the local expert committee.

The ICCR elements are identified in each chapter with the ICCR logo placed before the Standard or Guideline number or bullet and the ICCR element description and commentary is boarded by a grey box as shown below:

<table>
<thead>
<tr>
<th>S3.01</th>
<th>The histological tumour type must be recorded.</th>
</tr>
</thead>
</table>

Additional commentary by the RCPA expert committee may be added to an ICCR element but is not included in the grey bordered area nor indicated with an ICCR logo e.g.,

<table>
<thead>
<tr>
<th>G2.03</th>
<th>If present, the laterality of the lymph nodes submitted may be recorded as left, right or bilateral.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS2.03a</td>
<td>If present, record site and number. All lymph node tissue should be submitted for histological examination.</td>
</tr>
</tbody>
</table>

Further information on the ICCR is available at www.iccr-cancer.org

Checklist

Consistency and speed of reporting is improved by the use of discrete data elements recorded from the checklist. Items suited to tick boxes are distinguished from more
complex elements requiring free text or narrative. A structured or discrete approach to responses is favoured, however the pathologist is encouraged to include free text or narrative where necessary to document any other relevant issues, to give reasons for coming to a particular opinion and to explain any points of uncertainty.

**Report format**

The structure provided by the following chapters, headings and subheadings describes the elements of information and their groupings but does not necessarily represent the format of either a pathology report (Chapter 7) or checklist (Chapter 6). These, and the structured pathology request form (Appendix 1) are templates that represent information from this protocol, organised and formatted differently to suit different purposes.

**Key documentation**

- *Guidelines for Authors of Structured Cancer Pathology Reporting Protocols, Royal College of Pathologists of Australasia, 2009*


- *AJCC Cancer Staging Manual, 8th edition, American Joint Committee on Cancer, 2016*

**Changes since last edition**

Not applicable.
Authority and development

This section provides information about the process undertaken to develop this protocol.

This 1st edition of the protocol is an amalgam of two separate processes:

1. This protocol is based on the ICCR dataset – Nodal Excisions and Neck Dissection Specimens for Head & Neck Tumours 1st edition. All ICCR elements from this dataset, both core (mandatory) and non-core (optional), are included in this protocol, verbatim. (It should be noted that RCPA feedback from all Anatomical Pathology fellows and specifically the local expert committee was sought during the development process of the ICCR dataset.) Details of the ICCR development process and the international expert authoring committee responsible for the ICCR dataset are available on the ICCR website: iccr-cancer.org.

2. Additional elements, values and commentary have been included as deemed necessary by the local expert committee. In addition, the standard inclusions of RCPA protocols e.g., example reports, request information etc, have also been added.

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Stakeholders

ACT Cancer Registry
ACT Health
Australian and New Zealand Head and Neck Cancer Society
Australian Cancer Network
Australian Commission on Safety and Quality in Health Care
Australian Digital Health Agency
Australian Institute of Health and Welfare
Cancer Australia
Cancer Council ACT
Cancer Council Queensland
Cancer Council Victoria
Cancer Council Western Australia
Cancer Institute NSW
Cancer Services Advisory Committee (CanSAC)
Cancer Voices NSW
Clinical Oncology Society of Australia (COSA)
Department of Health, Australia
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Health Informatics Society of Australia (HISA)
Independent Review Group of Pathologists
Medical Oncology Group of Australia
Medical Software Industry Association (MSIA)
Ministry of Health, New Zealand
National Pathology Accreditation Advisory Council (NPAAC)
New Zealand Cancer Registry
Northern Territory Cancer Registry
Pathology Australia
Public Pathology Australia
Queensland Cooperative Oncology Group (QCOG)
RCPA Anatomical Pathology Advisory Committee (APAC)
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Royal Australasian College of Physicians (RACP)
Royal Australasian College of Surgeons (RACS)
Royal Australian and New Zealand College of Radiologists (RANZCR)
Royal Australian College of General Practitioners (RACGP)
Royal College of Pathologists of Australasia (RCPA)
Development process

This protocol has been developed following the ten-step process set out in *Guidelines for Authors of Structured Cancer Pathology Reporting Protocols*.18

Where no reference is provided, the authority is the consensus of the local expert group for local inclusions and the ICCR Dataset Authoring Committee for ICCR components denoted with the ICCR logo.
1 Pre-analytical

This chapter relates to information that should be recorded on receipt of the specimen in the laboratory.

The pathologist is reliant on the quality of information received from the clinicians or requestor. Some of this information may be received in generic pathology request forms, however, the additional information required by the pathologist specifically for the reporting of Nodal Excisions and Neck Dissection Specimens for Head & Neck Tumours, is outlined in Appendix 1. Appendix 1 also includes a standardised request information sheet that may be useful in obtaining all relevant information from the requestor.

Surgical handling procedures affect the quality of the specimen and recommendations for appropriate surgical handling are included in Appendix 1.

S1.01 All demographic information provided on the request form and with the specimen must be recorded.

CS1.01a The Royal College of Pathologists of Australasia (RCPA) The Pathology Request-Test-Report Cycle — Guidelines for Requesters and Pathology Providers must be adhered to.20 This document specifies the minimum information to be provided by the requesting clinician for any pathology test.

CS1.01b Document whether or not the patient identifies as Aboriginal and/or Torres Strait Islander in Australia, or Māori in New Zealand. This is in support of government initiatives to monitor the health of those who identify as indigenous, particularly in relation to cancer.

CS1.01c The patient’s health identifiers may include the patient’s Medical Record Number as well as a national health number such as a patient’s Individual Healthcare Identifier (IHI) (Australia) or the National Healthcare Identifier (New Zealand).

S1.02 All clinical information as documented on the request form must be recorded verbatim.

CS1.02a The request information may be recorded as a single text (narrative) field or it may be recorded in a structured format.

CS1.02b In most cases all clinical information should be transcribed: however, in a small number of cases the pathologist may exercise discretion regarding the inclusion of provided clinical information, for instance, possibly erroneous information or information that may impact on patient privacy. In such case reference should be made as to the location of the complete clinical information e.g., “Further clinical information is available from the scanned request form.”

G1.01 The copy doctors requested on the request form should be recorded.
S1.03 The pathology accession number of the specimen must be recorded.

S1.04 The principal clinician involved in the patient’s care and responsible for investigating the patient must be recorded.

CS1.04a The principal clinician should provide key information regarding the clinical presentation of the patient. Follow up may be required with the principal clinician for a number of reasons:

- The clinical assessment and staging may be incomplete at the time of biopsy.
- The pathology request is often authored by the clinician performing the surgical excision/biopsy rather than the clinician who is investigating and managing the patient.
- The identity of this clinician is often not indicated on the pathology request form.

In practice therefore, it is important in such cases that the reporting pathologist should be able to communicate with the managing clinician for clarification.

CS1.04b The Australian Healthcare identifiers i.e., Healthcare Provider Identifier - Individual (HPI-I) and Healthcare Provider Identifier - Organisation (HPI-O) should be included, where possible, to identify the principal clinician involved in the patient’s care.

G1.02 Any clinical information received in other communications from the requestor or other clinician should be recorded together with the source of that information.
2 Specimen handling and macroscopic findings

This chapter relates to the procedures required after the information has been handed over from the requesting clinician, and the specimen has been received in the laboratory.

Tissue banking

- Pathologists may be asked to provide tissue samples from fresh specimens for tissue banking or research purposes. The decision to provide tissue should only be made if the pathologist is sure that the diagnostic process will not be compromised. As a safeguard, research use of the tissue samples may be put on hold until the diagnostic process is complete.

Specimen handling

- Detailed fixation and specimen handling instructions are available from the RCPA online Cut-up Manual:
  

- Correct submission of neck dissection specimens is required to obtain the most accurate and clinically useful information. Although there is no defined minimum number of lymph nodes required to utilise the term “neck dissection”, a selective neck dissection should contain at least 10 or more nodes and a comprehensive neck dissection should contain 18 or more nodes.21-25 There are multiple good references available with grossing guidelines for neck dissection specimens. However, several points are emphasised here.

  1) 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 involved nodes where ENE is considered likely, should be inked (at least surrounding the mass itself). Institutions can choose to ink all neck dissection specimens in the interest of having a uniform protocol or if the prossection is performed by individuals at different stages of training and experience.

  2) 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 cm in greatest dimension is a reasonable approach. Sections should focus on potential areas of ENE, involvement of
non-lymphatic structures and the closest margin.

3) 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 present in two cassettes. Careful gross description, with 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 or thymus).

- All fibroadipose tissue in the specimen should be submitted for histopathologic examination if less than 18 lymph nodes are identified from a level I-IV neck dissection. There is considerable evidence from studies evaluating neck dissections accompanying mucosal carcinomas that neck dissections levels I-IV containing less than 18 lymph nodes do not provide adequate/accurate prognostic information. The patients with <18 negative lymph nodes may have less favourable prognosis as compared to those with >18 negative lymph nodes. Strong evidence is not available to support this threshold in other head and neck malignancies. However, this threshold can be applied to all head and neck malignancies included in this protocol for uniformity and to allow data collection for the future. It also provides a quality control step for the prosectors ability to identify lymph nodes as well as the surgical quality.

---

### Macroscopic findings

**S2.01** The labelling of the specimen(s) must be clearly recorded.

**S2.02** The specimen laterality must be recorded.

**CS2.02a** In the case of bilateral neck dissections, a separate synoptic template should be used for the left and right sides.

**G2.01** The operative procedure should be recorded.

**CG2.01a** **NECK DISSECTION TERMINOLOGY**

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 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. This classification only includes lymph nodes commonly removed during neck dissection procedures, and 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 (see Figure 2). 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.32

<table>
<thead>
<tr>
<th>CG2.01b</th>
<th>The boundaries of the lymph node groups found within the levels and sublevels of the neck are as follows:1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level IA (submental)</strong></td>
<td>Lymph nodes within the triangular boundary of the anterior belly of the digastric muscles and the hyoid bone. These nodes are at greatest risk for harbouring metastases from cancers arising from the floor of mouth, anterior oral tongue, anterior mandibular alveolar ridge, and lower lip.</td>
</tr>
<tr>
<td><strong>Level IB (submandibular)</strong></td>
<td>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 prevascular and postvascular nodes. The submandibular gland is included in the specimen when the lymph nodes within the triangle are removed. These nodes are at greatest risk for harbouring metastases from cancers arising from the oral cavity, anterior nasal cavity, soft tissue structures of the midface, and submandibular gland.</td>
</tr>
<tr>
<td><strong>Levels IIA and IIB (upper jugular)</strong></td>
<td>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 greatest risk for harbouring metastases from cancers arising from the skin, oral cavity, nasal cavity, nasopharynx, oropharynx, hypopharynx, larynx, and</td>
</tr>
</tbody>
</table>
parotid gland.

**Level III (middle jugular)**

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 greatest risk for harbouring metastases from cancers arising from the oral cavity, nasopharynx, oropharynx, hypopharynx, and larynx.

**Level IV (lower jugular)**

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. These nodes are at greatest risk for harbouring metastases from cancers arising from the hypopharynx, thyroid, cervical oesophagus, and larynx.

**Levels VA and VB (posterior jugular)**

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

**Level VI (anterior compartment)**

Lymph nodes in this compartment include the pretracheal and paratracheal nodes, precrioid (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 greatest risk for harbouring metastases from cancers arising from the thyroid gland, glottic and subglottic larynx, apex of the piriform sinus, and cervical oesophagus.

**Level VII (superior mediastinal)**

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.

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. This was revised in 2002 and updated in 2008. 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 to V are removed, and therefore it includes radical, modified radical and extended neck dissections, as explained below.

A radical neck dissection involves removal of levels I-V, as well as the sternocleidomastoid muscle, spinal accessory nerve and internal jugular vein. A modified radical neck dissection spares at least one 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. A selective neck dissection is a more limited procedure, in which one 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).

Levels I to III are commonly removed for tumours of the oral cavity. Dissection of levels II to IV is performed for tumours of the larynx, oropharynx and hypopharynx. Levels II to V, are dissected commonly for skin malignancies of the posterior scalp or upper, posterolateral neck.

Level VI and VII nodes (pretracheal, paratracheal, precricoid/Delphian and perithyroidal nodes) are most
commonly removed 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.

The parotid lymph node basin is usually received as part of a parotidectomy specimen for primary salivary gland tumours or for metastatic skin cancers of the face and scalp (see Figure 2).

CG2.01c Accurate designation of the operative procedure requires appropriate information from the surgeon, ideally with specimen orientation. A single operation may encompass more than one procedure, and the terminology may vary by institution. In some cases, it is not possible to specify or be certain of the operative procedure, and thus this element is considered non-core. However, most neck dissections are generally undertaken in units with functional multidisciplinary team meetings. Thus, communication with the surgeons and/or discussion with multidisciplinary teams should resolve these issues.

CG2.01d This protocol does not specifically address the issue of sentinel lymph node biopsy (SLNB) for head and neck cancers. The experience with SLNB is greatest for melanoma and breast cancer. While SLNB is a valid diagnostic technique to correctly predict the stage of regional nodes in head and neck cancer, it is not yet standard of care in most countries. In general, the same principles of lymph node reporting as listed in this protocol can be applied to sentinel lymph nodes, except where additional information is required by local convention or study protocols. A negative sentinel lymph node supports the cN0 category, assuming a formal neck dissection has not been performed.

S2.03 The specimen(s) submitted must be recorded.

CS2.03a 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.

If a patient is known to have had a prior lymph node excisional biopsy (for example for diagnostic purposes),
G2.02 For each submitted specimen, size in 3 dimensions may be recorded.

G2.03 For each lymph node site submitted, the number of lymph nodes retrieved should be recorded.

G2.04 The presence or absence of macroscopic metastatic tumour should be recorded.

G2.05 The maximum dimension of largest metastatic deposit should be recorded.

G2.06 Macroscopic evidence of ENE should be recorded.

G2.07 A macroscopic distance of the metastatic deposit to the closest margin should be recorded in case of ENE.

S2.04 A differential ink application and block identification key listing the nature and origin of all tissue blocks must be recorded.

CS2.04a The colours of the ink used to designate the various surfaces (particularly superficial and deep) should be clearly stated in the macroscopic description, to guide margin assessment.

CS2.04b The origin/designation of all tissue blocks should be recorded. This information should be documented in the final pathology report and is particularly important should the need for internal or external review arise. Where appropriate, specimen photographs and block diagrams should be utilised. The reviewer needs to be clear about the origin of each block in order 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.

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

CS2.04c The block key should include details about the number of lymph nodes included per block and whether or not the lymph node(s) were bisected/multisected to ensure an accurate nodal count.

G2.08 A descriptive or narrative field should be provided to record any macroscopic information that is not recorded in the above standards and guidelines, and that would normally form part of the
macroscopic description.

CG2.08a The traditional macroscopic narrative recorded at the time of specimen dissection is often reported separately from the cancer protocol. Although this remains an option, it is recommended that macroscopic information be recorded within the overall structure of this protocol.

CG2.08b Much of the information recorded in a traditional macroscopic narrative is covered in the standards and guidelines above and in many cases, no further description is required.

CG2.08c A traditional macroscopic description may be required when the Laboratory Information System (LIS) does not allow a structured approach.

CG2.08d Where the LIS offers an electronic interface for structured data entry the need for narrative can be significantly reduced to describe only information not otherwise captured.
Figure 1. Illustration of the major neck lymph node levels, with anatomical boundaries, that are resected during neck dissections. This figure was published in Imaging Anatomy: Brain, Head and Neck, Spine. Diagnostic and Surgical Imaging Anatomy, Cervical Lymph nodes, 2006, Gordon H and Harmsberger HR, page 253, Copyright Amirsys/Elsevier (2006). Reproduced with permission.
Figure 2. Anatomy of head and neck lymphatic drainage. Reproduced with permission from Gregoire et al\textsuperscript{39}, Copyright © Elsevier (2014).
# 3 Microscopic findings

This section relates to purely histological or morphological assessment. Information derived from multiple investigational modalities, or from two or more chapters, is described in Chapter 5.

<table>
<thead>
<tr>
<th>CS3.01</th>
<th>The histological tumour type must be recorded.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS3.01a</td>
<td>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 (see below) 4) guiding treatment, which varies by tumour type and lymph node status. Histological type and grade is typically determined from the histology of 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, in situ hybridisation for high-risk human papilloma virus (HPV), in situ hybridisation for Epstein Barr virus-encoded RNA (EBER). For patients with occult primary squamous cell carcinoma in level II or III, the cN or pN categories are influenced by Epstein Barr virus (EBV) and HPV status. EBV-related and HPV-related carcinomas are given the N category that applies to nasopharyngeal and HPV-related oropharyngeal carcinomas, respectively. Note that verrucous carcinoma is not included in the list of squamous cell carcinoma variants, as it has no capacity to metastasise to lymph nodes. A classification for neuroendocrine tumours is included, which applies to tumours of the hypopharynx, larynx, trachea and parapharyngeal space as per the latest World Health Organization (WHO) head and neck tumour classification. Neuroendocrine tumours elsewhere in the head and neck (for example the nasal cavity, Merkel cell carcinoma of the skin and salivary glands) tend to be high grade. In most cases, an appropriate choice can be made from the list provided, but sites may choose to use the “other” category, as per local needs or convention. Concurrent metastatic carcinoma and a non-Hodgkin lymphoma such as chronic lymphocytic lymphoma/leukemia (CLL) are commonly seen in neck dissection specimens. Both malignancies should be appropriately recorded.</td>
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</tbody>
</table>
In rare instances there may be metastases from different primaries (for example metastases of oral cavity SCC and papillary carcinoma of thyroid). This should be appropriately recorded.

<table>
<thead>
<tr>
<th>G3.01</th>
<th>The primary tumour site should be recorded.</th>
</tr>
</thead>
<tbody>
<tr>
<td>G3.01a</td>
<td>Primary tumour site has been included in this section for cases in which the neck dissection is received as a separate surgical specimen from the primary tumour. As this is not always the case, it has been designated as a non-core item. However, the site of the primary tumour should be routinely included, if known, when the neck dissection is received separately from the primary tumour.</td>
</tr>
</tbody>
</table>

**S3.02**  The laterality of the lymph nodes must be recorded.

| CS3.02a | In the case of bilateral neck dissections, a separate reporting template should be used for the right and left neck dissections. |

**S3.03**  The lymph node status must be recorded.

| CS3.03a | Lymph node status may be presented in tabular form for ease of interpretation. |
| CS3.03b | For cases in which an involved lymph node or tumour deposit straddles more than one 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 one level may need to be combined. If a neck dissection is received without any level designation, clarification from the surgeon involved 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” refers to a deposit of tumour in connective tissue, without a microscopically identifiable residual lymph node. This may represent-venous invasion, lymphatic invasion or, most likely, a totally replaced node or nodes. It does not refer to intralymphatic tumour emboli in adipose tissue surrounding the lymph nodes. In many cases, a soft tissue metastasis is the largest focus of tumour in the specimen. Rarely, very small soft tissue metastases (e.g., <1 mm in greatest dimension) are identified that appear unlikely to be of nodal origin. Special stains and deeper levels may help to identify a vascular origin for these deposits, and the pathologist may use his/her discretion as to their designation as positive lymph nodes, perhaps with the use of a clarifying comment. 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 also be of benefit.

The largest metastatic focus may be an intranodal or a soft tissue metastasis. Determination of the size of the largest metastasis may be difficult in cases where multiple tumour deposits are identified in a single lymph node. Options including measuring the greatest dimension of the largest 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.

The size of the largest involved lymph node is the basis upon which clinicians determine N category and thereby the stage. Although there is some debate about whether the greatest dimension of the largest tumour deposit or that of the largest involved lymph node is the more relevant measurement, both are considered “core” items in this protocol. This is to provide the maximum amount of data, which may be relevant for clinical decision-making. The greatest dimension of the largest involved lymph node should be used to determine the pN category. In some cases, the largest node in a specimen may be a reactive node or one involved by CLL. Therefore, the measurement must be of the largest node involved by metastatic carcinoma or melanoma.

The prognostic significance of isolated tumour cells (foci <0.2 mm diameter or <200 cells) and micrometastases (foci 2 mm or less in greatest dimension) is currently unknown for head and neck cancers, and their designation is not required as part of the TNM staging.\textsuperscript{43,44} Isolated tumour cells are uncommon in metastatic squamous cell carcinoma, but may occur in some less common primary tumours (e.g., small cell carcinoma of salivary origin). As such, any-sized tumour deposit is considered a positive lymph node for staging purposes.\textsuperscript{1,45,46} Specific identification of tumour deposits as isolated tumour cells or micrometastases and cytokeratin positive non-nucleated cells is not required as part of this protocol, but can be recorded as per local requirements for data collection.

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
**The presence or absence of ENE must be recorded.**

<table>
<thead>
<tr>
<th>CS3.04a</th>
<th><strong>Extranodal extension (ENE)</strong></th>
</tr>
</thead>
</table>

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”, but the term “extranodal extension” has been adopted in the 8th edition of the AJCC Staging Manual and the Union for International Cancer Control (UICC) and therefore is used here. ENE is a poor prognostic factor in cervical node positive head and neck carcinoma. In HPV-mediated oropharyngeal cancer, the exact clinical significance of ENE has yet to established, and so it is considered a “non-core” item, with reporting up to local discretion. It is recommended that this information is recorded in order to accrue data that can provide the evidence base to inform future decisions.

The presence of ENE in other head and neck cancers correlates with the risk of regional recurrence and outcome. It is an important factor for oncologists when considering treatment with postoperative radiotherapy or chemoradiotherapy. ENE is subcategorised pathologically as microscopic (ENE\textsubscript{mi}, less than or equal to 2 mm in extent) and major (ENE\textsubscript{ma}, more than 2 mm in extent). These subcategories are not required for N categorisation but are recommended for data collection and future analysis. The 5-point grading system for ENE (Lewis et al) is not validated and is not currently recommended.

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 estimated of the number involved, should be included in the gross description and may be mentioned in a comment. At least one study has shown that radiographically matted lymph nodes are a risk factor for distant metastases and decreased survival in oropharyngeal cancer.\textsuperscript{53}

Lymphatic spread to lymph nodes versus direct extension from the primary tumour. Some tumours may extend directly into lymph nodes without intervening normal tissue. This is not uncommon in parotid tumours as there are multiple lymph nodes within the parotid parenchyma itself, but it also occurs with large oral and oropharyngeal primaries. Direct extension into lymph nodes is staged in the same manner as discontinuous metastases.\textsuperscript{1} Determination of ENE should be based on any component of the tumour that extends beyond the capsule or is discontinuous with the primary tumour. A comment is recommended for clarity.

The lymph node capsule is often markedly thickened and altered by large metastases with obliteration of the subcapsular sinus. The extent of 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 (Figures 3 and 4). If the greatest extent of ENE is provided, the measurement can be rounded to the nearest millimeter or tenth of a millimeter, as per local convention (keeping in mind that if ENE is more than 2 mm, the measurement should not be rounded down to 2mm). More precise measurements are not warranted due to the subjectivity required and lack of known clinical relevance.

<table>
<thead>
<tr>
<th>G3.02</th>
<th>The number of nodes with ENE may be recorded if applicable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>G3.02a</td>
<td>The levels of all nodes with ENE should be recorded to guide radiotherapy.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>G3.03</th>
<th>The greatest extent of ENE and the level of neck dissection in which it is seen should be recorded if applicable.</th>
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</thead>
<tbody>
<tr>
<td>G3.04</td>
<td>Involvement of non-lymphatic structures should be recorded.</td>
</tr>
<tr>
<td>G3.05</td>
<td>The surgical margin status should be reported.</td>
</tr>
<tr>
<td>G3.05a</td>
<td>Although neck dissections are not typically ‘margin’ surgeries, tumours with ENE must be excised with a clear margin. Margin positivity increases the risk of</td>
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</tbody>
</table>

\textsuperscript{34} Nodal Excisions and Neck Dissection Specimens for Head & Neck Tumours
Structured Reporting Protocol 1st edition
local recurrence and is an indication for additional radiotherapy to that site.\textsuperscript{54,55} The site of margin positivity can be used by the radiation oncologist to direct treatment to the area of greatest risk.

<table>
<thead>
<tr>
<th>G3.06</th>
<th>Radiation induced tissue damage can be recorded.</th>
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<tbody>
<tr>
<td>G3.06a</td>
<td>An observation regarding radiation induced tissue damage can be provided if the request form includes history regarding neoadjuvant radiotherapy or recurrence in a previous radiotherapy field. Currently, there are no internationally standardised guidelines for evaluation of radiotherapy induced damage or whether this should influence any decisions regarding further radiotherapy. However, description of the radiotherapy induced tissue damage will allow collection of this data to develop evidence base for the future. Features such as stromal atypia, hyalinization, interstitial fibrosis, small vessel endothelial proliferation, and other features may be mentioned.</td>
</tr>
</tbody>
</table>

G3.07  Any additional pathology should be reported.

G3.08  Any additional relevant microscopic comments should be recorded.
Figure 3. Low power image of a lymph node containing metastatic squamous cell carcinoma, with extranodal extension into perinodal adipose tissue (20x). Copyright Prof Martin Bullock. Reproduced with permission.

Figure 4. The extent of extranodal extension should be measured from external aspect of the capsule, or estimated site thereof, to the furthest point of tumour extension into the surrounding tissue. Copyright Prof Martin Bullock. Reproduced with permission.
## Ancillary studies findings

Ancillary studies may be used to determine lineage, clonality or disease classification or subclassification; as prognostic biomarkers; or to indicate the likelihood of patient response to specific biologic therapies.

<table>
<thead>
<tr>
<th>CG4.01a</th>
<th>Ancillary testing for head and neck cancers most commonly refers to testing for high-risk HPV status in tumours of the oropharynx (typically using the surrogate marker of p16 immunohistochemistry (IHC) or in situ hybridisation) and EBV status in tumours of the nasopharynx (typically using in situ hybridisation for EBV-encoded RNA or EBER). If ancillary testing is performed, it is recommended to include the type of testing, the result and interpretive guidelines if applicable.56</th>
</tr>
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</table>

Oropharyngeal carcinoma is frequently human papillomavirus associated, with these tumours having improved survival versus HPV-negative cases.57 Testing for p16 status in oropharyngeal squamous cell carcinoma is a requirement of the 8th edition of the AJCC TNM staging system1 and UICC TNM staging system,47 and separate staging categories have been devised for p16– and p16+ tumours.1

p16 overexpression by IHC analysis is a reliable surrogate for high-risk HPV associated squamous cell carcinomas of the oropharynx (including types 16, 18 and others). Overexpression of p16 is defined as diffuse, strong nuclear and often cytoplasmic expression (2-3+ intensity) in ≥70% of tumour cells. p16 expression is not applicable as a surrogate for HPV in other head and neck subsites (i.e., oral cavity, sinonasal, hypopharynx skin, etc.) as HPV is infrequent and p16 expression is non-specific. Strong p16 expression in non-HPV associated squamous cell carcinoma of non-oropharyngeal sites does occur with unclear significance. Most p16 positive non-oropharyngeal malignancies are not HPV driven and are unlikely to show similar prognosis as HPV driven cancers. This is of particular importance in metastases of unknown primary. Thus, nucleic acid-based HPV testing is ideal in the assessment of neck nodes in patients with unknown primary squamous cell carcinoma. However, these tests are available in few tertiary centers and are relatively expensive.

p16 status should be reported in all oropharyngeal primary squamous cell carcinomas (testing either the primary site or from a metastatic focus). Additionally,
metastatic squamous cell carcinomas in levels II and III with an unknown primary site should also be tested for p16 over expression by IHC. In situ hybridisation for EBER is recommended for p16-negative, non-keratinizing or undifferentiated carcinomas, or if there is clinical suspicion of a nasopharyngeal primary.

CG4.01b Poorly differentiated carcinomas of unknown primary that are p16 and EBER negative require a broad range of immunohistochemical panel including INI1, NUT protein etc. However, these decisions are based on the histologic and immunohistochemical profile of the tumour, the availability of these stains, and is at the discretion of the reporting pathologist.
5 Synthesis and overview

Information that is synthesised from multiple modalities and therefore cannot reside solely in any one of the preceding chapters is described here.

For example, tumour stage is synthesised from multiple classes of information – clinical, macroscopic and microscopic.

By definition, synthetic elements are inferential rather than observational, often representing high-level information that is likely to form part of the ‘Summary’ or ‘Diagnosis’ section in the final formatted report.

Overarching case comment is synthesis in narrative format. Although it may not necessarily be required in any given report, the provision of the facility for overarching commentary in a cancer report is essential.

### S5.01

<table>
<thead>
<tr>
<th>The regional lymph node categorisation (pN) must be recorded.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS5.01a Note that (i) Midline nodes are considered ipsilateral nodes and (ii) ENE detected on histopathologic examination is designated as ENE$<em>{mi}$ (microscopic ENE ≤2 mm) or ENE$</em>{ma}$ (major ENE &gt;2 mm). Both ENE$<em>{mi}$ and ENE$</em>{ma}$ 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(+). Information on lymph node status is crucial for the staging and treatment of head and neck malignancies. 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.¹ The above staging conforms to the 8th edition of the AJCC² and the UICC³ cancer staging manuals. The new TNM system (AJCC Cancer Staging Manual 8th edition) became effective 1 January 2018, and introduced considerable changes to the staging of head and neck cancers.¹ These changes include, among others: 1) restructuring pharyngeal carcinoma by separating p16+ oropharyngeal carcinoma from p16- oropharyngeal and hypopharyngeal carcinoma, 2) inclusion of ENE in the N category for p16- oropharyngeal , unknown primary, hypopharyngeal, oral cavity, larynx, skin, major salivary gland, nasal cavity and paranasal</td>
</tr>
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</table>
sinus cancers, 3) introduction of a separate category for occult primary tumours of the head and neck, with p16 and EBV tumour testing recommended in patients who remain an unknown primary squamous or undifferentiated carcinoma after clinical and radiographic evaluation 4) introduction of a separate chapter for cutaneous squamous cell carcinoma and other carcinomas, with the exception of Merkel cell carcinoma.

Nasopharyngeal carcinoma (NPC) commonly presents with bulky nodal neck disease, and a lymph node biopsy may occasionally precede biopsy of the primary site. However, nasopharyngeal carcinoma is not a surgically-treated disease 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.

S5.02 The year of publication and/or the edition of the cancer staging system used in S5.01 must be included in the report.

G5.01 The ‘Diagnostic summary’ section of the final formatted report should include:

a. Specimen(s) submitted and laterality
b. Tumour type
c. Lymph node status
d. Presence of absence of ENE
e. The level of neck dissection in which ENE is present
f. Margin of resection if ENE present
g. Nodal stage

CG5.01a The diagnostic summary needs to be combined with the concurrent primary resection in the case of mucosal, salivary or sinonasal malignancies. The primary may have been previously resected in the case of cutaneous malignancies.

S5.03 The reporting system must provide a field for free text or narrative in which the reporting pathologist can give overarching case comment if required.

CS5.03a This field may be used, for example, to:

- explain the decision-making pathway, or any elements of clinicopathological ambiguity, or factors affecting diagnostic certainty, thereby allowing communication of diagnostic subtlety or nuance that is beyond synoptic
• capture
• give recommendations for further action or investigation
• document further consultation or results still pending

CS5.03b Use of this field is at the discretion of the reporting pathologist.

G5.02 The edition/version number of the RCPA protocol on which the report is based should be included on the final report.

CG5.02a For example, the pathology report may include the following wording at the end of the report: “the data fields within this formatted report are aligned with the criteria as set out in the RCPA document “XXXXXXXXXXXXX” XXXX Edition dated XXXXXXXX“.”
6  Structured checklist

The following checklist includes the standards and guidelines for this protocol which must be considered when reporting, in the simplest possible form. The summation of all ‘standards’ is equivalent to the ‘minimum data set’ for this cancer. For emphasis, standards (mandatory elements) are formatted in bold font.

S6.01 The structured checklist provided may be modified as required but with the following restrictions:

a. All standards and their respective naming conventions, definitions and value lists must be adhered to.

b. Guidelines are not mandatory but are recommendations and where used, must follow the naming conventions, definitions and value lists given in the protocol.

G6.01 The order of information and design of the checklist may be varied according to the LIS capabilities and as described in *Functional Requirements for Structured Pathology Reporting of Cancer Protocols.*

CG6.01a Where the LIS allows dissociation between data entry and report format, the structured checklist is usually best formatted to follow pathologist workflow. In this situation, the elements of synthesis or conclusions are necessarily at the end. The report format is then optimised independently by the LIS.

CG6.01b Where the LIS does not allow dissociation between data entry and report format, (for example where only a single text field is provided for the report), pathologists may elect to create a checklist in the format of the final report. In this situation, communication with the clinician takes precedence and the checklist design is according to principles given in Chapter 7.

G6.02 Where the checklist is used as a report template (see G6.01), the principles in Chapter 7 and Appendix 2 apply.

CG6.02a All extraneous information, tick boxes and unused values should be deleted.

G6.03 Additional comment may be added to an individual response where necessary to describe any uncertainty or nuance in the selection of a prescribed response in the checklist. Additional comment is not required where the prescribed response is adequate.
Item descriptions in italics are conditional on previous responses.

Values in all caps are headings with sub values.

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<thead>
<tr>
<th>S/G</th>
<th>Item description</th>
<th>Response type</th>
<th>Conditional</th>
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<tr>
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<td></td>
<td>OR</td>
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<tr>
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</tr>
<tr>
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<td>Recurrence – distant, describe</td>
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| Laterality | Not specified OR  
| Single selection value list: |  
| • Right |  
| • Left |  
| • Bilateral |  
| • Other, specify |  

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<tbody>
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**Macroscopic findings**

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<tr>
<th>Specimen labelled as</th>
<th>Text</th>
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</thead>
<tbody>
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<td>S2.01</td>
<td></td>
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</tbody>
</table>

| Specimen laterality | Not specified OR  
| Single selection value list: |  
| • Right |  
| • Left |  
| • Bilateral |  
| • Other, specify |  

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<thead>
<tr>
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<td>G2.01</td>
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</tbody>
</table>
### Specimen submitted

**Single selection value list:**
- Level I
- Level II
- Level III
- Level IV
- Level V
- Level VI
- Level VII
- Levels I-IV
- Level I-V
- Other, specify

**Multi selection value list (select all that apply):**
- Lymph nodes
  - Not specified
  - Level IA
  - Level IB
  - Level II
  - Level III
  - Level IV
  - Level V
  - Level VI
| o Level VII |
| o Levels I-IV |
| o Levels I-V |
| o Other, specify |

- Central compartment (VI +/- VII)
  - o Non-lymphoid tissue
    - ▪ Thymus
    - ▪ Parathyroid
    - ▪ Other, specify

- Non-lymphoid tissue
  - o Nerve
  - o Muscle
  - o Vein
  - o Salivary gland
  - o Other, specify

**Notes:**
Specimen laterality should be recorded for each specimen submitted (S2.02).
| G2.02 | Specimen dimensions | **Numeric: __x__x__ mm**  
**Note:** Record measurements for each specimen submitted |
|-------|---------------------|------------------------------------------------------------------|
| G2.03 | Number of lymph nodes retrieved | **Numeric: __**  
**Note:** Record number for each lymph node site submitted |
| G2.04 | Macroscopic metastatic tumour | **Single selection value list:**  
- Not identified  
- Present  
**If present, consider reporting G2.05 and G2.06.** |
| G2.05 | Maximum dimension of largest metastatic deposit | **Numeric: __ mm** |
| G2.06 | Macroscopic evidence of extracapsular spread | **Single selection value list:**  
- Absent  
- Present |
<p>| G2.07 | Macroscopic distance of tumour to closest margin | <strong>Numeric: __ mm</strong> |
| S2.04 | Ink application and block identification key | <strong>Text</strong> |
| G2.08 | Additional macroscopic comments | <strong>Text</strong> |</p>
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<tr>
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<th>Histological tumour type</th>
<th>Multi selection value list (select all that apply):</th>
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<td>Squamous cell carcinoma (SCC)</td>
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<td></td>
<td>• Squamous cell carcinoma, conventional</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• HPV-mediated/p16 positive oropharyngeal carcinoma</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• Basaloid squamous cell carcinoma</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Papillary squamous cell carcinoma</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• Spindle cell squamous carcinoma (sarcomatoid carcinoma)</td>
</tr>
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<td>• Adenosquamous cell carcinoma</td>
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<td>• Acantholytic squamous cell carcinoma</td>
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<tr>
<td></td>
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<td></td>
<td>• Carcinoma cuniculatum</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• Undifferentiated (lymphoepithelial) carcinoma</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Salivary gland carcinoma</td>
<td></td>
</tr>
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<td></td>
<td>• Acinic cell carcinoma</td>
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<td></td>
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<td>• Secretory carcinoma</td>
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<td></td>
<td>• Mucoepidermoid carcinoma</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>o Low grade mucoepidermoid carcinoma</td>
</tr>
<tr>
<td>Intermediate grade mucoepidermoid carcinoma</td>
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</tr>
<tr>
<td>High grade mucoepidermoid carcinoma</td>
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<tr>
<td>Adenoid cystic carcinoma</td>
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<tr>
<td>Tubular/cribiform pattern predominant</td>
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<tr>
<td>Solid pattern &gt;30%</td>
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<tr>
<td>Polymorphous adenocarcinoma</td>
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<td>Cribriform</td>
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<tr>
<td>Epithelial-myoepithelial carcinoma</td>
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<tr>
<td>(Hyalinizing) Clear cell carcinoma</td>
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<tr>
<td>Basal cell adenocarcinoma</td>
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<td>Sebaceous adenocarcinoma</td>
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<tr>
<td>Cystadenocarcinoma</td>
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<tr>
<td>Adenocarcinoma, not otherwise specified (NOS)</td>
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<td>Salivary duct carcinoma</td>
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<tr>
<td>Myoepithelial carcinoma</td>
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<td>Carcinoma ex pleomorphic adenoma, <em>specify types</em></td>
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<tr>
<td>Carcinosarcoma</td>
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<tr>
<td>Poorly differentiated carcinoma: Neuroendocrine and non-</td>
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<tr>
<td><strong>Neuroendocrine Carcinoma</strong></td>
<td><strong>Nasopharyngeal Carcinoma</strong></td>
<td></td>
<td></td>
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<tr>
<td>-------------------------------</td>
<td>-----------------------------</td>
<td></td>
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<tr>
<td>o Undifferentiated carcinoma</td>
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<tr>
<td>o Large cell neuroendocrine carcinoma</td>
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<td>o Small cell neuroendocrine carcinoma</td>
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<tr>
<td>• Lymphoepithelial carcinoma</td>
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<td>• Squamous cell carcinoma</td>
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<td>• Oncocytic carcinoma</td>
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<tr>
<td>• Other, specify</td>
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</table>

**Neuroendocrine Carcinoma (Single selection value list):**

- Well differentiated (typical carcinoid)
- Moderately differentiated (atypical carcinoid)
- Poorly differentiated (high grade neuroendocrine carcinoma), large cell type
- Poorly differentiated (high grade neuroendocrine carcinoma), small cell type

**Nasopharyngeal Carcinoma (Single selection value list):**
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<th>Primary tumour site</th>
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</table>

- Squamous cell carcinoma, keratinizing
- Squamous cell carcinoma, non-keratinizing, differentiated
- Squamous cell carcinoma, non-keratinizing, undifferentiated
- Squamous cell carcinoma, basaloid
- Nasopharyngeal papillary adenocarcinoma

**Sinonasal malignancies**

**Mucosal melanoma**

**Cutaneous malignancies:**
- Melanoma
- Squamous Cell Carcinoma
- Merkel cell carcinoma
- Sebaceous carcinoma
- Other primary adnexal malignancies, *specify type*

**Other, specify types**
| S3.02 | Lymph node laterality | Not specified  
OR  
**Single selection value list:**  
• Right  
• Left  
• Central  
• Other, specify  
**Record laterality for each lymph node submitted.**  
**In the case of bilateral neck dissections, right and left neck dissections should be reported separately.** |
| S3.03 | LYMPH NODE STATUS | Node level  
**Multi selection value list (select all that apply):**  
• Level IA  
• Level IB  
• Level II  
• Level III  
• Level IV  
• Level V  
• Level VI  
• Level VII  
• Levels I-IV  
• Levels I-V  
• Other, specify  
**For each node level submitted, record number of nodes examined, number of nodes positive, soft tissue metastasis, ENE.** |
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<th>Number of nodes positive</th>
<th>Maximum dimension of largest lymph node metastasis (if applicable)</th>
<th>Maximum dimension of largest involved lymph node (if applicable)</th>
<th>Soft tissue metastasis</th>
<th>Extranodal extension (ENE)</th>
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<td>Numeric: __ OR Cannot be determined</td>
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<td>• ENEma (&gt;2 mm)</td>
<td>• ENEma (&gt;2 mm)</td>
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<td>If ENEmi or ENEma consider recording G3.03 and G3.04.</td>
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<td>This element is optional for HPV-related/p16 positive oropharyngeal cancer and nasopharyngeal cancer.</td>
<td>This element is optional for HPV-related/p16 positive oropharyngeal cancer and nasopharyngeal cancer.</td>
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<td>• Identified, specify</td>
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<td>• Cannot be assessed, specify</td>
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<td><strong>If identified, specify a description of induced damage, if possible.</strong></td>
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<td><strong>If cannot be assessed, specify a reason, if possible.</strong></td>
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### Ancillary findings

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</tr>
<tr>
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<td></td>
<td>• Performed, specify test, result, method</td>
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### Synthesis and overview

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<tr>
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<th>PATHOLOGICAL STAGING (AJCC 8TH EDITION)</th>
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<tbody>
<tr>
<td></td>
<td><strong>TNM descriptors</strong></td>
</tr>
<tr>
<td></td>
<td>• y - post therapy</td>
</tr>
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<td>• r - recurrent</td>
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<table>
<thead>
<tr>
<th>S5.01</th>
<th>Regional lymph node categorisation (pN)</th>
</tr>
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<tr>
<td></td>
<td>For primary carcinomas of the lip and oral cavity, major salivary glands, nasal cavity and paranasal sinuses, oropharynx (p16 negative), hypopharynx, larynx, cutaneous head and neck carcinomas (with the exception of Merkel cell carcinoma) and unknown primary squamous cell carcinomas that are p16 and EBV-negative. Cutaneous squamous cell carcinoma of the head and neck also included.</td>
</tr>
<tr>
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</tr>
<tr>
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<td>Nx Regional lymph nodes cannot be</td>
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<td>N0</td>
<td>No regional lymph node metastasis</td>
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<td>----------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>N1</td>
<td>Metastasis in a single ipsilateral lymph node, 3 cm or smaller in greatest dimension and ENE(-)</td>
</tr>
</tbody>
</table>
| N2       | Metastasis in a single ipsilateral lymph node, 3 cm or smaller in greatest dimension and ENE(+);
or larger than 3 cm but not larger than 6 cm in greatest dimension and ENE(-);
or metastases in multiple ipsilateral lymph nodes, none larger than 6 cm in greatest dimension and ENE(-);
or in bilateral or contralateral lymph nodes, none larger than 6 cm in greatest dimension and ENE(-) |
| N2a      | Metastasis in a single ipsilateral node, 3 cm or smaller in greatest dimension and ENE(+);
or a single ipsilateral lymph node larger than 3 cm but not larger than 6 cm in greatest dimension and ENE(-) |
<p>| N2b      | Metastases in multiple ipsilateral lymph nodes, none larger than 6 cm in greatest dimension and |</p>
<table>
<thead>
<tr>
<th>N2c</th>
<th>Metastases in bilateral or contralateral lymph nodes, none larger than 6 cm in greatest dimension and ENE(-);</th>
</tr>
</thead>
<tbody>
<tr>
<td>N3</td>
<td>Metastasis in a lymph node larger than 6 cm in greatest dimension and ENE(-); or metastasis in a single ipsilateral lymph node larger than 3 cm in greatest dimension and ENE(+); or multiple ipsilateral, contralateral or a single contralateral node of any size and ENE(+)</td>
</tr>
<tr>
<td>N3a</td>
<td>Metastasis in a lymph node larger than 6 cm in greatest dimension and ENE(-);</td>
</tr>
<tr>
<td>N3b</td>
<td>Metastasis in a single ipsilateral lymph node larger than 3 cm in greatest dimension and ENE(+); or multiple ipsilateral, contralateral or bilateral nodes any with ENE(+) or a single contralateral node of any size and ENE(+)</td>
</tr>
</tbody>
</table>

**HPV-mediated (p16+) oropharyngeal carcinoma**

**Single selection value list:**
<table>
<thead>
<tr>
<th>NX</th>
<th>Regional lymph nodes cannot be assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>N0</td>
<td>No regional lymph node metastasis</td>
</tr>
<tr>
<td>N1</td>
<td>Metastasis in 4 or fewer lymph nodes</td>
</tr>
<tr>
<td>N2</td>
<td>Metastasis in more than 4 lymph nodes</td>
</tr>
</tbody>
</table>

**Nasopharyngeal carcinoma**

**Single selection value list:**

<table>
<thead>
<tr>
<th>NX</th>
<th>Regional lymph nodes cannot be assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>N0</td>
<td>No regional lymph node metastasis</td>
</tr>
<tr>
<td>N1</td>
<td>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</td>
</tr>
<tr>
<td>N2</td>
<td>Bilateral metastasis in cervical lymph node(s), 6 cm or smaller in greatest dimension, above the caudal border of cricoid cartilage</td>
</tr>
<tr>
<td>N3</td>
<td>Unilateral or bilateral metastasis in cervical lymph node(s), larger than 6 cm in greatest dimension, and/or extension below the caudal border</td>
</tr>
</tbody>
</table>
of cricoid cartilage

**Mucosal melanoma**

**Single selection value list:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NX</td>
<td>Regional lymph nodes cannot be assessed</td>
</tr>
<tr>
<td>N0</td>
<td>No regional lymph node metastasis</td>
</tr>
<tr>
<td>N1</td>
<td>Regional lymph node metastasis present</td>
</tr>
</tbody>
</table>

**Cutaneous melanoma**

**Single selection value list:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NX</td>
<td>Regional lymph nodes cannot be assessed</td>
</tr>
<tr>
<td>N0</td>
<td>No regional lymph node metastasis</td>
</tr>
<tr>
<td>N1</td>
<td>Metastasis in a single ipsilateral lymph node, 3 cm or smaller in greatest dimension and ENE(-)</td>
</tr>
<tr>
<td>N2</td>
<td>Metastasis in a single ipsilateral lymph node, 3 cm or smaller in greatest dimension and ENE(+) or larger than 3 cm but not larger than 6 cm in greatest dimension and ENE(-); or metastases in multiple ipsilateral lymph nodes, none larger than 6 cm</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>in greatest dimension and ENE(-);</td>
</tr>
<tr>
<td></td>
<td><em>or</em> in bilateral or contralateral lymph node(s), none larger than 6 cm in greatest dimension, ENE(-)</td>
</tr>
<tr>
<td>N2a</td>
<td>Metastasis in single ipsilateral node 3 cm or smaller in greatest dimension and ENE(+)</td>
</tr>
<tr>
<td></td>
<td><em>or</em> a single ipsilateral node larger than 3 cm but not larger than 6 cm in greatest dimension and ENE(-)</td>
</tr>
<tr>
<td>N2b</td>
<td>Metastases in multiple ipsilateral nodes, none larger than 6 cm in greatest dimension and ENE(-)</td>
</tr>
<tr>
<td>N2c</td>
<td>Metastases in bilateral or contralateral lymph node(s), none larger than 6 cm in greatest dimension and ENE(-)</td>
</tr>
<tr>
<td>N3</td>
<td>Metastasis in a lymph node larger than 6 cm in greatest dimension and ENE(-);</td>
</tr>
<tr>
<td></td>
<td><em>or</em> in a single ipsilateral node larger than 3 cm in greatest dimension and ENE(+)</td>
</tr>
<tr>
<td></td>
<td><em>or</em> multiple ipsilateral, contralateral, or bilateral nodes, any with ENE(+)</td>
</tr>
<tr>
<td></td>
<td><em>or</em> a single contralateral node of any size and ENE(+)</td>
</tr>
<tr>
<td>N3a</td>
<td>Metastasis in a lymph node larger than 6 cm in greatest dimension and</td>
</tr>
</tbody>
</table>
| S5.02 | **Year and edition of staging system** | **Numeric:** year  
**AND**  
**Text:** Edition e.g., 1st, 2nd etc |
| ----- | ----------------------------------- | -------------------------------------------------- |
| G5.01 | **Diagnostic summary** Include:  
  a. Specimen(s) submitted and laterality  
  b. Tumour type  
  c. Lymph node status  
  d. Presence or absence of ENE  
  e. Margin of resection if ENE present  
  f. Tumour stage | **Text** |

| S5.03 | **Overarching comment** | **Text** |

ENE(-)  
N3b Metastasis in a single ipsilateral node larger than 3 cm in greatest dimension and ENE(+);  
or multiple ipsilateral, contralateral, or bilateral nodes, any with ENE(+);  
or a single contralateral node of any size and ENE(+)
| G5.02 | Edition/version number of the RCPA protocol on which the report is based | Text |
7 Formatting of pathology reports

Good formatting of the pathology report is essential for optimising communication with the clinician, and will be an important contributor to the success of cancer reporting protocols. The report should be formatted to provide information clearly and unambiguously to the treating doctors, and should be organised with their use of the report in mind. In this sense, the report differs from the structured checklist, which is organised with the pathologist’s workflow as a priority.

Uniformity in the format as well as in the data items of cancer reports between laboratories makes it easier for treating doctors to understand the reports; it is therefore seen as an important element of the systematic reporting of cancer. For guidance on formatting pathology reports, please refer to Appendix 2. An example of a pathology report is shown in Appendix 3.
Appendix 1  

Pathology request form

This appendix describes the information that should be collected before the pathology test. Some of this information can be provided on generic pathology request forms; any additional information required specifically for the reporting of nodal excisions and neck dissection specimens for head and neck tumours may be provided by the clinician on a separate request information sheet. An example request information sheet is included below. Elements which are in bold text are those which pathologists consider to be required information. Those in non-bold text are recommended.

Also included in this appendix are the procedures that are recommended before handover of specimens to the laboratory.

Patient information

➢ Adequate demographic and request information must be provided with the specimen.
  • Items relevant to cancer reporting protocols include:
    • patient name
    • date of birth
    • sex
    • identification and contact details of requesting doctor
    • date of request
  • Document whether or not the patient identifies as Aboriginal and/or Torres Strait Islander in Australia, or Māori in New Zealand. This is in support of government initiatives to monitor the health of those who identify as indigenous, particularly in relation to cancer.

➢ The patient’s health identifiers should be provided.
  • The patient’s health identifiers may include the patient’s Medical Record Number as well as a national health number such as a patient’s Individual Healthcare Identifier (IHI) (Australia) or the National Healthcare Identifier (New Zealand).

➢ The Australian Healthcare identifiers i.e., Healthcare Provider Identifier - Individual (HPI-I) and Healthcare Provider Identifier - Organisation (HPI-O) should be use, where possible, to identify the requesting doctor.

Clinical Information

➢ Record the operative procedure.
➤ **Record if this is a new primary cancer or a recurrence of a previous cancer, if known.**

- The term recurrence defines the return, reappearance or metastasis of cancer (of the same histology) after a disease-free period.

  Recurrence should be classified as distant metastases or regional (local) recurrence.

  Regional (local) recurrence refers to the recurrence of cancer cells at the same site as the original (primary) tumour or the regional lymph nodes.

  Distant metastasis refers to the spread of cancer of the same histologic type as the original (primary) tumour to distant organs or distant lymph nodes.

- This information will provide an opportunity for previous reports to be reviewed during the reporting process, which may provide valuable information to the pathologist. This information also has implications for recording cancer incidence and evidence-based research.

➤ Any previous treatment should be described.

➤ Comments should be included, if appropriate.

- Space for free text should be included to encourage reporting of ambiguity, or for the addition of other comments.
Example Request Information Sheet

NODAL EXCISIONS AND NECK DISSECTION, PAROTID GLAND BASIN SPECIMENS FOR HEAD & NECK TUMOURS Histopathology Request Information

<table>
<thead>
<tr>
<th>Family name</th>
<th>Indigenous Status</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Aboriginal but not Torres Strait Islander origin</td>
</tr>
<tr>
<td></td>
<td>• Torres Strait Islander but not Aboriginal origin</td>
</tr>
<tr>
<td></td>
<td>• Both Aboriginal and Torres Strait Islander origin</td>
</tr>
<tr>
<td></td>
<td>• Neither Aboriginal nor Torres Strait Islander origin</td>
</tr>
<tr>
<td></td>
<td>• Not stated/inadequately described</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Given name(s)</th>
<th>Date of birth DD-MM-YYYY</th>
<th>Date of request DD-MM-YYYY</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Patient identifiers e.g. MRN, IHI or NHI (please indicate which)</th>
<th>Requesting doctor - name and contact details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copy to doctor name and contact details</td>
<td></td>
</tr>
</tbody>
</table>

**OPERATIVE PROCEDURE**

- OR (select all that apply)
  - □ Level I
  - □ Level II
  - □ Level III
  - □ Level IV
  - □ Level V
  - □ Level VI
  - □ Level VII
  - □ Levels I-IV
  - □ Levels I-V
  - □ Other, specify

**LATERALITY**

- □ Not specified
- □ Right
- □ Left
- □ Bilateral
- □ Other, specify

**PREVIOUS TREATMENT**

**NEW PRIMARY LESION OR RECURRENCE**

- □ New Primary
- □ Recurrence - regional, describe
- □ Recurrence - distant, describe

**PRINCIPAL CLINICIAN**

**COMMENTS**

V1.0 Request Info from NODAL EXCISIONS AND NECK DISSECTION SPECIMENS Structured Reporting Protocol 1st Edition

The above Request Information Sheet is published to the RCPA website.
Appendix 2   Guidelines for formatting of a pathology report

Layout

Headings and spaces should be used to indicate subsections of the report, and heading hierarchies should be used where the LIS allows it. Heading hierarchies may be defined by a combination of case, font size, style and, if necessary, indentation.

- Grouping similar data elements under headings and using ‘white space’ assists in rapid transfer of information.60

Descriptive titles and headings should be consistent across the protocol, checklist and report.

When reporting on different tumour types, similar layout of headings and blocks of data should be used, and this layout should be maintained over time.

- Consistent positioning speeds data transfer and, over time, may reduce the need for field descriptions or headings, thus reducing unnecessary information or ‘clutter’.

Within any given subsection, information density should be optimised to assist in data assimilation and recall. The following strategies should be used:

- Configure reports in such a way that data elements are ‘chunked’ into a single unit to help improve recall for the clinician.60
- Reduce ‘clutter’ to a minimum.60 Thus, information that is not part of the protocol (e.g., billing information or SNOMED codes) should not appear on the reports or should be minimised.
- Reduce the use of formatting elements (e.g., bold, underlining or use of footnotes) because these increase clutter and may distract the reader from the key information.

Where a structured report checklist is used as a template for the actual report, any values provided in the checklist but not applying to the case in question must be deleted from the formatted report.

Reports should be formatted with an understanding of the potential for the information to ‘mutate’ or be degraded as the report is transferred from the LIS to other health information systems.

As a report is transferred between systems:

- text characteristics such as font type, size, bold, italics and colour are often lost
- tables are likely to be corrupted as vertical alignment of text is lost when fixed font widths of the LIS are rendered as proportional fonts on screen or in print
- spaces, tabs and blank lines may be stripped from the report, disrupting the formatting
- supplementary reports may merge into the initial report.
Appendix 3  Example of a pathology report

NODAL EXCISIONS, NECK DISSECTION, PAROTID GLAND BASIN SPECIMENS FOR HEAD & NECK CANCERS

STRUCTURED REPORT

Diagnostic Summary

Right Lateral neck dissection:
- Metastatic Squamous cell carcinoma in 3/26 lymph nodes;
- Extracapsular extension present in 2 lymph nodes in levels 2A and 3 (pN3b (AJCC 8th edition, 2016));
- Perineural involvement at the site of extracapsular extension.

Comment: 2 lymph nodes show involvement by granulomatous inflammation

Supporting Information

CLINICAL INFORMATION RECEIVED

Operative procedure: Resection of right tongue SCC and right Lateral neck dissection
New primary lesion or recurrence: New primary
Previous treatment: Nil

MACROSCOPIC

Specimen labelled as: "Right Neck dissection Levels 1-5, suture at level 2A"
Operative procedure: Right lateral neck dissection levels 1-5
Specimen submitted: Right Neck Dissection levels 1-5
Specimen dimensions: 100 x 80 x 30 mm
Number of lymph nodes: 26
Macrosopic metastatic tumour: A single lymph node in level 2A shows central necrosis rimmed by grey white firm tissue. This node measures 20mm in maximum dimension.

Macrosopic distance to closest margin: 5 mm


Block identification key:
A-C: 3 lymph nodes in level 1. A single lymph node bisected in each block.
D: Representative submandibular gland parenchyma
E-G: Macroscopically involved appearing lymph node in level 2A trisected. Block G contains area suspicious for extranodal extension with closest margin.
H-K: additional 3 lymph nodes in level 2A. A single lymph node bisected in each block.
L-N: 6 lymph nodes in level 2B. 2 lymph nodes in each block.
P-Q: 2 lymph nodes in level 3. A single lymph node bisected in each block.
R: 3 small lymph nodes in level 3.
S-V: 8 lymph nodes in level 4. 2 lymph nodes in each block.
W-Y: fibroadipose tissue in level 5 submitted entirely as no lymph nodes found.

**Additional macroscopic comments:** None

**MICROSCOPIC**

- **Histologic tumour type:** Squamous cell carcinoma
- **Primary tumour site:** Squamous cell carcinoma of right side of tongue

**Right side - Lymph node (LN) status**

- **Node levels:** 1-5
- **Number of nodes examined:** 26
- **Number of nodes positive:** 3
- **Level of involved nodes:** levels 2A, 2B and 3
- **Max dimension of largest LN met:** 20mm
- **Max dimension of largest involved LN:** 20mm
- **Extranodal extension (ENE):** Present
- **Number of nodes with ENE:** 2
- **Level of lymph node with ENE:** Levels 2A and 3
- **Greatest extent of ENE:** 5 mm in level 2A and 1mm in level 3
- **Margin overlying ENE:** 1mm away in level 2A
- **Soft tissue metastasis:** Not seen
- **Non-lymphatic structures involved:** Perineural invasion by ENE in level 2A

**Additional microscopic comments:** 2-3 lymph nodes in level 2 show non-necrotising granulomatous inflammation.

**ANCILLARY TESTS**

Nil.

Reported by Dr Bernadette Beckstein
Authorised 4/9/2019
References


18 RCPA (Royal College of Pathologists of Australasia) (2009). *Guidelines for Authors of Structured Cancer Pathology Reporting Protocols*. RCPA, Surry Hills NSW.


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Nodal Excisions and Neck Dissections for Head & Neck Tumours

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