

CARCINOMAS OF THE NASAL CAVITY AND PARANASAL SINUSES

STRUCTURED REPORTING PROTOCOL

(1st Edition 2019)

Incorporating the:

International Collaboration on Cancer Reporting (ICCR)

Carcinomas of the Nasal Cavity and Paranasal Sinuses Dataset

www.ICCR-Cancer.org

Core Document versions:

- ICCR dataset: Carcinomas of the Nasal Cavity and Paranasal Sinuses Dataset 1st edition
- AJCC Cancer Staging Manual 8th edition
- World Health Organization (WHO). Classification of Head and Neck Tumours. 4th edition.

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Scope

This protocol contains standards and guidelines for the structured reporting of carcinomas of the Nasal Cavity and Paranasal Sinuses. The protocol has been developed for the reporting of resection and biopsy specimens of mucosal malignancies originating in the nasal cavities and paranasal sinuses. Neuroectodermal neoplasms (including melanoma) and sarcomas are not included. [Bone, soft tissue and lymphoma protocols](#) are separately listed.

[Neck dissections and nodal](#) excisions are dealt with in a separate protocol, and this protocol should be used in conjunction with relevant protocols, where applicable. Other protocols on cancers of the [head and neck](#) region are available.

Multiple, different histologic primaries should be reported separately.

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
HPV	Human papillomavirus
ICCR	International Collaboration on Cancer Reporting
LIS	Laboratory information system
LVI	Lymphovascular invasion
NHMRC	National Health and Medical Research Council
NUT	Nuclear protein in testis gene
PBS	Pharmaceutical Benefits Scheme
RCPA	Royal College of Pathologists of Australasia
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.

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	<p>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).</p> <p>Commentary is used to:</p> <ul style="list-style-type: none">• 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. <p>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).</p>
General commentary	<p>General commentary is text that is not associated with a specific standard or guideline. It is used:</p> <ul style="list-style-type: none">• 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 unanimously agreed should be included in the protocol but are not supported by National Health and Medical Research Council (NHMRC) level III-2 evidence.¹ These elements may be clinically important and recommended as good practice but are not yet validated or regularly used in patient management.</p> <p>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.</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 (e.g., 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 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	<p>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).¹ 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 Tumour-Node-Metastasis (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.</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 (e.g., 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	<p>Synthesis is the process in which two or more pre-existing elements are combined, resulting in the formation of something new.</p> <p>The Oxford dictionary defines synthesis as “the combination of components or elements to form a connected whole”.</p> <p>In the context of structured pathology reporting, synthesis represents the integration and interpretation of information from two or more modalities to derive new information.</p>

Introduction

Carcinomas of the Nasal Cavity and Paranasal Sinuses

In Australia, carcinomas of the head and neck account for 3.4% of all carcinomas diagnosed,² and within this group carcinomas of the nasal cavity and paranasal sinuses are 4.3% of this subset. Though this may be a small number, emerging data has highlighted the role of oncogenic viruses in the development of these tumours, and in risk stratification, and therefore it is important that these should be incorporated into a cancer reporting system. In the introduction to the section on Tumours of the Nasal Cavity, Paranasal Sinuses and Skull base that forms part of the revised World Health Organization (WHO) Head and Neck Monograph,³ the authors recognized the wide spectrum of tumours that may occur in this small anatomic region, but limited inclusion to exclusive sinonasal lesions, head and neck tumours that commonly occur in this region, and lesions that were important in the diagnostic process. Given that there are already a large number of existing datasets for reporting, the committee adopted a similar approach, and focused on lesions unique, or of particular importance to this site, with other common lesions included in other datasets. Thus, this manual should be considered as but one piece in the building blocks of establishing a comprehensive dataset that balances our diagnostic and therapeutic usefulness with routine anatomical pathology reporting practicality.

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 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 (IHC), 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^{4,5} around the world. Both the United Kingdom,⁶ and United States⁷ 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 Australasian (RCPA), United States College of American Pathologists (US CAP) and Royal College of Pathologists United Kingdom (RCPATH UK) Colleges of Pathology and the Canadian Association of Pathology - 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 capture⁸⁻¹¹ 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 Carcinomas of the Nasal Cavity and Paranasal Sinuses 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 nasal cavity and paranasal sinus specimens.

ICCR dataset elements for Carcinomas of the Nasal Cavity and Paranasal Sinuses 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:

 S3.01	The histological tumour type must be recorded.
--	---

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.,

 G2.03	If present, the laterality of the lymph nodes submitted may be recorded as left, right or bilateral.
--	--

CS2.03a If present, record site and number. All lymph node tissue should be submitted for histological examination.

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*¹²
- *World Health Organization (WHO). Classification of Head and Neck Tumours., 4th Edition. El-Naggar AK, Chan JKC, Grandis JR, Takata T, Slotweg PJ (editors). Lyon, France: IARC Press;2017.*¹³
- *AJCC Cancer Staging Manual, 8th edition, American Joint Committee on Cancer, 2016*¹⁴

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 – Carcinomas of the Nasal Cavity and Paranasal Sinuses 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: www.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 & 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)
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Medical Software Industry Association (MSIA)
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National Pathology Accreditation Advisory Council (NPAAC)
New Zealand Cancer Registry
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South Australia Cancer Registry

Standards Australia
Tasmanian Cancer Registry
Victorian Cancer Registry
Western Australia Clinical Oncology Group (WACOG)
Western Australian Cancer Registry

Development process

This protocol has been developed following the ten-step process set out in *Guidelines for Authors of Structured Cancer Pathology Reporting Protocols*.¹²

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 carcinomas of the nasal cavity and paranasal sinuses, 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.¹⁵ 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 principle 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:

<https://www.rcpa.edu.au/Manuals/Macroscopic-Cut-Up-Manual>



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





Macroscopic findings


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

G2.01 Dimensions of each submitted specimen should be recorded.

G2.02 A description of any mucosal surface abnormalities/lesions(s) should be described.

	S2.02 The macroscopic tumour site(s) must be recorded.
	<p>CS2.02a The sinonasal tract consists of the nasal cavity and the paranasal sinuses (maxillary, ethmoid, frontal, and sphenoid). The nasal cavity can be further subdivided into the nasal septum, floor, lateral wall, and vestibule. Among sinonasal tract carcinomas, the most common site of tumour origin is the maxillary sinus, followed by the nasal cavity and ethmoid sinus. It is rare for carcinomas to arise from the frontal or sphenoid sinuses.¹⁶⁻²⁰</p> <p>The precise tumour site within the sinonasal tract is important to record. First, different staging schemes are</p>

		<p>utilised for maxillary sinus carcinomas and those arising in the ethmoid sinus or nasal cavity.²¹ Second, there is prognostic importance to the tumour location. For example, carcinomas primary to the nasal cavity have been shown to have an improved prognosis over carcinomas primary to the paranasal sinuses, likely because nasal carcinomas give rise to symptoms (e.g., nasal obstruction or epistaxis) and this come to clinical attention sooner.^{16,20,22,23} In addition, among maxillary sinus carcinomas, those arising from the anterior-inferior portion have a better prognosis than those arising from the superior-posterior portion, likely because the latter group has easier access to structures such as the orbit or skull base.²¹ Finally, certain carcinomas are closely associated with specific sinonasal sub-sites. For example, intestinal-type adenocarcinomas and neuroendocrine carcinomas occur most often in the ethmoid sinuses, while squamous cell carcinoma occurs most often in the maxillary sinus.²⁴⁻²⁷</p> <p>It is recognised that some carcinomas, particularly highly aggressive types like sinonasal undifferentiated carcinoma or NUT carcinoma, usually affect more than one sinonasal anatomic subsite. In this case, every affected site should be selected.</p>
	G2.03	Tumour focality should be recorded.
	CG2.03a	Multiple, different histologic primaries should be reported separately. "Multifocal" can be used for microscopic foci of in situ or invasive carcinoma adjacent to the primary.
	G2.04	The maximum dimension of largest tumour should be recorded.
	CS2.04a	<p>When the tumour removed is fragmented, piecemeal or affected by chemo-radiation therapy, radiological correlation should be sought.</p> <p>The maximum diameter of the tumour should be possibly assessed on the unfixed specimen, to avoid size underestimation resulting from formalin fixation-induced shrinkage. Care should be taken not to overestimate tumour size by including areas of adjacent non-neoplastic tissue. The gross assessment of tumour size should be confirmed microscopically and in cases where non-neoplastic tissue has been mistakenly incorporated into the tumour measurement, tumour size should be adjusted accordingly. If tumour dimensions are estimated only microscopically, then "at least" should be added to indicate that the measurement is an underestimation resulting from fixation and tissue processing.</p>

		The option "Cannot be assessed" can be used when the tumour is submitted in fragments, as in endoscopic resections. In these cases, radiographic imaging may also be considered to determine tumour dimensions.
 G2.05	Additional dimensions of the largest tumour may be recorded.	

G2.06 A description of the tumour should be recorded.

S2.03 The depth of invasion must be measured.

S2.04 All surgical margins must be assessed and the closest deep surgical margin must be measured.

S2.05 A block identification key listing the nature and origin of all tissue blocks must be recorded.

CS2.05a 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. 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.

G2.07 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.

CG2.07a 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.






CG2.07b 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 A traditional macroscopic description may be required when the Laboratory Information System (LIS) does not allow a structured approach.

CG2.07d 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.

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.



 S3.01	The histological tumour type must be recorded.	
	CS3.01a	Refer to Appendix 4.
	CS3.01b	<p>All sinonasal tumours should be given a type based on the most recent edition of the WHO Classification of Head and Neck Tumours.³ The list of histologic types discussed in the chapter on sinonasal tumours in the 4th Edition of the WHO does not include some squamous cell carcinoma variants and salivary gland type tumours because they are described in sections devoted to other sites where they are more commonly encountered.</p> <p>Accurate tumour typing is important because specific tumour types are associated with different prognoses and, in some cases, different treatments. For example, sinonasal undifferentiated carcinoma and NUT carcinoma have very poor outcomes while low-grade forms of non-intestinal type adenocarcinoma behave in a very indolent manner. As another example, lymphoepithelial carcinoma (nonkeratinizing undifferentiated carcinoma) is known to respond well to external beam radiation, while salivary-type adenocarcinomas are, as a group, not highly radiosensitive.</p> <p>Diagnostic accuracy is also expected to take on additional importance in the future as targeted, molecular-based therapies become more prominent. A notable example is NUT carcinoma, for which trials using bromodomain inhibitors are ongoing.²⁸ The use of targeted therapies may also be an option for certain intestinal-type adenocarcinomas in the future.^{29,30}</p>
 S3.02	The Histological tumour grade must be recorded.	
	CS3.02a	<p>A tiered grading system is used for squamous cell carcinoma (based on degree of differentiation) and sinonasal adenocarcinoma (which, according to the WHO Classification can be distinguished in low and high grade), as well as some salivary gland tumours (e.g., adenoid cystic carcinoma, mucoepidermoid carcinoma, etc.). Squamous cell carcinomas are graded with a 3-tiered system based on the degree the tumour cells differentiate. Undifferentiated tumours that show virtually no evidence of histologic differentiation should</p>



		be considered grade 4. Salivary gland neoplasms have grading systems unique to some tumours that generally require quantification and assessment of a number of histologic features. ³¹ The grading of non-salivary-gland-type adenocarcinomas is based on the presence of necrosis and mitotic activity. ³² Tubulo-papillary intestinal type adenocarcinoma can be graded as well, moderately, or poorly differentiated, while mucinous adenocarcinomas are either moderately differentiated (alveolar) or poorly differentiated (signet ring cell). ³³ Finally, grading can also be performed with neuroendocrine carcinomas; however, within the sinonasal tract, almost all cases are high grade. The reproducibility and prognostic value of the various grading systems remain debatable.
 S3.03	The presence or absence of bone or cartilage invasion must be recorded.	
	CS3.03a	If properly oriented, the depth of invasion/extent of bone destruction should be recorded.
	CS3.03b	Bone invasion is a frequent finding in sinonasal carcinomas. Both bone erosion and destruction have to be reported as part of the definition of the primary tumour in the TNM staging system.

S3.04 Tumour site must be recorded.

S3.05 Tumour size must be recorded.

 S3.06	The presence or absence of perineural invasion must be recorded.	
	CS3.06a	The frequency of perineural invasion in sinonasal carcinomas is lower than other head and neck sites, and varies according to the histologic subtype, being most frequent in adenoid cystic carcinoma, sinonasal undifferentiated carcinoma and squamous cell carcinoma. ^{34,35} In sinonasal carcinomas, perineural invasion is associated with a high rate of positive margins, with maxillary origin, and with previous surgical treatment, but it is not an independent prognostic factor of outcome. ³⁴
 S3.07	The presence or absence of lymphovascular invasion must be recorded.	
	CS3.07a	It consists in the presence of neoplastic cells within an endothelial-lined space, either lymphatic or venous, and should be distinguished from retraction artefact. Immunohistochemical staining for an endothelial marker may help in this distinction. Lymphovascular invasion is reported in up to 60% of sinonasal squamous cell carcinomas, but its clinical

		significance at this anatomic site remains to be determined. ³⁴
 S3.08	The surgical margin status must be reported.	
	CS3.08a	<p>Ideally, the resection specimen would be handed over from surgeon to pathologist directly for orientation and clarification of surgical margins. Failing this, the margins should be labelled by the surgeon and/or illustrated with a diagram. Specimens from endoscopic tumour resections should also be labelled. If the margins are sent separately, for frozen section or otherwise, identification of their site in relation to the resection specimen should be clarified by the surgeon. The surgical margins, both mucosal and deep, should be thoroughly sampled. A positive or close margin will usually result in postoperative radiotherapy and treatment associated morbidity at this site may be severe. Skin and bone margins may also require documentation depending upon the type of resection.</p> <p>Evidence relating to margins at this specific site is lacking and therefore extrapolated from other head and neck sites, the oral cavity being the most studied. The literature would generally support 5 mm as a prognostically relevant pathologic clear margin.^{36,37} This is best considered the minimum acceptable margin and is not a guarantee of lack of local recurrence which can be up to 25% with a clear margin.^{37,38} Values ranging from 3 mm to 7 mm have been put forward.^{36,39} In lower stage tumours, without other adverse variables, a margin less than 5 mm may be adequate^{40,41} so that in considering adjuvant therapy, other features of the tumour must be taken into account. The evaluation of margins and the treatment choices should also be made considering the complex anatomy of this area. For example, a sinonasal adenocarcinoma can have pushing margins at the periorbital tissues without infiltration, and in this case no orbital exenteration is needed to achieve clear margins >5 mm.</p> <p>There is no agreed-upon definition of what constitutes a close margin, as the effective cut off varies between studies depending upon anatomic subsite, tumour stage and other adverse pathologic variables.⁴² Tumours with close margins carry an increased risk for local recurrence^{36,42,43} but there is significantly better overall survival than for involved margins.⁴⁴</p> <p>Several studies support the definition of a positive margin to be invasive carcinoma at the margin^{36,41,44} although <1 mm is also used.⁴⁵ Most studies also consider carcinoma in situ/high-grade dysplasia as a positive margin.³⁶ The presence of dysplasia at the</p>

		<p>margin is associated with a significant risk of local recurrence⁴⁶ and development of a second primary.⁴⁷ Information regarding the distance of invasive carcinoma, carcinoma in situ, or high-grade dysplasia from the nearest margin should be recorded where possible.</p> <p>While there is no standard recommendation for the other histologic types of carcinoma, adherence to the recommendations for squamous cell carcinoma is acceptable.</p>
	G3.01	The presence or absence of coexistent pathology should be recorded.
	CG3.01a	The presence of coexistent pathology can be used as evidence for histologic classification of the tumour. This is especially true with spindle cell carcinoma or other less differentiated variants of squamous cell carcinoma that arise from and are often associated with overlying squamous dysplasia/carcinoma in situ. ⁴⁸



G3.02 Radiation induced tissue damage can be recorded.

CG3.02a 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.

G3.03 Any additional relevant microscopic comments should be recorded.

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.

 G4.01	Whether or not ancillary tests are performed should be recorded and the results incorporated into the pathology report.
	<p>CG4.01a</p> <p>Ancillary studies are variably needed for the diagnosis of specific entities at this site. For example, NUT carcinoma is recognized by the presence of <i>nuclear protein in testis (NUT)</i> gene rearrangement or positivity with the C52 monoclonal antibody against NUT protein.⁴⁹ The diagnosis of HPV-related multiphenotypic sinonasal carcinoma requires <i>HPV</i> specific testing as part of the tumour definition,⁵⁰ while for the diagnosis of <i>SMARCB1 (INI1)</i>-deficient carcinoma, loss of nuclear immunohistochemical staining for INI1 is needed.⁵¹</p> <p>In poorly differentiated malignancies, immunohistochemical markers can be used to assign a tumour to a specific category. p40, p63 and cytokeratin 5/6 are useful markers of squamous differentiation, while markers of intestinal differentiation, such as cytokeratin 20 and CDX2, help in the diagnosis of intestinal type adenocarcinoma. Neuroendocrine carcinomas can be diagnosed with the support of positive staining with at least one neuroendocrine marker.</p> <p>A subset of sinonasal carcinomas appears to be related to high risk HPV, including non-keratinizing squamous cell carcinoma, basaloid squamous cell carcinoma, papillary squamous cell carcinoma, adenosquamous carcinoma, and conventional keratinizing squamous cell carcinoma.⁵²⁻⁵⁷ However, the clinical significance of these findings is still debated, and <i>HPV</i> testing is considered investigational in this context.</p> <p>Though EBV is associated with nasopharyngeal carcinomas, some of these tumours may extend into the nasal cavity where they may be diagnosed as lymphoepithelioma.⁵⁸ The most reliable detection method for EBV is ISH for <i>EBV encoded early RNA (EBER)</i> present in cells latently infected by EBV, and is recommended because it is a modestly strong favourable prognostic marker and because it is confirmation of the tumour having a nasopharyngeal association.⁵⁹ A subset of patients with sinonasal carcinomas are related to transcriptionally-active high risk HPV⁶⁰ but testing for HPV/p16, is at the discretion</p>

		<p>of the local practice. In some cases of squamous cell carcinoma present in the nasal cavity, <i>HPV</i> testing may be indicated in routine clinical practice to help alert the clinician that this may be an oropharyngeal primary tumour that is secondarily involving the nasal cavity and not because the HPV is of proven prognostic benefit in such tumours.</p>
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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	<p>The primary tumour stage (pT) must be recorded according to the AJCC TNM system (8th edition).¹⁴ Used with the permission of the American College of Surgeons, Chicago, Illinois. The original source for this information is the AJCC Cancer Staging Manual, Eighth Edition (2016) published by Springer Science+Business Media.</p>	
	<p>CS5.01a</p>	<p>The TNM classification attempts to describe the anatomic extent of cancer. Clinical classification (cTNM) is usually carried out by the referring physician before treatment during initial evaluation of the patient or when pathologic classification is not possible. The objective of this classification is to aid the clinician in planning treatment, give some indication of prognosis, assist in the evaluation of the results of therapy and facilitate exchange of information.</p> <p>By American Joint Committee on Cancer (AJCC)/Union for International Cancer Control (UICC) convention, the designation "T" refers to a primary tumour that has not been previously treated. The symbol "p" refers to the pathologic classification of the TNM, as opposed to the clinical classification, and is based on gross and microscopic examination of the resected tumour. pT entails a resection of the primary tumour or biopsy adequate to evaluate the highest pT category, pN entails removal of nodes adequate to validate lymph node metastasis, and pM implies microscopic examination of distant metastatic lesions.</p> <p>For identification of special cases of pTNM classifications, the "m" suffix and "y" and "r" prefixes are used. Although they do not affect the stage grouping, they indicate cases needing separate analysis. The "m" suffix indicates the presence of multiple primary tumours in a single</p>

		<p>site and is recorded in parentheses: pT(m)NM. The “y” prefix indicates those cases in which classification is performed during or following initial multimodality therapy (ie, neoadjuvant chemotherapy, radiation therapy, or both chemotherapy and radiation therapy). The cTNM or pTNM category is identified by a “y” prefix. The ycTNM or ypTNM categorizes the extent of tumour actually present at the time of that examination. The “y” categorization is not an estimate of tumour prior to multimodality therapy (ie, before initiation of neoadjuvant therapy).</p> <p>The “r” prefix indicates a recurrent tumour when staged after a documented disease-free interval, and is identified by the “r” prefix: rTNM. The R classifier for residual tumour is not recommended for use in the setting of head and neck cancers.</p> <p><u>TNM Descriptors</u></p> <p>T – Primary Tumour</p> <p>TX Primary tumour cannot be assessed</p> <p>T0 No evidence of primary tumour</p> <p>Tis Carcinoma in situ</p> <p>For the pN classification of regional lymph nodes, refer to the Nodal excisions and neck dissection specimens protocol.</p>
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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
- b. Tumour type
- c. Tumour grade
- d. Tumour stage

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.

CS5.02a 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 "XXXXXXXXXX" 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 prostate 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 laboratory information system (LIS) capabilities and as described in *Functional Requirements for Structured Pathology Reporting of Cancer Protocols*.⁶¹

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.

S/G	Item description	Response type	Conditional
Pre-analytical			
S1.01	Demographic information provided		
S1.02	Clinical information provided on request form	Not provided OR Text OR Structured entry as below:	




	Neoadjuvant therapy	Single selection value list: <ul style="list-style-type: none"> • Information not provided • Not administered • Administered, <i>specify type (select all that are applicable)</i> <ul style="list-style-type: none"> ○ Chemotherapy ○ Radiotherapy ○ Targeted therapy, <i>specify if available</i> ○ Immunotherapy, <i>specify if available</i> ○ Time interval since therapy, <i>specify</i> 	
	Operative procedure	Multi selection value list (select all that apply): <ul style="list-style-type: none"> • Biopsy, <i>specify</i> • Resection, <i>specify</i> <ul style="list-style-type: none"> ○ Endoscopic nasal procedure, <i>specify</i> ○ Partial maxillectomy ○ Radical maxillectomy ○ Orbito-maxillary resection ○ Craniofacial resection <ul style="list-style-type: none"> ▪ Open 	


		<ul style="list-style-type: none"> ▪ Endoscopic <ul style="list-style-type: none"> ○ Other, <i>specify</i> • Neck (lymph node) dissection*, <i>specify</i> • Other, <i>specify</i> <p>Note: * <i>If a neck dissection is submitted, then a separate protocol is used to record the information.</i></p>	
	Specimen submitted	<p>Multi selection value list (select all that apply):</p> <ul style="list-style-type: none"> • Nasal cavity <ul style="list-style-type: none"> ○ Lateral wall ○ Vestibule ○ Septum ○ Floor • Paranasal sinus(es), maxillary • Paranasal sinus(es), ethmoid • Paranasal sinus(es), frontal • Paranasal sinus(es), sphenoid • Other, <i>specify</i> 	
	Anatomical site of lesion	Text	


	Laterality of the lesion	Single selection value list: <ul style="list-style-type: none"> • Left • Right 	
	Clinical history	Text	
	Clinical diagnosis or differential diagnosis	Text	
	New primary lesion or recurrence	Single selection value list: <ul style="list-style-type: none"> • New primary • Recurrence – regional, <i>describe</i> • Recurrence – distant, <i>describe</i> 	
G1.01	Copy To doctors recorded	Text	
S1.03	Pathology accession number	Alpha-numeric	
S1.04	Principal clinician	Text	
G1.02	Additional comments	Text	
Macroscopic findings			
S2.01	Specimen labelled as	Text	
G2.01	Specimen dimensions	Numeric: __x__mm Notes: Record measurements for each specimen submitted	





G2.02	Mucosal surface abnormalities/lesion(s)	Single selection value list: <ul style="list-style-type: none"> • Not identified • Present, <i>describe and measure</i> 	
 S2.02	Tumour site	Multi selection value list (select all that apply): <ul style="list-style-type: none"> • Cannot be assessed • Nasal cavity <ul style="list-style-type: none"> ○ Septum <ul style="list-style-type: none"> ▪ Left ▪ Midline ▪ Right ▪ Laterality not specified ○ Floor <ul style="list-style-type: none"> ▪ Left ▪ Right ▪ Laterality not specified ○ Lateral wall <ul style="list-style-type: none"> ▪ Left ▪ Right ▪ Laterality not specified ○ Vestibule 	









		<ul style="list-style-type: none">▪ Left▪ Right▪ Laterality not specified• Paranasal sinus(es), maxillary<ul style="list-style-type: none">○ Left○ Right○ Laterality not specified• Paranasal sinus(es), ethmoid<ul style="list-style-type: none">○ Left○ Right○ Laterality not specified• Paranasal sinus(es), frontal<ul style="list-style-type: none">○ Left○ Right○ Laterality not specified• Paranasal sinus(es), sphenoid<ul style="list-style-type: none">○ Left○ Right○ Laterality not specified• Cribriform plate<ul style="list-style-type: none">○ Left○ Right	
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		<ul style="list-style-type: none"> ○ Laterality not specified • Other, <i>specify including laterality</i> 		
	G2.03	Tumour focality	Single selection value list: <ul style="list-style-type: none"> • Cannot be assessed • Unifocal • Multifocal, <i>specify number of tumours in specimen</i> 	
	G2.04	Maximum dimension of largest tumour	Cannot be assessed OR Numeric: __mm	
	G2.05	Additional dimensions of largest tumour	Numeric: __x__mm	
	G2.06	Tumour description:	Multi selection value list (select all that apply): <ul style="list-style-type: none"> • Exophytic • Endophytic • Ulcerated • Polypoid • Nodular 	
	S2.03	Macroscopic depth of invasion	Numeric: __mm	



S2.04	Surgical margins	Text (<i>specify margin</i>) 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.	
S2.05	Block identification key	Text	
G2.07	Additional macroscopic comments	Text	
Microscopic findings			
 S3.01	Histological tumour type	Cannot be assessed, <i>specify</i> <i>OR</i> Multi selection value list (select all that apply): <ul style="list-style-type: none"> • Keratinising squamous cell carcinoma • Non-keratinising squamous cell carcinoma • Spindle cell squamous carcinoma • NUT carcinoma • Other squamous cell carcinoma variant, <i>specify</i> 	


		<ul style="list-style-type: none"> • Sinonasal undifferentiated carcinoma • Lymphoepithelial carcinoma • Neuroendocrine carcinoma <ul style="list-style-type: none"> ○ Small cell neuroendocrine carcinoma ○ Large cell neuroendocrine carcinoma • Adenocarcinoma <ul style="list-style-type: none"> ○ Intestinal-type adenocarcinoma ○ Non-intestinal-type adenocarcinoma • Salivary type carcinomas, <i>specify</i> • Other carcinoma type, <i>specify</i> 	
 S3.02	Histological grade	Single selection value list: <ul style="list-style-type: none"> • Not applicable • GX: Cannot be assessed • G1: Well differentiated • G2: Moderately differentiated • G3: Poorly differentiated • G4: Undifferentiated • Other, <i>specify</i> • Cannot be assessed, <i>specify</i> 	<i>Conditional on squamous cell carcinoma being recorded in S3.01.</i>

 S3.03	Bone/cartilage invasion	Single selection value list: <ul style="list-style-type: none"> • Cannot be assessed, <i>specify</i> • Not identified • Present <ul style="list-style-type: none"> ○ Erosive (cortical) ○ Infiltrative (medullary involvement) 	
S3.04	Tumour site	Text	
S3.05	Tumour size (greatest surface dimensions or diameter)	Numeric: ___x___mm <u>Notes:</u> length x width	
 S3.06	Perineural invasion	Single selection value list: <ul style="list-style-type: none"> • Cannot be assessed, <i>specify</i> • Not identified • Present 	
 S3.07	Lymphovascular invasion	Single selection value list: <ul style="list-style-type: none"> • Cannot be assessed, <i>specify</i> • Not identified • Present 	
 S3.08	MARGIN STATUS		

	Invasive carcinoma	Single selection value list: <ul style="list-style-type: none"> • Not involved • Involved 	<i>If not involved by invasive carcinoma record the distance from invasive tumour to Deep margin and Mucosal margin</i> <i>If involved specify margin(s) if possible</i>
	<i>Distance from invasive tumour to deep margin</i>	Numeric: __mm OR Distance not assessable	
	<i>Distance from invasive tumour to mucosal margin</i>	Numeric: __mm OR Distance not assessable	
	<i>Margins involved</i>	Text	
	Carcinoma in situ/high-grade dysplasia**	Single selection value list: <ul style="list-style-type: none"> • Not involved • Involved <p>**High-grade dysplasia is synonymous with moderate/severe dysplasia.</p>	<i>If not involved by Carcinoma in situ/high-grade dysplasia record the distance of tumour from closest margin.</i> <i>If involved specify margin(s) if possible</i>
	<i>Distance from closest margin</i>	Numeric: __mm	
	<i>Closest margin</i>	Text	
	<i>Margin(s) involved</i>	Text	

 G3.01	Coexistent pathology	None identified OR Multi selection value list (select all that apply): <ul style="list-style-type: none"> • Carcinoma in situ • Sinonasal papilloma • Intestinal metaplasia • Squamous metaplasia • Epithelial hyperplasia • Epithelial dysplasia, <i>specify</i> • Other, <i>specify</i> 	
G3.02	Radiation induced tissue damage	Single selection value list: <ul style="list-style-type: none"> • Not identified • Identified, <i>specify</i> • Cannot be assessed, <i>specify</i> 	<i>If identified specify a description of induced damage, if possible.</i> <i>If cannot be assessed, specify a reason, if possible.</i>
G3.03	Additional microscopic comment	Text	
Ancillary findings			
 G4.01	Ancillary studies	Single selection value list: <ul style="list-style-type: none"> • Not performed • Performed, <i>specify</i> 	<i>If performed record the ancillary test performed</i>
	<i>Ancillary test performed</i>	Multi select value list :	<i>If immunohistochemistry, record antibodies,</i>

		<ul style="list-style-type: none"> • Immunohistochemistry • In situ hybridisation • Cytogenetics 	<p>interpretation and clinical significance.</p> <p>If in situ hybridisation or cytogenetics, record performing lab, results, conclusions and person responsible for reporting.</p>
	Antibodies	<p>List (as applicable):</p> <ul style="list-style-type: none"> • Positive antibodies • Negative antibodies • Equivocal antibodies 	
	Interpretation	Text	
	Clinical significance	Text	
	Performing laboratory	Text	
	Result	Text	
	Conclusion	Text	
	Person responsible for reporting	Text	
Synthesis and overview			
 S5.01	PATHOLOGICAL STAGING (AJCC 8TH EDITION)		
	TNM descriptors	<p>Multi select value list :</p> <ul style="list-style-type: none"> • m - multiple primary tumours • y - post therapy 	

		<ul style="list-style-type: none"> r - recurrent 	
	Primary tumour (T)	<p>Single select value list :</p> <p><u>Nasal Cavity and Ethmoid Sinus</u></p> <p>TX Primary tumour cannot be assessed</p> <p>Tis Carcinoma <i>in situ</i></p> <p>T1 Tumour restricted to any one subsite, with or without bony invasion</p> <p>T2 Tumour invading two subsites in a single region or extending to involve an adjacent region within the nasoethmoidal complex, with or without bony invasion</p> <p>T3 Tumour extends to invade the medial wall or floor of the orbit, maxillary sinus, palate, or cribriform plate</p> <p>T4 Moderately advanced or very advanced local disease</p> <p>T4a Moderately advanced local disease Tumour invades any of the following: anterior orbital contents, skin of nose or cheek, minimal extension to anterior cranial fossa, pterygoid plates, sphenoid or frontal sinuses</p> <p>T4b Very advanced local disease Tumour invades any of the following: orbital apex, dura, brain, middle cranial fossa, cranial nerves</p>	

		<p>other than (V2), nasopharynx, or clivus</p> <p>Maxillary Sinus</p> <p>TX Primary tumour cannot be assessed</p> <p>Tis Carcinoma <i>in situ</i></p> <p>T1 Tumour limited to maxillary sinus mucosa with no erosion or destruction of bone</p> <p>T2 Tumour causing bone erosion or destruction including extension into the hard palate and/or middle nasal meatus, except extension to posterior wall of maxillary sinus and pterygoid plates</p> <p>T3 Tumour invades any of the following: bone of the posterior wall of maxillary sinus, subcutaneous tissues, floor or medial wall of orbit, pterygoid fossa, ethmoid sinuses</p> <p>T4 Moderately advanced or very advanced local disease</p> <p>T4a Moderately advanced local disease Tumour invades anterior orbital contents, skin of cheek, pterygoid plates, infratemporal fossa, cribriform plate, sphenoid or frontal sinuses</p> <p>T4b Very advanced local disease Tumour invades any of the following: orbital apex, dura, brain, middle cranial fossa, cranial nerves other than maxillary division of</p>	
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		trigeminal nerve (V2), nasopharynx or clivus	
S5.02	Year and edition of staging system	Numeric: year AND Text: Edition e.g., 1 st , 2 nd etc	
G5.01	Diagnostic summary Include: a. Specimen(s) submitted b. Tumour type c. Tumour grade d. Tumour stage	Text	
S5.03	Overarching comment	Text	
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 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. 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 carcinomas of the nasal cavity and paranasal sinuses 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 should 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 used, where possible, to identify the requesting doctor.

Clinical Information


 ➤	Any neoadjuvant therapy administered must be recorded.
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	<ul style="list-style-type: none"> Patients affected by locally advanced sinonasal carcinomas may be treated with pre-operative chemo-radiation protocols that could result in a significant improvement in survival in selected cases.⁶²⁻⁶⁵ <p>In this case, specimens should be extensively sampled, and changes presumably induced by treatment should be reported as free text. Quantification of the extent of response is currently considered not relevant for clinical purposes. Type of (chemo) therapy, number of cycles, interval between last cycle of chemotherapy and local regional treatment initiation can be annotated if available.</p>
 >	<p>The operative procedure must be recorded.</p>
	<ul style="list-style-type: none"> Different options are currently available for the surgical treatment of sinonasal malignancies, which can be chosen according to histopathology, extent of the lesion, and experience of the surgeon. Surgical approaches include craniofacial resections, endoscopic endonasal resections, and combined approaches.⁶⁶⁻⁶⁸ This results in a wide range of surgical specimens submitted for histopathological analysis.
 >	<p>The specimen(s) submitted must be recorded.</p>
	<ul style="list-style-type: none"> According to the surgical approach, different types of specimen can be submitted for histological analysis. Specimens from surgery often consist of fragmented material that should be properly labelled at the time of surgery including a description of the anatomic site and type of tissue submitted (tumour or other). Due to the difficulty in the orientation of the samples (impossible in some cases) it is recommended that margins be submitted separately, properly identified and labelled (especially in suspicious areas). Surgical resection specimens consist most often of the maxillary bone and adjacent anatomic structures removed according to the extent of the tumour.⁶⁹ <p>For additional independent tumours use separate protocols. A single bilateral tumour can be reported as "midline".</p>

- > The anatomical site of the lesion should be recorded.
 - 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
 - Sufficient information is required to localise the lesion for subsequent therapy. A diagram or photograph can facilitate this.

- 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
- **The laterality of the lesion must be recorded.**
 - Laterality information is needed for identification purposes.
- **Clinical history must be recorded.**
- The clinical diagnosis or differential diagnosis should be recorded.
 - Providing the provisional clinical diagnosis or differential diagnosis improves clinicopathological correlation and improves diagnostic accuracy.
- 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

CARCINOMAS OF THE NASAL CAVITY AND PARANASAL SINUSES Histopathology Request Information 	
Family name <input type="text"/>	Indigenous Status <input type="radio"/> Aboriginal but not Torres Strait Islander origin <input type="radio"/> Torres Strait Islander but not Aboriginal origin <input type="radio"/> Both Aboriginal and Torres Strait Islander origin <input type="radio"/> Neither Aboriginal nor Torres Strait Islander origin <input type="radio"/> Not stated/inadequately described
Given name(s) <input type="text"/>	
Date of birth <input type="text" value="DD - MM - YYYY"/>	Date of request <input type="text" value="DD - MM - YYYY"/>
Patient identifiers e.g. MRN, IHI or NHI (please indicate which) <input type="text"/>	Requesting doctor - name and contact details <input type="text"/>
Copy to doctor name and contact details <input type="text"/>	
NEOADJUVANT THERAPY <input type="radio"/> Not administered <input checked="" type="radio"/> Administered, <i>specify type</i> <input type="checkbox"/> Chemotherapy <input type="checkbox"/> Radiotherapy <input checked="" type="checkbox"/> Targeted therapy, <i>specify if available</i> <input type="text"/> <input checked="" type="checkbox"/> Immunotherapy, <i>specify if available</i> <input type="text"/>	SPECIMENS SUBMITTED (select all that apply) <input checked="" type="checkbox"/> Nasal cavity <input type="checkbox"/> Septum <input type="checkbox"/> Lateral wall <input type="checkbox"/> Floor <input type="checkbox"/> Vestibule <input type="checkbox"/> Paranasal sinus(es), maxillary <input type="checkbox"/> Paranasal sinus(es), ethmoid <input type="checkbox"/> Paranasal sinus(es), frontal <input type="checkbox"/> Paranasal sinus(es), sphenoid <input checked="" type="checkbox"/> Other, <i>specify</i> <input type="text"/>
OPERATIVE PROCEDURE (select all that apply) <input checked="" type="checkbox"/> Biopsy, <i>specify</i> <input type="text"/> <input checked="" type="checkbox"/> Resection, <i>specify</i> <input checked="" type="checkbox"/> Endoscopic nasal procedure, <i>specify</i> <input type="text"/> <input type="checkbox"/> Partial maxillectomy <input type="checkbox"/> Radical maxillectomy <input type="checkbox"/> Orbito-maxillary resection <input checked="" type="checkbox"/> Craniofacial resection <input type="checkbox"/> Open <input type="checkbox"/> Endoscopic <input checked="" type="checkbox"/> Other, <i>specify</i> <input type="text"/> <input checked="" type="checkbox"/> Neck (lymph node) dissection*, <i>specify</i> <input type="text"/> <input checked="" type="checkbox"/> Other, <i>specify</i> <input type="text"/>	ANATOMICAL SITE OF LESION <input type="text"/> LATERALITY OF THE LESION <input type="checkbox"/> Left <input type="checkbox"/> Right CLINICAL HISTORY <input type="text"/> <input type="text"/> <input type="text"/>
	HUMAN PAPILLOMA VIRUS (HPV) STATUS <input type="text"/> <input type="text"/>
	CLINICAL DIAGNOSIS OR DIFFERENTIAL <input type="text"/> <input type="text"/>
<p>* If a neck dissection is submitted, then a separate dataset is used to record the information.</p>	

V1.0 Request Info from CARCINOMAS OF THE NASAL CAVITY AND PARANASAL SINUSES Structured Reporting Protocol 1st Edition

<p>NEW PRIMARY LESION OR RECURRENCE</p> <p><input type="radio"/> New primary</p> <p><input type="radio"/> Recurrence - regional, <i>describe</i></p> <p><input type="text"/></p> <p><input checked="" type="radio"/> Recurrence - distant, <i>describe</i></p> <p><input type="text"/></p> <p>PRINCIPAL CLINICIAN</p> <p><input type="text"/></p> <p>ADDITIONAL COMMENTS</p> <p><input type="text"/></p> <p><input type="text"/></p> <p><input type="text"/></p>	
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V1.0 Request Info from CARCINOMAS OF THE NASAL CAVITY AND PARANASAL SINUSES 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.⁷⁰

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.⁷⁰

Reduce 'clutter' to a minimum.⁷⁰ 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

Tshen, Georgina W. C/O Paradise Close Wreck Bay Resort Nar Nar Goon East, 3181 Female DOB 1/7/1951 MRN FMC1096785	Lab Ref: 19/P28460 Referred: 30/8/2019
Copy to: Dr G. Grey 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

NASAL CAVITY STRUCTURED REPORT

Page 1 of 2

Diagnostic Summary

Partial right maxillectomy: Nasal cavity, lateral wall
Keratinising squamous cell carcinoma, G2, Tumour 10 x 7 mm,
lymphovascular invasion present, clear margins, p16 positive
pT1 (AJCC 8th edition)

Supporting Information

CLINICAL

Neoadjuvant therapy:	Not administered
Operative procedure:	Partial maxillectomy
Specimen submitted:	Nasal cavity, lateral wall
Anatomical site of lesion:	Nasal cavity
Laterality of lesion:	Left
Clinical history:	?SCC
New primary / recurrence:	New primary
Other clinical comment:	Non-smoker

MACROSCOPIC

Specimen labelled:	"Partial maxillectomy"
Tumour site:	Right lateral wall
Tumour focality:	Unifocal
Max dimension largest tumour:	10 mm
Add'l dimensions of largest tumour:	10 x 7 mm
Macroscopic depth of invasion:	10 mm
Surgical margins:	All margins clear by ≥ 5 mm
Block identification key:	1 = Deep margin 2 = Mucosal margin

MICROSCOPIC

Histological tumour type:	Keratinising squamous cell carcinoma
Histological grade:	G2: Moderately differentiated
Bone/cartilage invasion:	Not identified
Tumour site:	Right lateral wall
Tumour size:	10 x 7 mm
Perineural invasion:	Not identified
Lymphovascular invasion:	Present

MARGIN STATUS: Not involved

Invasive carcinoma:

Distance to deep margin: 10 mm

Distance to mucosal margin: 5 mm

Carcinoma in situ/high grade dysplasia: Not involved

Coexistent pathology: Nil

Additional microscopic comments: Low grade dysplastic change of adjacent epithelium

ANCILLARY TESTS

Ancillary test performed: p16 immunohistochemistry is positive

Reported by Dr Bernard Beckstein

Authorised 4/9/2019

Appendix 4 WHO classification of tumours

WHO classification of tumours of the nasal cavity, paranasal sinuses and skull base^{a71}

Descriptor	ICD-O codes
Carcinomas	
Keratinising squamous cell carcinoma	8071/3
Non-keratinising squamous cell carcinoma	8072/3
Spindle cell squamous carcinoma	8074/3
Lymphoepithelial carcinoma	8082/3
Sinonasal undifferentiated carcinoma	8020/3
NUT carcinoma	8023/3
Neuroendocrine carcinoma	
Small cell neuroendocrine carcinoma	8041/3
Large cell neuroendocrine carcinoma	8013/3
Adenocarcinoma	
Intestinal-type adenocarcinoma	8144/3
Non-intestinal-type adenocarcinoma	8140/3

a The morphology codes are from the International Classification of Diseases for Oncology (ICD-O). Behaviour is coded /0 for benign tumours; /1 for unspecified, borderline, or uncertain behaviour; /2 for carcinoma in situ and grade III intraepithelial neoplasia; and /3 for malignant tumours.

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