

ORAL CANCER STRUCTURED REPORTING PROTOCOL (1st Edition 2011)

Core Document versions:

- AJCC Cancer Staging Manual 7th edition (including errata corrected with 5th reprint 10th Aug 2010).
- World Health Organization Classification of Tumours *Pathology and Genetics: Head and Neck Tumours*.2005

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Scope

This protocol contains standards and guidelines for the preparation of a structured report for squamous cell carcinomas of the oral cavity and lip. There are separate protocols for carcinomas of the oropharynx, hypopharynx, larynx, nasal cavity and paranasal sinuses as well as the salivary glands.

Structured reporting aims to improve the completeness and usability of pathology reports for clinicians, and improve decision support for cancer treatment. The protocol provides the framework for the reporting of any squamous cancer, whether as a minimum data set or fully comprehensive report.

Abbreviations

AAOMP	American Academy of Oral and Maxillofacial Pathology
AJCC	American Joint Committee on Cancer
ANZHNS	Australian and New Zealand Head and Neck Cancer Society
BAHNO	British Association of Head and Neck Oncologists
BSOMP	British Society for Oral and Maxillofacial Pathology
EGFr	Epidermal growth factor receptor
FDI	Fédération Dentaire Internationale (International Dental Federation)
HPV	Human papilloma virus
IAOO	International Academy of Oral Oncology
IAOP	International Association of Oral Pathologists
IHC	Immunohistochemistry
IHI	Individual health identifier
LIS	Laboratory Information System
MRN	Medical Record Number
NASHNP	North American Society of Head and Neck Pathology
NHI	National Health Index number (NZ)
PBS	Pharmaceutical Benefits Scheme
RCPA	Royal College of Pathologists of Australasia
TNM	tumour-node-metastasis
UHI	Unique Health Identifier
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.

Ancillary study An ancillary study is any pathology investigation that may form part of a cancer pathology report but is not part of routine histological assessment.

Clinical information Patient information required to inform pathological assessment, usually provided with the specimen request form, also referred to as "pre-test information".

Commentary 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:

- define the way an item should be reported, to foster reproducibility
- explain why an item is included (e.g. how does the item assist with clinical management or prognosis of the specific cancer).
- cite published evidence in support of the standard or guideline
- state any exceptions to a standard or guideline.

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 (eg CS1.01a, CG2.05b).

General commentary General commentary is text that is not associated with a specific standard or guideline. It is used:

- to provide a brief introduction to a chapter, if necessary
- 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).

Guideline	<p>Guidelines are recommendations; they are not mandatory, as indicated by the use of the word 'should'. Guidelines cover items that are not essential for clinical management, staging or prognosis of a cancer, but are recommended.</p> <p>Guidelines include key observational and interpretative findings that are fundamental to the diagnosis and conclusion. Such findings are essential from a clinical governance perspective, because they provide a clear, evidentiary decision-making trail.</p> <p>Guidelines are not used for research items.</p> <p>In this document, guidelines are prefixed with 'G' and numbered consecutively within each chapter (eg G1.10).</p>
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 morphological assessment using a microscope or equivalent.
Predictive factor	A <i>predictive factor</i> is a measurement that is associated with response or lack of response to a particular therapy.
Prognostic factor	A <i>prognostic factor</i> is a measurement that is associated with clinical outcome in the absence of therapy or with the application of a standard. It can be thought of as a measure of the natural history of the disease.
Standard	<p>Standards are mandatory, as indicated by the use of the term 'must'. Their use is reserved for core items essential for the clinical management, staging or prognosis of the cancer.</p> <p>The summation of all standards represents the minimum dataset for the cancer.</p> <p>In this document, standards are prefixed with 'S' and numbered consecutively within each chapter (eg S1.02).</p>
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. 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

Oral cancer

In 2005, 1866 new cases of oral cancer were diagnosed, accounting for about 1.96% of all cancers in Australia.¹ The number of newly diagnosed cases of cancer involving the tongue and mouth is steadily increasing and this may partly be driven by the aging Australian population.² Age standardised incidence rates for males is substantially higher than for females.¹ Oral cancer particularly affects the socially disadvantaged.³ There is a wide variation in the biological behaviour of oral cancer. Most tumours present late, are large and as a result the prognosis is poor. Oral cancer accounts for approximately 0.7% of all cancer deaths with five-year survival rates of 50-54% for males and females respectively.¹

Benefits of structured reporting

Structured pathology reports with standardised definitions for each component have been shown to significantly enhance the completeness and quality of data provided to clinicians, and have been recommended both in North America and the United Kingdom.⁴⁻⁷

The College of American Pathologists and the Royal College of Pathologists (UK) have recently published useful protocols for the reporting of head and neck cancer.⁸⁻⁹ These have been widely used in recent years in Australia and New Zealand, usually in modified formats to suit local requirements and preferences. A protocol endorsed by the Royal College of Pathologists of Australasia and other local organisations involved in the management of oral and lip cancer is therefore needed. The authors have not attempted to 're-invent the wheel' but have borrowed freely from pre-existing publications. The intention is to provide pathologists with a minimum dataset and guidelines that are comprehensive, easy to use, and in keeping with local capacities and practice.

Importance of histopathological reporting

Information from pathology reports has a key role in the rational planning of patient management which is used to guide clinical decision making. It is vital that head and neck pathology reports contain all of the information required to determine correct tumour staging. This will allow clinicians to make appropriate adjuvant therapy recommendations and provide accurate information regarding prognosis.¹⁰

Design of this protocol

This structured reporting protocol provides a complete framework for the assessment and documentation of all the pathological features of oral cancer.

Mandatory elements (standards) are differentiated from those that are not mandatory but represent best practice (guidelines). Consistency and speed of reporting is improved by the use of discrete data elements recorded from the checklist. However, the pathologist is encouraged to include free text or narrative to document any other relevant issues, to give reasons for coming to a particular opinion and to explain any points of uncertainty.

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, 2009¹¹
- *The Pathology Request–Test–Report Cycle — Guidelines for Requesters and Pathology Providers*, Royal College of Pathologists of Australasia, 2004¹²
- *AJCC Cancer Staging Manual*, 7th edition, American Joint Committee on Cancer, 2010¹³
- *Pathology and Genetics: Head and Neck Tumours*. World Health Organization Classification of Tumours, IARC Press, Lyon, 2005¹⁴

Changes since the last edition

Not applicable

Authority and development

This section provides details of the committee involved in developing this protocol and the process by which it was developed.

Protocol developers

This protocol was developed by an expert committee, with assistance from relevant stakeholders.

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Stakeholders

Anatomical Pathology Advisory Committee (APAC)
Australian Cancer Network
Australian and New Zealand Head and Neck Cancer Society
Cancer Australia
Cancer Council ACT
Cancer Council NSW
Cancer Council Queensland
Cancer Council SA
Cancer Council Tasmania
Cancer Council Victoria
Cancer Council Western Australia
Cancer Institute NSW
Cancer Services Advisory Committee (CanSAC)
Cancer specific expert groups – engaged in the development of the protocols
Faculty of Oral and Maxillofacial Pathology, The Royal College of Pathologists of Australasia (FOMP)
National Round Table Working Party for Structured Pathology Reporting of Cancer
The Royal Australasian College of Surgeons (RACS)

The Royal Australian and New Zealand College of Radiologists (RANZCR)

The Royal College of Pathologists of Australasia (RCPA)

Other Reviewers

ACT Health

Australian Association of Pathology Practices Inc (AAPP)

Australian Commission on Safety and Quality in Health Care

Cancer Voices

Clinical Oncology Society of Australia (COSA)

Department of Health and Ageing

Grampians Integrated Cancer Services (GICS)

Health Informatics Society of Australia (HISA)

Medical Software Industry Association (MSIA)

National Coalition of Public Pathology (NCOPP)

National E-Health Transition Authority (NEHTA)

National Pathology Accreditation Advisory Council (NPAAC)

New Zealand Guidelines Group (NZGG)

NSW Department of Health

Peter MacCallum Cancer Institute

Queensland Cooperative Oncology Group (QCOG)

Representatives from laboratories specialising in anatomical pathology across Australia

Royal Australasian College of Physicians (RACP)

Southern Cancer Network, Christchurch, New Zealand

Southern Melbourne Integrated Cancer Service (SMICS)

Standards Australia

The Medical Oncology Group of Australia

The Royal Australian College of General Practitioners (RACGP)

Victorian Cooperative Oncology Group (VCOG)

Western Australia Clinical Oncology Group (WACOG)

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Development process

This protocol has been developed following the nine-step process set out in *Guidelines for Authors of Structured Cancer Pathology Reporting Protocols*.¹¹

Where no reference is provided, the authority is the consensus of the expert group.

1 Clinical information and surgical handling

This chapter relates to information that should be collected before the pathology test, and procedures that are required before handover of specimens to the laboratory.

The standards and guidelines below specify the particular information and specimens required for oral cancer (including lip). Some of this information can be collected on generic pathology request forms; any additional information required specifically for the reporting of oral cancer may be recorded on a separate data sheet. Appendix 1 provides a standardised data sheet that may be useful in obtaining all relevant information.

Clinical information relating to presenting symptoms and spread of disease are necessary for staging of the tumour. Details of previous therapy are required because this may impact upon the grading of the tumour and this needs to be taken into account by the examining pathologist.

Diagnosis of oral cancer cannot be made on clinical grounds alone and the diagnosis relies on histological examination of the biopsy specimen (Chapter 3).

The histopathology report forms part of the patient's permanent medical record and includes information that informs appropriate management. As such, the report provides a method for the recording of relevant clinical information that will permanently be available even in the absence of the patient's clinical notes.

S1.01 Adequate demographic and request information must be provided with the specimen by the requesting clinician.

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.¹² This document specifies the minimum information to be provided by the requesting clinician for any pathology test. Items relevant to cancer reporting protocols include:

- patient name
- date of birth
- sex
- identification and contact details of requesting doctor
- date of request

Additional information specified in the RCPA *The Pathology Request-Test-Report Cycle — Guidelines for Requesters and Pathology Providers* such as the specimen type and clinical information relevant to the investigation is catered for in the following standards and guidelines.

CS1.01b The patient's ethnicity must be recorded, if known. In particular whether the patient is of aboriginal or Torres

Strait islander origin. This is in support of a government initiative to monitor the health of indigenous Australians particularly in relation to cancer.

- G1.01 The patient's health identifiers should be recorded where provided.
- CG1.01a The patient's health identifiers may include the patient's Medicare Number, Medical Record Number as well as a national health number such as a National Health Index number (NHI) (New Zealand) or the Individual Healthcare Identifier (IHI) (Australia).
- S1.02 The pathology accession number of the specimen must be recorded.**
- S1.03 The principal clinician involved in the patient's care and responsible for investigating the patient must be identified.**
- CS1.03a The requesting clinician (identified under S1.01) may be the doctor who performs the surgery or biopsy, and may not be the person with overall responsibility for investigating and managing the patient. Identification of the principal clinician is essential, to ensure that clinical information is communicated effectively.
- CS1.03b The surgeon's name and contact details must be recorded.
- S1.04 The anatomical site of the biopsy or resection must be recorded.**
- CS1.04a Site is an important identifier especially when multiple biopsies are performed. For carcinomas that may involve more than one site it is recommended that the clinician identify all sites involved and that if possible the principal site of involvement be recorded.
- CS1.04b Sufficient information is required to localise the lesion for subsequent therapy. A diagram or photograph can facilitate this.
- CS1.04c Prognostic significance – the association between anatomical site and survival may be explained by the tumours site's influence on metastasis to cervical lymph nodes.¹⁵⁻¹⁶
- S1.05 The laterality of the lesion must be recorded.**
- CS1.05a Laterality information is needed for identification purposes.
- S1.06 Clinical history should be recorded.**
- G1.03 Human papilloma virus status should be recorded (if known). (If biopsy tissue is positive for one or more serotypes of HPV by PCR, IHC or other approved detection method)
- G1.04 The clinical diagnosis or differential diagnosis should be recorded.

CG1.04a Providing the provisional clinical diagnosis or differential diagnosis improves clinico-pathological correlation and improves diagnostic accuracy.

S1.07 Record if this is a new primary cancer or a recurrence of a previous cancer, if known.

CS1.07a Recurrence should be classified as distant or regional.

CS1.07b 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.

S1.08 If pre-operative or prior radiotherapy has been administered, this must be recorded.

CS1.08a Pre-operative radiotherapy significantly alters the gross and microscopic appearance of the tumour.

CS1.08b This information would prompt a comment on the extent of any response to the treatment.

S1.09 The type of operation performed must be recorded.

CS1.09a It is important to state the nature of the surgical procedure for example:

- incisional biopsy, excisional biopsy
- hemi-glossectomy, partial glossectomy
- hemi-mandibulectomy, segmental mandibulectomy
- partial / hemi-maxillectomy, total maxillectomy
- selective neck dissection, modified radical neck dissection, radical neck dissection, extended radical neck dissection. (List the nodal levels included in the dissection, this may be facilitated by the use of a diagram showing the limits and contents of the nodal levels)
- wedge resection of lip

CS1.09b The type of operation performed will influence the subsequent handling of the specimen in the laboratory.

S1.10 Any involvement of adjacent structures must be recorded.

CS1.10a With regard to extension of disease into areas which either have or have not been resected (ie involvement of other tissues such as salivary glands by direct spread), it is the responsibility of the surgeon to report these deposits and, if indicated, mark these areas with a suture or other marker.

S1.11 The presence of any distant metastases must be recorded.

- CS1.11a The reporting of metastatic deposits, either resected or not resected, is required for assessment of the metastatic (M) stage of the tumour.¹³
- CS1.11b The presence of involved non-regional lymph nodes stages the tumour as M1.¹³

Surgical handling

S1.12 The specimen must be handled in a systematic and thorough fashion by the surgeon and theatre staff.

- CS1.12a The pathological findings from examination of a surgical specimen are important in guiding the patient's subsequent management. Hence the surgeon should handle the specimen in a systematic and thorough fashion to ensure accuracy of pathological data, resection margin status and pathological stage.
- G1.05 The specimen should be correctly labelled, orientated or be capable of orientation if the status of specific surgical margins is critical in determining the need for, or extent of, further surgery.¹⁷
- CG1.05a Where there are no anatomical landmarks, specimen orientation should be indicated with marking sutures or other techniques. If a specimen is orientated, the orientation should be indicated on the specimen request form (this may be facilitated by the use of a diagram – for an example, refer to Appendix 1).

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.

Specimen handling

G2.01 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 when the pathologist is sure that the diagnostic process including the measurement of maximum depth of invasion and other important parameters, such as interference with surgical margins that may influence patient prognosis and management, will not be compromised. As a safeguard, research use of the specimen may be put on hold until the diagnostic process is complete so that the specimen can be retrieved. Complications may arise however if suitability for research requires a fresh specimen to be kept frozen and in such instances the diagnostic process takes precedence and the tissue will be fixed for routine processing.

G2.02 Images (such as macroscopic photographs and / or specimen radiography) of the gross specimen showing the overall conformation of the tumour and, especially in the case of complicated resections, images showing the relation of the tumour to the resection margins, are desirable, and useful for multidisciplinary meetings. Placement of arrows and labels indicating important anatomical structures is desirable, and always show a scale in the images.

S2.01 The specimen must be handled in a systematic and thorough fashion to ensure completeness and accuracy of pathological data.

CS2.01a The pathological findings from examination of resection specimens are important in guiding the patient's subsequent clinical management; for example, in predicting a patient's prognosis, or in deciding whether adjuvant radiotherapy or chemotherapy is needed. Hence, these specimens must be handled in a systematic and thorough fashion to ensure the completeness and accuracy of the pathological data such as resection margin status and pathological stage can be provided.

CS2.01b Specimens are best received fresh and without delay if tissue banking is part of the standard protocol. The subsequent fixation, macroscopic assessment and sampling for histology are crucial.

Despite the pressure on the pathologist for rapid turnaround, adequate fixation and processing of biopsies as well as resection specimens is vital for high quality pathology. Full fixation facilitates obtaining thin transverse slices through the tumour and it has also been shown to

increase lymph node yield.

- CS2.01c The specimen needs to be thoroughly examined before sectioning.
- CS2.01d Complex specimens should be examined and orientated together with the responsible surgeon, if possible. Alternatively the surgeon should orientate the specimen with the use of ties or pin the specimen out and label the cork board.
- CS2.01e The application of paints/indelible inks to the specimen is crucial in assessing the surgical margins on histological slides. In most cases a single colour ink will suffice. Multiple colours may be necessary to accurately identify specific margins of the resection. It is important that the ink is dry before sectioning to prevent ink tracking and seepage from creating a false margin.¹⁸

Macroscopic findings

S2.02 The resected specimen should be described and measured in three dimensions.

- CS2.02a All anatomic structures present need to be described and measured. Measure the entire specimen in millimetres (mm) including measurements of specific structures included with the specimen. These structures would include mucosa, all bones/parts of bone (maxilla, mandible, hyoid) soft tissues and salivary glands. There is no need to measure individual teeth.
- CS2.02b The anterior 2/3rds of the tongue is recognised as the mobile tongue and belongs to the oral cavity. Tumours are usually located on the lateral and ventral surfaces of the tongue with involvement of the floor of the mouth. Record the type of glossectomy. Cut the specimen into parallel 2-4mm slices radially and perpendicular to the border of the tongue.¹⁹
- CS2.02c Buccal mucosa extends from the retromolar trigone posteriorly to the lips anteriorly. Most specimens are composed of mucosa with underlying muscle and fat. Occasionally full thickness resections would include the overlying skin. Cut the specimen antero-posteriorly into parallel 2-4mm radial slices perpendicular to the border of the specimen.¹⁹
- CS2.02d The retromolar trigone is the portion of mucosa overlying the ascending ramus of the mandible which extends from the posterior surface of the last mandibular molar tooth and extends superiorly to the maxillary tuberosity. The specimen frequently consists of a rectangular portion of mucosa with the underlying mandibular ramus. Cut the specimen into parallel 2-4mm radial slices, perpendicular to the border of the specimen. A short period of

decalcification may be necessary if underlying bone is present.¹⁹

- CS2.02e Lower lip resection is usually for squamous cell carcinoma while the upper lip frequently is for salivary gland neoplasms. The specimen is usually wedge shaped with a muscular core and covered by skin on one aspect with oral mucosa on the other. The skin and mucosa are continuous along the vermilion border. Cut through the centre of the specimen from left to right, perpendicular to the vermilion and through the tumour into parallel 2-4mm slices. Cut a radial section through the left and a radial section through the right margin of excision¹⁹
- CS2.02f Floor of mouth is the horse-shoe shaped mucosa-covered area between the lateral border of the tongue medially and the lingual gingiva of the mandibular alveolar ridge. The submandibular and sublingual ducts open onto the floor of the mouth anteriorly. Cut the specimen in parallel 2-4mm radial slices perpendicular to the border of the floor of the mouth specimen.¹⁹
- CS2.02g Maxillary resections will vary in size and extent. The specimen will have an oral surface which includes the palate, alveolar ridge with/out teeth as well as the maxillary gingiva. The opposite aspect represents the floor of the nose and maxillary sinus. The specimen may include the lateral nasal wall and inferior turbinate and if the specimen crosses the midline, the nasal septum will also be included.¹⁹

S2.03 The size, site and appearance of the tumour (lesion) must be recorded.

S2.04 The depth of invasion must be measured.

S2.05 All surgical margins and the closest deep surgical margin must be measured.¹⁹

- CS2.05a For lower lip resections record the distance from left and right resection margins.¹⁹
- CS2.05b Mandibular resections will vary in size. They may sacrifice the continuity of the mandible or maintain the lower border of the mandible. In cases where the bone continuity is lost, both the medial and distal vertical bony margins need to be assessed. In situations where the lower border is preserved, both the medial and distal bony margins as well as a horizontal bony resection margin need to be examined. In cases where the posterior body of the mandible is resected, the inferior alveolar nerve resection margin should also be examined histologically.¹⁹
- CS2.05c For maxillary resections all bony resection margins would need to be examined and these depend upon the extent of the resection specimen and may include: the lateral nasal wall, nasal septum, lateral sinus wall, zygomatic bone

laterally, alveolar ridge anteriorly, hard palate medially and posterior palate/alveolar ridge.¹⁹

- G2.03 For small portions of resected mandible or maxilla with attached soft tissue, it would be advisable to decalcify the entire specimen before taking representative sections. For larger specimens, sample mucosal margins as described above and then submit specimen for decalcification prior to assessing bony involvement

S2.06 The extent of involvement of adjacent structures must be described.

CS2.06a Assessment of adjacent structures will include all bones/parts of bone (maxilla, mandible, hyoid), sublingual gland, salivary glands, nose, and sinus.

CS2.06b Ideally, for mandibular resections the specimen should be sliced, at 10mm intervals, perpendicular to the long axis of the mandibular body (preferably with a diamond saw prior to decalcification). This will allow assessment of the relationship of the tumour to the underlying bone and whether or not there is invasion of the mandible.

If this is not feasible then take multiple radial sections of the attached mucosa from the centre of the specimen to the margin. The intention would be to allow an assessment of the closeness or otherwise of the tumour to all margins. Then the entire specimen may be subjected to decalcification prior to taking representative bony sections attempting to prevent separation of the soft tissue from the related bone allowing for accurate assessment of the location and pattern of bony invasion by the tumour. Proximal, distal and inferior bony resection margins to be sectioned and examined separately.

CS2.06c Ideally for maxillary resections the specimen should be sliced, at 10mm intervals, perpendicular to long axis of the alveolar process of the maxilla (preferably with a diamond saw, prior to decalcification). This will allow assessment of the relationship of the tumour to the underlying bone and whether or not there is invasion of the maxilla and involvement of the floor of the nose or sinus.

If this is not feasible then take multiple radial sections of the attached mucosa from the centre if the specimen to the margin. The intention would be to allow an assessment of the closeness or otherwise of the tumour to all margins. Then the entire specimen may be subjected to decalcification prior to taking representative bony sections. Proximal, distal and inferior bony resection margins to be sectioned and examined separately.

- G2.04 If teeth are present, they should be recorded by standard Fédération Dentaire Internationale (FDI) designation.

CG2.04a Please refer to the following website for further

information.²⁰

<http://www.fdiworldental.org/content/two-digit-notation>

G2.05 If teeth are present, mobility, macroscopic evidence of periodontal ligament involvement and any macroscopic root resorption should be recorded.¹⁹

S2.07 Neck dissection (if present) must be described and measured.

CS2.07a Record the laterality, the type of neck dissection and anatomical structures, if included in the specimen, such as submandibular salivary gland, internal jugular vein and sternocleidomastoid muscle.

S2.08 The level and number of lymph nodes in each level must be recorded if available.

CS2.08a This should include the following lymph node groups: submental (level IA), submandibular (level IB), upper jugular (level IIA and IIB), middle jugular (level III), lower jugular (level IV), posterior triangle (level VA and VB).¹³ Use of a template board or transparency diagram may assist the pathologist in localising the different levels of the neck dissection. The onus however rests with the surgeon to orientate and label the nodal groups with the use of sutures, ties or by pinning the neck dissection specimen out and label the cork board. Anatomical lymph node groups may also be submitted in separate specimen containers.

All lymph node tissue should be submitted for histological examination.

CS2.08b Lymph nodes measuring up to 6mm or less in maximum dimension are embedded whole.²¹⁻²²

Nodes measuring 6-15mm around the equator are bisected longitudinally through the hilum and embedded in total in one cassette.²¹⁻²²

Nodes larger than 15mm around the equator are bisected and one half resliced at 90 degrees to the original plane of bisection.^{13, 21-22}

Enlarged nodal masses and the largest lymph node should be measured in millimetres.^{13, 21}

For enlarged nodes, greater than 10mm and for macroscopically involved nodes with/out apparent fixation to the surrounding tissue, the surrounding surgical margin should also be sampled.²¹

All enlarged nodes, specifically those larger than 10 mm and any with apparent fixation to surrounding tissue should be examined for the presence of extracapsular spread and relationship of metastatic disease to adjacent muscles,

blood vessels, nerves and submandibular salivary gland must be documented.^{13,23}

- G2.06 The presence and site(s) of distant metastases should be recorded.
 - CG2.06a The most common sites of distant spread is to the lungs and bones. Mediastinal nodes are considered distant metastases.¹³
- G2.07 A descriptive or narrative field should be provided to record any other macroscopic information that may not be recorded in the above standards and guidelines, and that would normally form part of the macroscopic description.
 - CG2.07a The traditional macroscopic narrative recorded at the time of specimen dissection is often reported separately from the cancer dataset. Although this remains an option, it is recommended that macroscopic information be recorded within the overall structure of this protocol.
 - CG2.07b 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.
 - CG2.07c If photographs and radiological images are taken or diagrams are drawn this should be recorded in the macroscopic narrative.

3 Microscopic findings

Microscopic findings relates to purely histological (morphological) assessment. Information derived from multiple investigational modalities, or from two or more chapters, are described in Chapter 5.

S3.01 The tumour type must be recorded.

CS3.01a In most published studies more than 90% of cases of oral cancer are squamous cell carcinomas.¹⁴

CS3.01b Histological subtype of oral squamous cell carcinoma should be recorded¹⁶ which includes: conventional (in the majority of cases), verrucous, papillary, acantholytic, adenosquamous, basaloid, spindle cell (sarcomatoid), cuniculatum, undifferentiated.^{14,16} These subtypes of oral squamous cell carcinomas often occur alone however 'hybrid' forms may occur combining varying ratios of more than one subtype. Verrucous carcinomas are locally destructive and have a good prognosis since nodal metastases generally do not occur.¹⁶ Adenosquamous carcinomas and basaloid squamous carcinomas have a poor prognosis due to extensive local spread as well as early local and distant spread.²⁴⁻²⁵ The prognosis of the other subtypes is uncertain.¹⁶

S3.02 Histological grade of oral squamous cell carcinoma must be recorded.

CS3.02a Histological grading of squamous cell carcinoma according to the methods proposed by the WHO²⁶ (see Appendix 4) and Bryne et al²⁷ which takes into account a subjective assessment of the degree of keratinisation, cellular and nuclear pleomorphism, mitotic activity, pattern of invasion and the hosts immune response. Conventional squamous cell carcinomas should be graded as well (pG1), moderately (pG2) or poorly (pG3) differentiated.¹⁶ While most oral squamous cell carcinomas are moderately differentiated, it is important for prognostication to separate the well differentiated and poorly differentiated tumours.⁹

CS3.02b The most 'worrisome/unfavourable' region of the advancing front of the tumour should be assessed for grading purposes.^{23,26}

S3.03 Tumour site must be recorded.

CS3.03a Site is related to survival with a decrease in five year survival for more posteriorly located tumours.^{15-16,28} Involvement of overlying skin is indicative of a poor prognosis.^{16,29}

S3.04 Tumour size must be recorded.

- CS3.04a The size of the tumour affects the choice and outcome of treatment and is an important factor in determining a surgeon's ability to obtain tumour-free margins^{16,23,30} and the dose of radiation necessary to effect cure. Large size at presentation is associated with an increased risk of local recurrence, increased incidence of cervical lymph node metastases and poorer survival. When assessing the size of a tumour, both the macroscopic appearance and the pattern of growth need to be considered.²³
- CS3.04b The measurement of greatest surface dimension or diameter is used to indicate size in the AJCC staging classification system.¹³ It is now however widely accepted that depth of invasion is a more accurate predictor of nodal metastasis, local recurrence and survival than diameter.¹⁶

S3.05 The maximum depth of invasion must be recorded.

- CS3.05a Measurement of depth of invasion should be from a reconstructed, imaginary mucosal surface, compensating for areas of ulceration and exophytic tumours.^{9,16}
- CS3.05b It is now widely accepted that depth of invasion is a more accurate predictor of nodal metastasis, local recurrence and survival than diameter.¹⁶
- CS3.05c Tumour thickness must be differentiated from depth of invasion. Tumour thickness concerns the entire tumour mass while depth of invasion describes the extent of tumour growth into the tissue beneath the epithelial surface.³¹
- CS3.05d Early invasion can be subcategorised as microinvasive if the tumour is confined to the papillary part of the lamina propria between the rete processes and as superficially invasive if it is confined to the reticular part of the lamina propria and does not involve the submucosa.²⁵

S3.06 The growth pattern of invasion at the invasive front must be recorded.

- CS3.06a Four patterns of invasion have been described⁹ depending upon the degree of keratinocyte dyscohesion. Different patterns may be present within a tumour but the most 'aggressive' pattern must be recorded. Cohesive growth patterns composed of broad bulbous islands of cells should be separated from strands or small islands of infiltrating cells and from single, non-cohesive infiltrating keratinocytes.
- CS3.06b The pattern of invasion has proven prognostic value for oral squamous cell carcinomas.^{16,27}

S3.07 The presence or absence of lymphovascular invasion must be recorded.

CS3.07a There is a need to distinguish between retraction artefact and intravascular embolisation. Vascular invasion usually occurs in 'thin walled' vessels and involvement of muscular vessels is rare. Identify vascular invasion only when tumour emboli are within clear spaces that are completely lined by endothelial cells.²³ The detection of vascular invasion implies the increased likelihood of successful metastatic spread by the tumour.^{9,16,32}

S3.08 The presence or absence of perineural invasion at the advancing tumour front must be recorded.

CS3.08a Infiltration of the perineural space of nerves at the advancing front of the tumour has been related to the site of the tumour, the diameter and thickness of the tumour, the pattern of invasion of tumour, the presence of nodal metastases, close or involved resection margins and survival.^{30,33-34} This is especially important in carcinoma of the lip where this feature is a predictor of local recurrence.⁹ Indicate the size of the nerves involved by perineural or endoneural invasion as either large (>1mm diameter) or small (<1mm diameter).

G3.01 The presence or absence of sialadenotropism and ductal invasion should be recorded.

CG3.01a Extension of dysplasia down the orifices of salivary gland excretory ducts is associated with increased local recurrence and the development of second primary tumours. The influence of sialoadenotropism on survival is uncertain however it has been associated with increased local recurrence and further primary tumours.¹⁶

S3.09 The presence or absence of bone invasion must be recorded.

CS3.09a In the AJCC staging classification system, involvement of the mandibular or maxillary cancellous bone qualifies for T4, stage IVA status with implied poor prognosis.¹³ Bone involvement will determine the type and extent of treatment.^{13,16}

CS3.09b The pattern of infiltrative front should be documented either as infiltrative or erosive.^{35,36} The infiltrative pattern has been documented as marker of aggressive tumour biology.³⁶

G3.02 Involvement of the salivary gland (if present) should be recorded.

CG3.02a It is rarely involved by tumour. There may be direct spread from a large floor of mouth tumour or direct spread from a nodal metastasis.⁹

G3.03 Involvement of adjacent structures should be recorded.

CG3.03a Such as the:

- Cortical bone

- Floor of mouth
- Skin of face, i.e., chin or nose
- Deep muscle of tongue (genioglossus, hyoglossus, palatoglossus, and styloglossus)
- Maxillary sinus
- Pterygoid plates
- Encases internal carotid artery
- Internal jugular vein
- Sternocleidomastoid muscle

S3.10 The status of the surgical resection margins should be recorded with documentation of the distance of tumour from the margins.

CS3.10a This includes both the surface mucosa at the edge of excision as well as the submucosal and deeper soft tissues around the tumour.

CS3.10b Bone resection margins should be identified and comment on the presence or absence of carcinoma at these margins should be provided.⁹

CS3.10c In routine examination and assessment the tissue shrinkage as a result of fixation is not taken into account. This may result in 30-47% reduction in the margin width when compared to the in-situ clinical width. The measurement from the closest surgical margin(s) must be documented. The UK guidelines for recording the status of the mucosal and deep margins designate margins of 5mm or more as clear, 1-5mm as close and less than 1mm or with histological cut-through as involved. It is recommended that these be adopted.⁹

CS3.10d Incomplete excision is associated with an increased risk of local recurrence and this should be recorded.³⁷

S3.11 The presence or absence of severe dysplasia at the margin must be recorded.

CS3.11a The presence of severe dysplasia at the margin is associated with an increased risk of local recurrence and this should be recorded.³⁷

S3.12 The cervical lymph node status must be recorded.

CS3.12a If lymph nodes have been received, for each anatomical level record the total number of nodes identified and the number of nodes involved by carcinoma

CS3.12b Measure and document the size of the largest metastatic deposit. This is a determinant in the TNM staging.¹³

CS3.12c The number of positive nodes may be uncertain due to matting of the nodes and in such circumstances an

estimate of the number of nodes is required. This confers pN2B status for the patient.¹³

CS3.12d The prognostic significance of isolated tumour cells (ITC's - collections of cells totalling < 0.2mm) and micro metastases (<2mm in diameter) is uncertain and should be recorded and included in the total number of involved lymph nodes.²³

CS3.12d The presence or absence of extra-capsular spread should be recorded. If uncertain, additional serial sections should be examined and it should be recorded as present prompting the use of adjuvant radiotherapy.⁹ This is a manifestation of the aggressiveness of the tumour and is associated with a poor prognosis. Describe the microscopic extracapsular spread as being early, established or gross and measurement of the extent in mm from the original nodal capsule.^{22,23} Describe any structures that may be involved by the extranodal tumour. Permeation of perinodal lymphatics should also be documented, however this does not constitute extra-capsular spread.²³ Measure distance from perinodal surgical margins.

G3.04 Any additional relevant comments should be recorded.

Sentinel node biopsy

This has been suggested as a technique which may reduce the morbidity associated with neck dissections, but at present it is not part of standard patient care and is currently still an experimental technique in head and neck cancer.⁹

4 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. Research continues into various prognostic biomarkers, however at the present time there is no specific single or group of molecular markers that are used routinely in surgical practice to assist clinicians in predicting tumour behaviour or response to therapy for their patients who have oral cancer.

The few ancillary tests that may be required in certain situations will be listed by technique. No ancillary tests are currently used on a routine basis for the diagnosis of oral cancer.

Immunohistochemistry (IHC) staining

S4.01 The results of any immunohistochemistry, if performed, must be incorporated into the pathology report.

- CS4.01a IHC studies may assist in resolution of differential diagnostic problems. Cytokeratin, smooth muscle actin, desmin and S-100 stains should be performed in cases of malignant spindle cell tumours where a spindle cell carcinoma (sarcomatoid carcinoma) is considered in the differential diagnosis.¹⁴
- CS4.01b At the present time IHC staining for p16 should not be routinely performed for cases of lip or oral squamous cell carcinoma,³⁴ however if it is requested, then the results must incorporated into the pathology report.
- CS4.01c There is a growing body of evidence that Human Papilloma Virus (HPV) is an aetiological factor in oropharyngeal carcinoma,³⁸ however currently there is insufficient evidence to recommend routine testing of carcinomas of the oral cavity or lip.³⁹
- CS4.01d At the present time IHC staining for Epidermal Growth Factor receptor (EGFr) should not be routinely performed for cases of lip or oral squamous cell carcinoma, however if it is requested, then the results must incorporated into the pathology report.
- CS4.01e A phase III clinical trial with 5 year follow-up data has shown survival benefit and locoregional control for patients with locoregionally advanced head and neck (oropharyngeal, hypopharyngeal and laryngeal) squamous cell carcinoma when using a monoclonal antibody against the EGFr in conjunction with radiation therapy.⁴⁰⁻⁴¹ Research continues into other biomarkers such as signal transducers, vascular growth factors and interference with angiogenesis-related pathways, inducers of apoptosis as well as cell cycle inhibitors amongst others that will allow for possible targeted therapy in the future for patients with oral and head and neck cancer.⁴²

In-situ Hybridisation

S4.02 The results of any in-situ hybridisation, if performed, must be incorporated into the pathology report.

CS4.02a At the present time investigation for HPV status should not be routinely performed for lip or oral squamous cell carcinoma.³⁹ However, if it is requested then the results should be incorporated into the pathology report.

HPV status is not required to make a diagnosis of oral cancer and currently there is insufficient evidence to recommend routine testing of carcinomas of the oral cavity or lip. There is good evidence that patients with HPV positive oropharyngeal cancers have a better prognosis,³⁸ however, oropharyngeal carcinoma falls outside the scope of this protocol.

Cytogenetics

S4.03 The results of any cytogenetics, if performed, must be incorporated into the pathology report.

CS4.03a At the present time cytogenetic investigations (including investigation for loss of heterozygosity³⁸) are not routinely performed for lip or oral squamous cell carcinoma.

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 report ‘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 The tumour stage and stage grouping based on the TNM staging system of the *AJCC Cancer Staging Manual (7th Edition)*¹³ must be recorded. (See Tables S5.01a, b, c and d below.)

Table S5.01a AJCC oral cancer primary tumour definitions.^a

Primary Tumour (T)	
TX	Primary tumour cannot be assessed
T0	No evidence of primary tumour
Tis	Carcinoma <i>in situ</i>
T1	Tumour 2 cm or less in greatest dimension
T2	Tumour more than 2 cm but not more than 4 cm in greatest dimension
T3	Tumour more than 4 cm in greatest dimension
T4a	Moderately advanced local disease. (lip) Tumour invades through cortical bone, inferior alveolar nerve, floor of mouth, or skin of face, i.e., chin or nose (oral cavity) Tumour invades adjacent structures only (e.g., through cortical bone, [mandible or maxilla] into deep [extrinsic] muscle of tongue [genioglossus, hyoglossus, palatoglossus, and styloglossus], maxillary sinus, skin of face)
T4b	Very advanced local disease. Tumour invades masticator space, pterygoid plates, or skull base and/or encases internal carotid artery

^a Used with the permission of the American Joint Committee on Cancer (AJCC), Chicago, Illinois. The original source for this material is the AJCC Cancer Staging Manual, Seventh Edition (2010) published by Springer Science and Business Media LLC, www.springerlink.com.

Note: Superficial erosion alone of bone/tooth socket by gingival primary is not sufficient to classify a tumour as T4.

Table S5.01b AJCC oral cancer regional lymph node classifications.^b

Regional Lymph Nodes (N)	
NX	Regional lymph nodes cannot be assessed
N0	No regional lymph node metastasis
N1	Metastasis in a single ipsilateral lymph node, 3 cm or less in greatest dimension
N2	Metastasis in a single ipsilateral lymph node, more than 3 cm but not more than 6 cm in greatest dimension; or in multiple ipsilateral lymph nodes, none more than 6 cm in greatest dimension; or in bilateral or contralateral lymph nodes, none more than 6 cm in greatest dimension
N2a	Metastasis in single ipsilateral lymph node more than 3 cm but not more than 6 cm in greatest dimension
N2b	Metastasis in multiple ipsilateral lymph nodes, none more than 6 cm in greatest dimension
N2c	Metastasis in bilateral or contralateral lymph nodes, none more than 6 cm in greatest dimension
N3	Metastasis in a lymph node more than 6 cm in greatest dimension

Table S5.01c AJCC oral cancer distant metastasis classifications.^b

Distant Metastasis (M)	
M0	No distant metastasis
M1	Distant metastasis

Table S5.01d AJCC/UICC pathological stage grouping for oral cancer.^b

Anatomic Stage/Prognostic Groups			
Stage 0	Tis	N0	M0
Stage I	T1	N0	M0

^b Used with the permission of the American Joint Committee on Cancer (AJCC), Chicago, Illinois. The original source for this material is the AJCC Cancer Staging Manual, Seventh Edition (2010) published by Springer Science and Business Media LLC, www.springerlink.com.

Anatomic Stage/Prognostic Groups			
Stage II	T2	N0	M0
Stage III	T3	N0	M0
	T1	N1	M0
	T2	N1	M0
	T3	N1	M0
Stage IVA	T4a	N0	M0
	T4a	N1	M0
	T1	N2	M0
	T2	N2	M0
	T3	N2	M0
	T4a	N2	M0
Stage IVB	Any T	N3	M0
	T4b	Any N	M0
Stage IVC	Any T	Any N	M1

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

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

- a) Type of operation (S1.09)
- b) Anatomical site (S1.04)
- c) Tumour type (S3.01)
- d) Histological grade (S3.02)
- e) Depth of invasion (S3.05)
- f) Lymphovascular invasion (S3.07)
- g) Perineural invasion (S3.08)
- h) Involved or close margins with measurements (S3.10)
- i) Severe dysplasia (S3.11)
- j) Type of neck dissection (if present) (S2.07)
- k) Presence or absence of metastatic tumour in lymph nodes and level of involved nodes (S3.12)
- l) Presence or absence of extra-capsular spread of tumour (S3.12)
- m) Tumour stage (S5.01)

G5.02 A field for free text or narrative in which the reporting pathologist can give overarching case comment must be provided.

CG5.02a This field may be used, for example, to:

- list any relevant ancillary tests
- document any noteworthy adverse gross and/or histological features
- express any diagnostic subtlety or nuance that is beyond synoptic capture
- document further consultation or results still pending.

CG5.02b Use of this field is at the discretion of the reporting pathologist.

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 tumours of the central nervous system. For emphasis, standards (mandatory elements) are formatted in bold font.

- S6.01 The structured checklist provided below 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 laboratory information system (LIS) capabilities and as described in *Functional Requirements for Structured Pathology Reporting of Cancer Protocols*.⁴³
- 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.

Values in italics are conditional on previous responses.

Values in all caps are headings with sub values.

S/G	Item description	Response type	Conditional
Clinical information and surgical handling			
S1.02	Pathology accession number	Alpha-numeric	
S1.03	Principal clinician caring for the patient	Text	
S1.04	Anatomical site	Text	
S1.05	Laterality of the lesion	Single selection value list: <ul style="list-style-type: none"> • Left • Right • Not stated 	
S1.06	Clinical history	Text OR Not stated	
G1.03	Human papilloma virus (HPV) status	Text	
G1.04	Clinical diagnosis or differential diagnosis	Text	

S/G	Item description	Response type	Conditional
S1.07	New primary cancer or recurrence	Single selection value list: <ul style="list-style-type: none"> • New primary • Recurrence – regional • Recurrence - distant • Not stated 	
S1.08	Pre-operative or prior radiotherapy administered	Single selection value list: <ul style="list-style-type: none"> • None administered • Yes • Not stated 	
S1.09	Type of operation	Multi select value list (select all that apply): <ul style="list-style-type: none"> • incisional biopsy • excisional biopsy • hemi-glossectomy • partial glossectomy • hemi-mandibulectomy • segmental mandibulectomy • partial / hemi-maxillectomy 	If selective neck dissection, modified radical neck dissection, radical neck dissection, or extended radical neck dissection is selected record the nodal levels included.

S/G	Item description	Response type	Conditional
		<ul style="list-style-type: none"> • total maxillectomy • selective neck dissection • modified radical neck dissection • radical neck dissection • extended radical neck dissection • wedge resection of lip 	
	<i>Nodal levels included</i>	<i>Multi select value list (select all that apply):</i> <ul style="list-style-type: none"> • <i>submental (level IA)</i> • <i>submandibular (level IB)</i> • <i>upper jugular (level IIA)</i> • <i>upper jugular (level IIB)</i> • <i>middle jugular (level III)</i> • <i>lower jugular (level IV)</i> • <i>posterior triangle (level VA)</i> • <i>posterior triangle (level VB)</i> 	

S/G	Item description	Response type	Conditional
S1.10	Any involvement of adjacent structures	Text OR Not stated	
S1.11	Distant metastases	Single selection value list: <ul style="list-style-type: none"> • No • Yes • Not stated 	If yes, record the details.
	<i>Details</i>	<i>Text</i>	
Macroscopic findings			
S2.02	DESCRIPTION AND MEASUREMENTS OF SPECIMEN		
	Specimen description	Text	
	Specimen measurements	Numeric: __x__x__mm <u>Notes:</u> length x width x thickness	
	Mucosa	Single selection value list:	If received record the

S/G	Item description	Response type	Conditional
		<ul style="list-style-type: none"> • Not received • Received 	description and measurements.
	Description	Text	
	Measurements	Numeric: __x__x__mm <u>Notes:</u> length x width x thickness	
	Teeth	Single selection value list: <ul style="list-style-type: none"> • Not received • Received 	If received record the description (number, type)
	Description (number, type)	Text	
	Bone	Single selection value list: <ul style="list-style-type: none"> • Not received • Received 	If received record the description (eg type of bone eg maxilla, mandible, hyoid) and measurements.
	Description (eg type of bone eg maxilla, mandible, hyoid)	Text	
	Measurements	Numeric: __x__x__mm <u>Notes:</u> length x width x thickness	
	Soft tissues	Single selection value list:	If received record the

S/G	Item description	Response type	Conditional
		<ul style="list-style-type: none"> • Not received • Received 	description and measurements.
	Description	Text	
	Measurements	Numeric: __x__x__mm <u>Notes:</u> length x width x thickness	
	Salivary gland	Single selection value list: <ul style="list-style-type: none"> • Not received • Received 	If received record the description and measurements.
	Description	Text	
	Measurements	Numeric: __x__x__mm <u>Notes:</u> (length x width x thickness)	
S2.03	DESCRIPTION AND MEASUREMENTS OF LESION		
	Size	Numeric: __x__x__mm <u>Notes:</u> length x width x thickness	
	Site	Text	

S/G	Item description	Response type	Conditional
	Appearance	Text	
S2.04	Macroscopic depth of invasion	Numeric: ____mm	
S2.05	Surgical margins	Text (specify margin) AND Numeric: (distance to lesion): ____mm <u>Notes:</u> Note that the margin and distance to lesion will need to be repeated for each surgical margin including the closest deep margin.	
S2.06	Involvement of adjacent structures	Single selection value list: <ul style="list-style-type: none"> • Absent • Present 	If present, record the site.
	Site	Multi select value list (select all that apply): <ul style="list-style-type: none"> • <i>Bone/part of bone</i> • <i>Sublingual gland</i> • <i>Submandibular gland</i> • <i>Nose</i> 	

S/G	Item description	Response type	Conditional
		<ul style="list-style-type: none"> • <i>Sinus</i> 	
<i>G2.04</i>	<i>Teeth – FDI designation (if present)</i>	Text	Conditional on teeth being received in S2.02
<i>G2.05</i>	<i>Teeth mobility</i>	Text	Conditional on teeth being received in S2.02
	<i>Peridental ligament involvement (if teeth present)</i>	Single selection value list: <ul style="list-style-type: none"> • <i>Absent</i> • <i>Present</i> 	Conditional on teeth being received in S2.02
	<i>Root resorption (if teeth present)</i>	Single selection value list: <ul style="list-style-type: none"> • <i>Absent</i> • <i>Present</i> 	Conditional on teeth being received in S2.02
S2.07	Neck dissection	Single selection value list: <ul style="list-style-type: none"> • <i>Absent</i> • <i>Present</i> 	If present, record the type, description (eg any anatomical structures), laterality and dimensions
	Type	Single selection value list: <ul style="list-style-type: none"> • <i>selective neck dissection</i> • <i>modified radical neck dissection</i> • <i>radical neck dissection</i> 	

S/G	Item description	Response type	Conditional
		<ul style="list-style-type: none"> extended radical neck dissection 	
	Description (eg any anatomical structures)	Text	
	Laterality	Single selection value list: <ul style="list-style-type: none"> Left Right 	
	Dimensions	Numeric: __x__x__mm <u>Notes:</u> length x width x thickness	
S2.08	NUMBER AND LEVEL OF LYMPH NODES		The lymph nodes levels presented here will be conditional on the specific nodal levels received in S1.09 if any.
	submental (level IA)	Numeric: _____ <u>Notes:</u> Specify the number of lymph nodes.	
	submandibular (level IB)	Numeric: _____ <u>Notes:</u> Specify the number of lymph nodes.	

S/G	Item description	Response type	Conditional
	upper jugular (level IIA)	Numeric: _____ <u>Notes:</u> Specify the number of lymph nodes.	
	upper jugular (level IIB)	Numeric: _____ <u>Notes:</u> Specify the number of lymph nodes.	
	middle jugular (level III)	Numeric: _____ <u>Notes:</u> Specify the number of lymph nodes.	
	lower jugular (level IV)	Numeric: _____ <u>Notes:</u> Specify the number of lymph nodes.	
	posterior triangle (level VA)	Numeric: _____ <u>Notes:</u> Specify the number of lymph nodes.	
	posterior triangle (level VB)	Numeric: _____ <u>Notes:</u> Specify the number of lymph nodes.	
G2.06	Distant metastases	Single selection value list: <ul style="list-style-type: none"> • Absent 	If present, record details

S/G	Item description	Response type	Conditional
		<ul style="list-style-type: none"> Present 	
	<i>Details</i>	Text	
G2.07	Other macroscopic comment	Text	
Microscopic findings			
S3.01	Tumour type	Select value: Squamous cell carcinoma OR Other	If other is specified, record the specific tumour type If Squamous cell carcinoma is selected record the tumour subtype.
	<i>Tumour type</i>	Text	
	<i>Tumour subtype</i>	Single selection value list: <ul style="list-style-type: none"> <i>Conventional</i> <i>Verrucous carcinoma</i> <i>Basaloid squamous cell carcinoma</i> <i>Papillary squamous cell carcinoma</i> <i>Spindle cell carcinoma</i> 	If other is specified, record the specific tumour subtype

S/G	Item description	Response type	Conditional
		<ul style="list-style-type: none"> • <i>Acantholytic squamous cell carcinoma</i> • <i>Adenosquamous carcinoma</i> • <i>Carcinoma cuniculatum</i> • <i>Undifferentiated (no or limited differentiation)</i> • <i>Other</i> 	
	<i>Tumour subtype</i>	<i>Text</i>	
S3.02	<i>Histological grade</i>	Single selection value list: <ul style="list-style-type: none"> • Grade 1: Well differentiated • Grade 2: Moderately differentiated • Grade 3: Poorly differentiated 	<i>This is conditional on Squamous cell carcinoma being selected in S3.01</i>
S3.03	Tumour site	<i>Text</i>	
S3.04	Tumour size (greatest surface dimensions or diameter)	Numeric: ___x___mm <i>Notes:</i> <i>length x width</i>	
S3.05	Depth of invasion	Numeric: ___mm	

S/G	Item description	Response type	Conditional
S3.06	Growth pattern of invasion at the invasive front	Single selection value list: <ul style="list-style-type: none"> • Cohesive • Noncohesive 	If cohesive, record the presentation of cohesive cells. If non-cohesive record the presentation of noncohesive cells.
	<i>Presentation of cohesive cells</i>	Multi select value list (select all that apply): <ul style="list-style-type: none"> • <i>Broad bulbous islands of cells</i> • <i>Strands of cells (>15 cells across)</i> 	
	<i>Presentation of noncohesive cells</i>	Multi select value list (select all that apply): <ul style="list-style-type: none"> • <i>Narrow strands or small islands of infiltrating cells</i> • <i>Single infiltrating keratinocytes</i> 	
S3.07	Lymphovascular invasion	Single selection value list: <ul style="list-style-type: none"> • Not identified • Present 	
S3.08	Perineural invasion at tumour front	Single selection value list: <ul style="list-style-type: none"> • Not identified • Present 	If present, record the size of the nerves involved
	<i>Size of nerves involved</i>	Single selection value list: <ul style="list-style-type: none"> • <i>Large (>1mm diameter)</i> • <i>Small (<1mm diameter)</i> 	

S/G	Item description	Response type	Conditional
G3.01	Sialadenotropism	Single selection value list: <ul style="list-style-type: none"> • Absent • Present 	
	Ductal invasion	Single selection value list: <ul style="list-style-type: none"> • Absent • Present 	
S3.09	Bone invasion	Single selection value list: <ul style="list-style-type: none"> • Absent • Present 	If present, record the pattern of infiltrative front
	<i>Pattern of infiltrative front</i>	Single selection value list: <ul style="list-style-type: none"> • <i>Infiltrative</i> • <i>Erosive</i> 	
G3.02	<i>Involvement of salivary gland</i>	Single selection value list: <ul style="list-style-type: none"> • <i>Not involved</i> • <i>Involved</i> 	<i>Conditional on salivary glands being received in S2.02</i>
G3.03	Involvement of adjacent structures	Single selection value list: <ul style="list-style-type: none"> • Absent • Present 	If present, record all the sites which apply.
	<i>Site(s)</i>	Multi select value list (select all that apply):	

S/G	Item description	Response type	Conditional
		<ul style="list-style-type: none"> • <i>Cortical bone</i> • <i>Floor of mouth</i> • <i>Skin of face, i.e., chin or nose</i> • <i>Deep muscle of tongue (genioglossus, hyoglossus, palatoglossus, and styloglossus)</i> • <i>Maxillary sinus</i> • <i>Pterygoid plates</i> • <i>Encases internal carotid artery</i> • <i>Internal jugular vein</i> • <i>Sternocleidomastoid muscle</i> 	
S3.10	SURGICAL MARGIN STATUS		
	Margin	<p>Text (specify margin)</p> <p>AND</p> <p>Single selection value list:</p> <ul style="list-style-type: none"> • Not involved • Involved <p><u>Notes:</u> Note that the margin and whether it is positive or negative may need to be repeated for each surgical margin.</p>	If not involved, specify the distance to tumour.

S/G	Item description	Response type	Conditional
	<i>Distance to tumour</i>	<i>Numeric: ___mm</i>	
S3.11	Severe dysplasia at margin	Single selection value list: <ul style="list-style-type: none"> • Absent • Present 	If present, record at which margin(s)
	<i>Margin(s)</i>	<i>Text</i>	
S3.12	LYMPH NODE STATUS		The lymph node status will be conditional on specific nodal levels received in S1.09 if any.
	<i>submental (level IA)</i>	<i>Total number of nodes: ___ Numeric</i> <i>AND</i> <i>Number of involved (positive) nodes: ___ Numeric</i>	The number of nodes per level recorded in S2.08 should be presented to the pathologist for review at this point.
	<i>submandibular (level IB)</i>	<i>Total number of nodes: ___ Numeric</i> <i>AND</i> <i>Number of involved (positive) nodes: ___ Numeric</i>	
	<i>upper jugular (level IIA)</i>	<i>Total number of nodes: ___ Numeric</i> <i>AND</i>	

S/G	Item description	Response type	Conditional
		<i>Number of involved (positive) nodes: __ Numeric</i>	
	<i>upper jugular (level IIB)</i>	<i>Total number of nodes: __ Numeric</i> <i>AND</i> <i>Number of involved (positive) nodes: __ Numeric</i>	
	<i>middle jugular (level III)</i>	<i>Total number of nodes: __ Numeric</i> <i>AND</i> <i>Number of involved (positive) nodes: __ Numeric</i>	
	<i>lower jugular (level IV)</i>	<i>Total number of nodes: __ Numeric</i> <i>AND</i> <i>Number of involved (positive) nodes: __ Numeric</i>	
	<i>posterior triangle (level VA)</i>	<i>Total number of nodes: __ Numeric</i> <i>AND</i> <i>Number of involved (positive) nodes: __ Numeric</i>	
	<i>posterior triangle (level VB)</i>	<i>Total number of nodes: __ Numeric</i> <i>AND</i> <i>Number of involved (positive) nodes: __ Numeric</i>	
	<i>LARGEST METASTATIC DEPOSIT</i>		
	<i>Location</i>	<i>Text</i>	

S/G	Item description	Response type	Conditional
	<i>Dimensions</i>	Numeric: __x__x__mm <i>Notes:</i> <i>length x width x thickness</i>	
	<i>Extra-capsular spread</i>	Single selection value list: <ul style="list-style-type: none"> • Absent • Present 	If present, record the type of extra-capsular spread, the distance of invasion from original nodal capsule and the structures involved in extra-capsular spread.
	<i>Type of extra-capsular spread</i>	Single selection value list: <ul style="list-style-type: none"> • Early(microscopic) • Established • Gross 	
	<i>Distance of invasion from nodal capsule</i>	Numeric: ____mm	
	<i>Structures involved in extra-capsular spread</i>	Text	
	<i>Permeation of perinodal lymphatics</i>	Single selection value list: <ul style="list-style-type: none"> • Absent • Present 	

S/G	Item description	Response type	Conditional
	<i>Distance to perinodal surgical margin</i>	<i>Numeric: ___mm</i>	
G3.04	Other microscopic comment	Text	
Ancillary test findings			
S4.01	IMMUNOHISTOCHEMICAL STAINS		
	Performed	Single selection value list: <ul style="list-style-type: none"> • No • Yes 	If yes, record antibodies, interpretation and clinical significance.
	Antibodies	List (as applicable): <ul style="list-style-type: none"> • <i>Positive antibodies</i> • <i>Negative antibodies</i> • <i>Equivocal antibodies</i> 	
	Interpretation	Text	
	Clinical significance	Text	
S4.02	IN-SITU HYBRIDISATION		

S/G	Item description	Response type	Conditional
	Performed	Single selection value list: <ul style="list-style-type: none"> • No • Yes 	If yes, record performing lab, results, conclusions and person responsible for reporting.
	<i>Performing laboratory</i>	<i>Text</i>	
	<i>Result</i>	<i>Text</i>	
	<i>Conclusion</i>	<i>Text</i>	
	<i>Person responsible for reporting</i>	<i>Text</i>	
S4.03	CYTOGENETICS		
	Performed	Single selection value list: <ul style="list-style-type: none"> • No • Yes 	If yes, record performing lab, results, conclusions and person responsible for reporting.
	<i>Performing laboratory</i>	<i>Text</i>	
	<i>Result</i>	<i>Text</i>	
	<i>Conclusion</i>	<i>Text</i>	
	<i>Person responsible for reporting</i>	<i>Text</i>	

S/G	Item description	Response type	Conditional
Synthesis and overview			
S5.01	AJCC TUMOUR STAGING		
	Primary Tumour (pT)	<p>Single selection value list:</p> <p>TX Primary tumour cannot be assessed</p> <p>T0 No evidence of primary tumour</p> <p>Tis Carcinoma in situ</p> <p>T1 Tumour 2 cm or less in greatest dimension</p> <p>T2 Tumour more than 2 cm but not more than 4 cm in greatest dimension</p> <p>T3 Tumour more than 4 cm in greatest dimension</p> <p>T4a Moderately advanced local disease. (lip) Tumour invades through cortical bone, inferior alveolar nerve, floor of mouth, or skin of face, i.e., chin or nose (oral cavity) Tumour invades adjacent structures only (e.g., through cortical bone, [mandible or maxilla] into deep [extrinsic] muscle of tongue [genioglossus, hyoglossus, palatoglossus, and styloglossus], maxillary sinus, skin of face)</p> <p>T4b Very advanced local disease. Tumour invades masticator space, pterygoid</p>	

S/G	Item description	Response type	Conditional
		<p>plates, or skull base and/or encases internal carotid artery.</p> <p><u>Notes:</u> Superficial erosion alone of bone/tooth socket by gingival primary is not sufficient to classify a tumour as T4.</p>	
	Regional Lymph Nodes (pN)	<p>Single selection value list:</p> <p>NX Regional lymph nodes cannot be assessed</p> <p>N0 No regional lymph node metastasis</p> <p>N1 Metastasis in a single ipsilateral lymph node, 3 cm or less in greatest dimension</p> <p>N2 Metastasis in a single ipsilateral lymph node, more than 3 cm but not more than 6 cm in greatest dimension; or in multiple ipsilateral lymph nodes, none more than 6 cm in greatest dimension; or in bilateral or contralateral lymph nodes, none more than 6 cm in greatest dimension</p> <p>N2a Metastasis in single ipsilateral lymph node more than 3 cm but not more than 6 cm in greatest dimension</p> <p>N2b Metastasis in multiple ipsilateral lymph</p>	

S/G	Item description	Response type	Conditional																																				
		<p>nodes, none more than 6 cm in greatest dimension</p> <p>N2c Metastasis in bilateral or contralateral lymph nodes, none more than 6 cm in greatest dimension</p> <p>N3 Metastasis in a lymph node more than 6 cm in greatest dimension</p>																																					
	Distant Metastasis (pM)	<p>Single selection value list:</p> <p>M0 No distant metastasis</p> <p>M1 Distant metastasis</p>																																					
	Anatomic Stage/Prognostic Group	<p>Single selection value list:</p> <table data-bbox="808 916 1346 1318"> <tr> <td>Stage 0</td> <td>Tis</td> <td>NO</td> <td>M0</td> </tr> <tr> <td>Stage I</td> <td>T1</td> <td>NO</td> <td>M0</td> </tr> <tr> <td>Stage II</td> <td>T2</td> <td>NO</td> <td>M0</td> </tr> <tr> <td>Stage III</td> <td>T3</td> <td>NO</td> <td>M0</td> </tr> <tr> <td></td> <td>T1</td> <td>N1</td> <td>M0</td> </tr> <tr> <td></td> <td>T2</td> <td>N1</td> <td>M0</td> </tr> <tr> <td></td> <td>T3</td> <td>N1</td> <td>M0</td> </tr> <tr> <td>Stage IVA</td> <td>T4a</td> <td>NO</td> <td>M0</td> </tr> <tr> <td></td> <td>T4a</td> <td>N1</td> <td>M0</td> </tr> </table>	Stage 0	Tis	NO	M0	Stage I	T1	NO	M0	Stage II	T2	NO	M0	Stage III	T3	NO	M0		T1	N1	M0		T2	N1	M0		T3	N1	M0	Stage IVA	T4a	NO	M0		T4a	N1	M0	
Stage 0	Tis	NO	M0																																				
Stage I	T1	NO	M0																																				
Stage II	T2	NO	M0																																				
Stage III	T3	NO	M0																																				
	T1	N1	M0																																				
	T2	N1	M0																																				
	T3	N1	M0																																				
Stage IVA	T4a	NO	M0																																				
	T4a	N1	M0																																				

S/G	Item description	Response type	Conditional
		T1 N2 M0 T2 N2 M0 T3 N2 M0 T4a N2 M0 Stage IVB Any T N3 M0 T4b Any N M0 Stage IVC Any T Any N M1	
S5.02	Year of publication and edition of cancer staging system	Numeric: year AND Text: Edition eg 1 st , 2 nd etc	
G5.01	Diagnostic summary Include: a) Type of operation (S1.08) b) Anatomical site (S1.04) c) Tumour type (S3.01) d) Histological grade (S3.02) e) Depth of invasion (S3.05) f) Lymphovascular invasion (S3.07) g) Perineural invasion	Text	

S/G	Item description	Response type	Conditional
	<p>(S3.08)</p> <p>h) Involved or close margins with measurements (S3.10)</p> <p>i) Severe dysplasia (S3.11)</p> <p>j) Type of neck dissection (if present) (S2.07)</p> <p>k) Presence or absence of metastatic tumour in lymph nodes and level of involved nodes (S3.12)</p> <p>l) Presence or absence of extra-capsular spread of tumour (S3.12)</p> <p>m) Tumour stage (S5.01)</p>		
G5.02	Overarching comment	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 pathologists' 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.

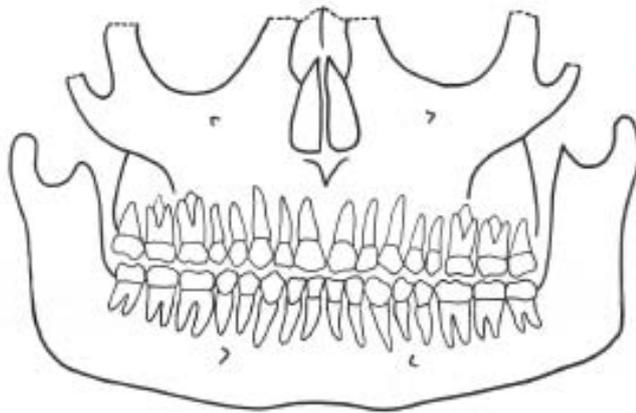


Image taken from The Royal College of Pathologists' Datasets for histopathology reports on head and neck carcinomas and salivary neoplasms (2005), reproduced with the kind permission of The Royal College of Pathologists, www.rcpath.org



Image taken from: Flint PW, et al, eds. Cummings Otolaryngology: Head and Neck Surgery. 5th ed. Philadelphia, PA; Saunders: 2010. Permission granted by Elsevier.

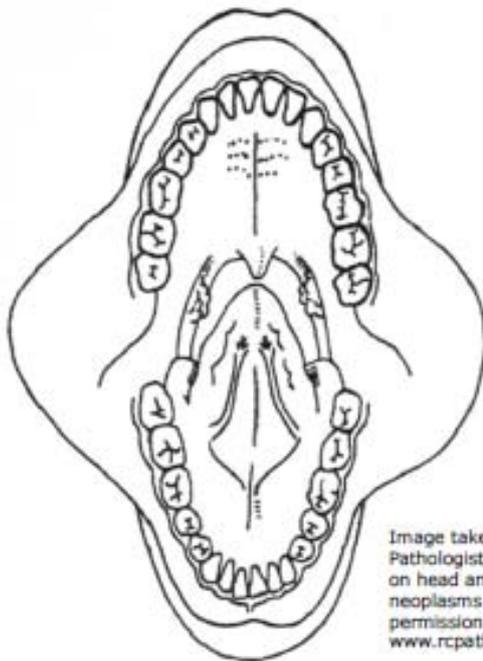


Image taken from The Royal College of Pathologists' Datasets for histopathology reports on head and neck carcinomas and salivary neoplasms (2005), reproduced with the kind permission of The Royal College of Pathologists, www.rcpath.org

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 Laboratory Information System (LIS) allows it. Heading hierarchies may be defined by a combination of case, font size, style and, if necessary, indentation.

- Grouping like data elements under headings and using 'white space' assists in rapid transfer of information.⁴⁴

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.

- Configuring reports in such a way that they 'chunk' data elements into a single unit will help to improve recall for the clinician.⁴⁴
- 'Clutter' should be reduced to a minimum.⁴⁴ Thus, information that is not part of the protocol (e.g. billing information, Snomed codes, etc) should not appear on the reports or should be minimized.
- Injudicious use of formatting elements (e.g. too much bold, underlining or use of footnotes) constitutes 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

Citizen, Georgina W. C/O Paradise Close Wreck Bay Resort Nar Nar Goon East, 3181 Female DOB 1/7/1951 MRN FMC1096785	Lab Ref: 10/P28460 Referred: 30/8/2010	Copy to: Dr N.G.Chapman Rainforest Cancer Centre. 46 Smith Road, Woop Woop, 3478	Referred by: Dr V. Smith Suite 3, AJC Medical Centre, Bunyip Crescent Nar Nar Goon West, 3182
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ORAL CANCER STRUCTURED REPORT

Page 1 of 3

Diagnostic Summary

Right hemi-glossectomy:

Right ventro-lateral margin of the tongue

Conventional, moderately differentiated, keratinising squamous cell carcinoma (intermediate grade)

Depth of invasion – 8mm

Lymphovascular invasion – not identified

Perineural invasion – present involving large and small nerve fibres

Margins of excision – Clear. Closest margin of uninvolved soft tissue is 9mm from the deep plane of excision.

No evidence of dysplasia at margins of excision.

pTNM stage - pT2N1M0 (AJCC 7th edition, 2010)

Comment: Pattern of invasion at tumour front is composed of small groups of non-cohesive and single squamous cells

Right Selective Neck Dissection:

Lymph nodes found by level and number involved:

Level IA – 2 found; 0 involved

Level IB – 2 found; 1 involved

Level IIA – 4 found; 0 involved

Level IIB – 6 found; 0 involved

Level III – 6 found; 0 involved

Size of Metastasis – 9x5mm in level IB

Extracapsular spread – present in level IB

Supporting Information

CLINICAL

Anatomical site/Laterality:	Right ventro-lateral tongue
Clinical history:	Non-healing ulcer. Alcohol and tobacco use.
Clinical or differential diagnosis:	Squamous cell carcinoma
New primary cancer or recurrence:	New primary
Pre-operative or prior radiotherapy:	None administered
Type of operation:	Right hemi-glossectomy, selective neck dissection
Nodal levels included:	Submental (level IA); Submandibular (level IB); Upper jugular (level IIA); Upper jugular (level IIB); Middle jugular (level III)
Involvement of adjacent structures:	None
Distant metastases:	None

MACROSCOPIC**SPECIMEN**

Description:	Right sided hemi-glossectomy
Measurement:	55x35x30mm
Mucosa:	Received
Description:	Ulcerated with surrounding leukoplakia
Measurement:	55x35mm
Teeth:	Not received
Bone:	Not received
Soft Tissues:	Received
Description:	Neck dissection
Measurement:	95x55x20mm
Salivary glands:	Received.
Description:	Right submandibular gland. Not involved by tumour
Measurement:	20x15x8mm

LESION

Size:	20x10x8mm
Site:	Right ventro-lateral tongue
Appearance:	Ulcer

Macroscopic depth of invasion:	8mm
Involvement of adjacent structures:	Absent
Neck dissection:	Present. Right. Selective neck dissection. 95x55x20mm

Surgical margins – distance to lesion

Deep Margin:	9mm
Anterior Margin:	15mm
Posterior Margin:	15mm
Medial Margin:	15mm
Lateral Margin:	10mm

LYMPH NODES

Submental (level IA):	2
Submandibular (level IB):	2
Upper jugular (level IIA):	4
Upper jugular (level IIB):	6
Middle jugular (level III):	6

Other macroscopic comment:	Largest involved node, 10mm
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MICROSCOPIC**TUMOUR**

Tumour type:	Squamous cell carcinoma
Tumour subtype:	Conventional
Histological grade:	Moderately differentiated (intermediate)
Tumour site:	Lateral tongue
Tumour size:	20x10mm
Depth of invasion	8mm

EXTENT

Growth pattern of invasive front:	Noncohesive. Narrow strands or small islands of infiltrating cells, Single infiltrating keratinocytes
Lymphovascular invasion:	Not identified
Perineural invasion:	Present
Size of nerves involved:	Small (<1mm diameter)
Sialadenotropism:	Present
Bone invasion:	Absent
Involvement of salivary gland:	Not involved

SURGICAL MARGINS

Deep Margin:	Not involved
Distance to tumour:	9mm
Anterior Margin:	Not involved
Distance to tumour:	15mm
Posterior Margin:	Not involved
Distance to tumour:	15mm
Medial Margin:	Not involved
Distance to tumour:	15mm
Lateral Margin:	Not involved
Distance to tumour:	10mm
Severe dysplasia at margin(s):	Absent

LYMPH NODE STATUS

Submental (level IA):	0 involved out of 2 resected
Submandibular (level IB):	1 involved out of 2 resected
Upper jugular (level IIA):	0 involved out of 4 resected
Upper jugular (level IIB):	0 involved out of 6 resected
Middle jugular (level III):	0 involved out of 6 resected
Largest metastatic deposit	
Location:	Level IB
Dimensions:	9 x 5mm
Extra-capsular spread:	Present.
Type of spread:	Established
Distance from nodal capsule:	2mm
Structures involved:	None
Permeation of perinodal lymphatics:	Absent
Distance to perinodal surgical margin:	2mm

Other microscopic comment: Metastatic tumour is moderately differentiated

ANCILLARY TESTS

None

Reported by Dr Bernard Mg

Authorised 4/9/2010

Appendix 4 WHO classification of histology and grading of squamous cell carcinoma

WHO classification of tumours of the oral cavity and oropharynx

Malignant epithelial tumours

Squamous cell carcinoma	8070/3 ^a
Verrucous carcinoma	8051/3
Basaloid squamous cell carcinoma	8083/3
Papillary squamous cell carcinoma	8052/3
Spindle cell carcinoma	8074/3
Acantholytic squamous cell carcinoma	8075/3
Adenosquamous carcinoma	8560/3
Carcinoma cuniculatum	8051/3
Lymphoepithelial carcinoma	8082/3

Epithelial precursor lesions

Benign epithelial tumours

Papillomas	8050/0
Squamous cell papilloma and verruca vulgaris	
Condyloma acuminatum	
Focal epithelial hyperplasia	
Granular cell tumour	9580/0
Keratoacanthoma	8071/1

Salivary gland tumours

Salivary gland carcinomas	
Acinic cell carcinoma	8550/3
Mucoepidermoid carcinoma	8430/3
Adenoid cystic carcinoma	8200/3
Polymorphous low-grade adenocarcinoma	8525/3
Basal cell adenocarcinoma	8147/3
Epithelial-myoepithelial carcinoma	8562/3
Clear cell carcinoma, not otherwise specified	8310/3
Cystadenocarcinoma	8450/3
Mucinous adenocarcinoma	8480/3
Oncocytic carcinoma	8290/3
Salivary duct carcinoma	8500/3
Myoepithelial carcinoma	8982/3
Carcinoma ex pleomorphic adenoma	8941/3
Salivary gland adenomas	
Pleomorphic adenoma	8940/0
Myoepithelioma	8982/0
Basal cell adenoma	8147/0
Canalicular adenoma	8149/0
Duct papilloma	8503/0
Cystadenoma	8440/0

Soft tissue tumours

Kaposi sarcoma	9140/3
Lymphangioma	9170/0
Ectomesenchymal chondromyxoid tumour	
Focal oral mucinosis	
Congenital granular cell epulis	

Haematolymphoid tumours

Diffuse large B-cell lymphoma (DLBCL)	9680/3
Mantle cell lymphoma	9673/3
Follicular lymphoma	9690/3
Extranodal marginal zone B-cell lymphoma of MALT type	9699/3
Burkitt lymphoma	9687/3
T-cell lymphoma (incl. anaplastic large cell lymphoma)	9714/3
Extramedullary plasmacytoma	9734/3
Langerhans cell histiocytosis	9751/1
Extramedullary myeloid sarcoma	9930/3
Follicular dendritic cell sarcoma / tumour	9758/3

Mucosal malignant melanoma	8720/3
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Secondary tumours

^a Morphology code of the International Classification of Diseases for Oncology (ICD-O) and the Systematized Nomenclature of Medicine (SNOMED).
The prefix D- indicates the Disease code of SNOMED

Behaviour is coded /0 for benign tumours, /3 for malignant tumours, and /1 for borderline or uncertain behaviour.

From: Barnes L, Eveson JW, Reichart P, Sidransky D. World Health Organization Classification of Tumours. Pathology and Genetics of Head and Neck Tumours. Volume 9. IARC, Lyon, 2005. Reproduced with permission

Grading – Squamous cell carcinoma²⁶

Grade 1: Well differentiated. Histological and cytological features closely resemble those of the squamous epithelial lining of the oral mucosa. There are varying proportions of basal and squamous cells with intercellular bridges; keratinisation is a prominent feature; few mitotic figures are seen and atypical mitoses or multinucleated epithelial cells are extremely rare; nuclear and cellular pleomorphism is minimal.

Grade 2: Moderately differentiated. This is a neoplasm with features intermediate between well differentiated and poorly differentiated. Compared with well-differentiated squamous cell carcinomas, these have less keratinisation and more nuclear and cellular pleomorphism; there are more mitotic figures and some are abnormal in form; intercellular bridges are less conspicuous.

Grade 3: Poorly differentiated. Histologically and cytologically there is only a slight resemblance to the normal stratified squamous epithelium of the oral mucosa. Keratinization is rarely present and intercellular bridges are extremely scarce; mitotic activity is frequent and atypical mitoses can readily be found; cellular and nuclear pleomorphism are obvious and multinucleated cells may be frequent.

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