

TESTICULAR TUMOURS STRUCTURED REPORTING PROTOCOL (1st Edition 2011)

Core Document versions:

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Scope

This protocol contains standards and guidelines for the preparation of structured reports for testicular tumours in adults and children. The guidelines can be used in the reporting of both partial orchidectomy or radical orchidectomy specimens, but does not include information on the handling and reporting of primary lymphadenectomy specimens or the excision of residual masses after chemotherapy.

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 testicular tumour, whether as a minimum data set or fully comprehensive report.

Abbreviations

AFP	alpha feto-protein
AJCC	American Joint Committee on Cancer
b-hCG	Beta subunit of human choriogonadotrophin
ITGCN	intratubular germ cell neoplasia
LDH	lactate dehydrogenase
LIS	Laboratory Information System
LVI	lymphovascular invasion
PBS	Pharmaceutical Benefits Scheme
RCC	Renal cell carcinoma
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	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: <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).
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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 histological assessment.
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 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'. 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

Testicular tumours are uncommon, with an estimated incidence of 3.8 cases per 100,000 men. In Australia, about 550 new cases of testicular cancer were diagnosed in 1997.¹ Testicular tumours tend to occur in younger men, with 50% of cases diagnosed in men less than 33 years of age, and only 25% of cases in men over 40. There has been a gradual increase in the incidence of testicular tumours in Australia of 2% a year throughout the 20th century, but the cause of this increase is unknown.²

Germ cell tumours in their myriad types and combinations make up 95% of testicular tumours. Germ cell tumours are usually malignant, but the vast majority can be cured with current therapies. Therefore, accurate diagnosis is essential to ensure the selection of the most appropriate therapy. Diagnosis and staging in this group of tumours depends not only on histopathological assessment, but also imaging and the use of serum markers, specifically alpha fetoprotein (AFP), the beta subunit of human chorionic gonadotrophin (b-hCG) and lactate dehydrogenase (LDH). The serum markers are included in determination of "S" stage.

While the sex cord-stromal cell tumours derived from the supporting and interstitial cells make up only 5% of tumours, they may be more difficult to diagnose. This group of tumours have normal serum markers, but may be associated with a variety of clinical syndromes. Knowledge of these associations is important, as diagnosis of particular testicular tumours may lead to the diagnosis of previously unrecognised syndromes, such as the occurrence of Large cell calcifying Sertoli cell tumour in Carney's syndrome.³ Although less common, other tumour types involving the testis, such as lymphoma and soft tissue tumours, must also be considered in the differential diagnosis of a testicular tumour.

Paediatric testicular tumours should be considered separately from germ cell tumours occurring after adolescence. This group of tumours consists principally of yolk sac tumours and teratomas, and the histogenesis appears to be different.⁴ In this age group, the tumours are usually diploid with no karyotypic abnormalities, and there is usually no associated intratubular germ cell neoplasia (ITGCN).

Importance of histopathological reporting

Information in the pathology report of the macroscopic and microscopic findings in orchidectomy specimens is of both clinical and prognostic utility. This information is interpreted with the results of imaging and serum markers to guide clinical management of patients, particularly in relation to the role of adjuvant therapy and surveillance.

While the report must contain all information necessary for tumour staging, the treating clinician will often look for additional information in the report, such as

tumour size or hilar invasion to further refine the patient's likely prognosis and optimal treatment.

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.⁵⁻⁸

The Royal College of Pathologists (UK) and the College of American Pathologists have published protocols for the reporting of testicular tumours in 2007 and 2010 respectively.⁹⁻¹¹ In view of the increasing support for, and interest in, synoptic reporting, it is clear that a protocol endorsed by the Royal College of Pathologists of Australasia and other Australasian organisations involved in the management of testicular tumours is required. In this protocol, we have incorporated recent developments in the classification and behaviour of testicular tumours. It is hoped that the document will provide pathologists with guidelines that are comprehensive and easy to use and will provide clinicians with a data set that is appropriate to clinical management in the local setting.

Design of this protocol

This structured reporting protocol defines all of the relevant features to be assessed and recorded in a pathology report for testicular tumours. Mandatory elements (standards) are differentiated from those that are not mandatory but are recommended (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, 2009.¹²
- Pathology and genetics: Tumours of the Urinary System and Male Genital Organs. World Health Organisation Classification of Tumours, Volume 7, 2004.¹³
- *AJCC Cancer Staging Manual*, 7th edition.¹⁴

Updates since 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.

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

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Acknowledgements

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Stakeholders

ACT Health

Anatomical Pathology Advisory Committee (APAC)

Andrology Australia

Australian Association of Pathology Practices Inc (AAPP)

Australian Cancer Network

Australian Commission on Safety and Quality in Health Care

Australasian Germ Cell Trials Group

Australian and New Zealand Urogenital and Prostate Cancer Trials Group (ANZUP)

Cancer Australia

Cancer Control New Zealand

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 Society of New Zealand.

Cancer specific expert groups – engaged in the development of the protocols

Cancer Voices

Clinical Oncology Society of Australia (COSA)

Department of Health and Ageing (DoHA)

Faculty of Radiation Oncology Genito-Urinary Group (FROGG)

Grampians Integrated Cancer Services (GICS)

Health Informatics Society of Australia (HISA)

Independent Review Group of Pathologists

Medical Software Industry Association (MSIA)

National Coalition of Public Pathology (NCOPP)

National E-Health Transition Authority (NEHTA)

National Pathology Accreditation Advisory Council (NPAAC)

National Round Table Working Party for Structured Pathology Reporting of Cancer.

NSW Department of Health

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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 (MOGA)

The Royal Australasian College of Surgeons (RACS)

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

The Royal Australian College of General Practitioners (RACGP)

The Royal College of Pathologists of Australasia (RCPA)

The Urological Society of Australia and New Zealand (USANZ)

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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*¹²

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 testicular tumours. Some of this information can be collected on generic pathology request forms; any additional information required specifically for the reporting of testicular tumours may be recorded on a separate data sheet. Appendix 1 provides a standardised data sheet that may be useful in obtaining all relevant information.

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.¹⁵

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.
- G1.02 Clinical history should be recorded.
- CG1.02a Relevant past medical history and known risk factors associated with testicular tumours should be provided, including cryptorchidism, undescended testis, prior testicular germ cell tumour, family history of testicular germ cell tumours and clinical syndromes associated with testicular tumours.
- G1.03 Information regarding the extent of disease as determined from both clinical assessment, serum marker studies and imaging should be provided.
- CG1.03a Relevant information regarding likely tumour type and extent of the disease is necessary for accurate staging of the tumour and also in guiding further imaging. For example, high serum markers in a patient with a pure seminoma may lead to more intensive imaging for metastatic disease to account for the raised tumour markers.
- G1.04 Serum tumour markers should be recorded (LDH, AFP, and b-hCG).
- CG1.04a Serum markers play an essential role in the management of men with testicular tumours and have been included in the staging system for testicular tumours as an "S" stage (see Chapter 5). The "S" stage is usually determined on the pre-orchidectomy values for the serum markers, but these markers may reach their peak post orchidectomy. Serum markers post orchidectomy are important to determine if and when chemotherapy is given, and indicate prognosis (good, intermediate or poor). Serum markers also play an important role in the pathological evaluation of specimens. Marked elevations in AFP and / or b-hCG should lead the pathologist to sample the tumour more widely if the relevant tumour types are not found in the initial sections, to establish an accurate pathological diagnosis.
- G1.05 Information regarding relevant previous therapy such as neoadjuvant therapy should be recorded.
- CG1.05a Previous chemotherapy may cause extensive or complete tumour necrosis which will affect the morphology of the remaining viable tumour. This must be taken into account

by the reporting pathologist.

S1.04 The surgical procedure and nature of the specimen must be clearly stated.

CS1.04a Whether the surgical procedure is a radical or partial orchidectomy must be stated, as this will influence the assessment of surgical margins. Specifically, in the case of partial orchidectomy specimens, it is important that the intratesticular surgical margin is carefully evaluated to ensure that no residual tumour is present in the remaining testis.

S1.05 The laterality of the specimen must be recorded.

CS1.05a Laterality information is needed for identification purposes.

S1.06 Record if this is a new primary cancer or a recurrence of a previous cancer, if known.

CS1.06a Recurrence should be classified as distant or regional.

CS1.06b 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.

2 Specimen handling and macroscopic findings

This section 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.

- G2.01 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.
- S2.01 The specimen must be handled in a systematic and thorough fashion to ensure completeness and accuracy of pathological data.**
- G2.02 The specimen should be measured in three dimensions. The length of the spermatic cord should be given in millimetres.
- S2.02 The spermatic cord resection margin must be taken.**
- CS2.02a Additional sections of the mid cord and the spermatic cord 10mm from testis may be taken. Any abnormalities of the spermatic cord should be recorded and additional sections taken if applicable.
- CS2.02b It is essential that the spermatic cord is examined and sectioned before incising the testis. This is due to the risk of "smear" artefact of displaced tumour from the testis carried on the pathologist's blade onto subsequent sections.
- G2.03 The tunica vaginalis should be incised and any abnormalities of the surface of the tunica vaginalis or tunica albuginea should be recorded. The quantity and nature of any intratunical fluid should be recorded.
- G2.04 The testis should be measured in 3 dimensions without the tunical sac (in mm).
- G2.05 The tissue should be fixed after bisecting the testis longitudinally.
- G2.06 A minimum of three sections of tumour should be taken, with at least one block for every centimetre of the maximum dimension.
- CG2.06a Tumour sampling should be generous to ensure documentation of all tumour types present. This is important, as the finding of other tumour types may alter the clinical management of the patient. It is important that blocks include the adjacent testicular parenchyma to allow for the assessment of LVI and ITGCN.

- CG2.06b Different areas of the tumour must be sampled, particularly including haemorrhagic and necrotic areas and solid/fleshy areas. All of the haemorrhagic tumour must be blocked, as choriocarcinoma is often haemorrhagic with little residual viable tumour.
- CG2.06c Sections of tumour should include at least one section showing the relation of the tumour to the testicular hilum. If the tumour is well away from the hilum, there should be a separate section of the hilum clearly showing this region is free of tumour.
- CG2.06d Sections of tumour should include the adjacent tunica albuginea and adjacent testicular parenchyma.
- CG2.06e There should be sections of uninvolved testicular parenchyma included.
- G2.07 A longitudinal section of the epididymis should be included.
- G2.08 If lymph nodes are submitted this should be recorded.
 - CG2.08a If submitted, the site and number of nodes should be recorded and all lymph node tissue should be included for histologic examination.

Macroscopic findings

- S2.03 The maximum tumour size in three dimensions must be recorded (in mm).**
- G2.09 The presence of tumour multi-nodularity should be recorded.
- G2.10 The colour, consistency, and heterogeneity of the tumour should be recorded.
- G2.11 The presence of cysts and bone should be recorded, as well as any other areas which look different macroscopically.
- G2.12 The presence or absence of necrosis or haemorrhage should be recorded.
- G2.13 The relationship of the tumour to the tunica vaginalis, tunica albuginea and the testicular hilum should be recorded.
- G2.14 Features of the uninvolved testicular parenchyma and epididymis should be described, such as fibrosis, other nodularity, and any other features.
- G2.15 The presence of any nodal metastases or mass seen macroscopically should be recorded and the maximum size recorded (in mm).
 - CG2.15a If the nodal metastases are forming a confluent mass, then the maximum overall dimension of the mass should be given. This is important in determining "lymph node mass"

for accurate nodal staging (see CS3.09a).

G2.16 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.

CG2.16a 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.

CG2.16b 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.

3 Microscopic findings

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

S3.01 Histologic type must be recorded.

CS3.01a The classification of testicular tumours modified from the WHO 2004 classification¹³ (refer to Appendix 4), is listed below:

- Germ cell tumour:
 - Seminoma
 - Embryonal carcinoma
 - Yolk sac tumour
 - Choriocarcinoma
 - Teratoma
 - Teratoma with secondary somatic type malignant component (specified type)
 - Monodermal teratoma: carcinoid, primitive neuroectodermal tumour, other (specified)
 - Spermatocytic seminoma
 - Spermatocytic seminoma with a sarcomatous component
 - Placental trophoblastic tumour
- Testicular scar (scar only, scar with intratubular germ cell neoplasia)
- Sex cord stromal tumour:
 - Leydig cell tumour
 - Sertoli cell tumour (classic, sclerosing, large cell calcified)
 - Granulosa cell tumour
 - Adult type
 - Juvenile type
 - Thecoma
 - Fibroma
- Mixed germ cell sex cord stromal tumour: gonadoblastoma
- Mixed germ cell sex cord stromal tumour: other (specified).
- Unclassified
- Malignant neoplasm, type cannot be determined.

S3.02 Germ cell tumours often contain several tumour types, and for mixed germ cell tumours, the approximate percentage of the different tumour types must be specified.

G3.01 The presence or absence of scarring should be documented.

CG3.01a Testicular scars may represent regressed germ cell tumour. The scarring may be partial or complete, and may be all that remains in patients presenting with metastatic disease and clinically inapparent testicular primaries. Other

features associated with tumour regression are the presence of haemosiderin laden macrophages, lymphoplasmacytic infiltrate and the presence of ITGCN or intratubular calcifications.

CG3.01b Rarely the tumour may be completely necrotic. In this instance, necrotic tumour can be recognised by the loss of normal architecture and the ghost outlines of large tumour cells. It is important to report the tumour as a germ cell tumour which cannot be further typed due to complete necrosis. The differential diagnosis is testicular infarction, which can be recognised from the preservation of normal architecture.

G3.02 The presence or absence of syncytiotrophoblastic giant cells should be documented.

CG3.02a Syncytiotrophoblast may occur in germ cell tumours, with the syncytiotrophoblast present as single cells or very small groups, with no associated cytotrophoblast to indicate associated choriocarcinoma.

S3.03 Maximum tumour size must be specified (in mm).

S3.04 The extent of tumour must be given.

CS3.04a Extent should be documenting the presence or absence of tumour in each of the following structures:

- Rete testis
- Epididymis
- Tunica albuginea
- Tunica vaginalis
- Spermatic cord
- Scrotal wall

CS3.04b For partial orchidectomy specimens, the relationship of the tumour to structures which are not included in the resection can be recorded as "Not applicable".

CS3.04c Rete testis invasion is the direct invasion of tumour into the stroma of the rete testis and does not include pagetoid spread of ITGCN into the tubules of the rete.¹⁶

CS3.04d Invasion of rete testis or epididymis is not assigned a higher stage, while invasion of the tunica vaginalis is recorded as pT2. Invasion of the hilar soft tissues is the more common mode of extratesticular spread.¹⁷ This is clinically significant, as men with Stage 1 seminoma with the presence of rete testis invasion or tumours greater than 4cm in size have a higher risk of spread.¹⁶

CS3.04e The tunica albuginea is the white fibrous outer coat of the testis and is covered by a mesothelial layer which forms the tunica vaginalis. Refer to figure S3.04.

Figure S3.04 Assessment of testicular tumour extent.

Figure 1:

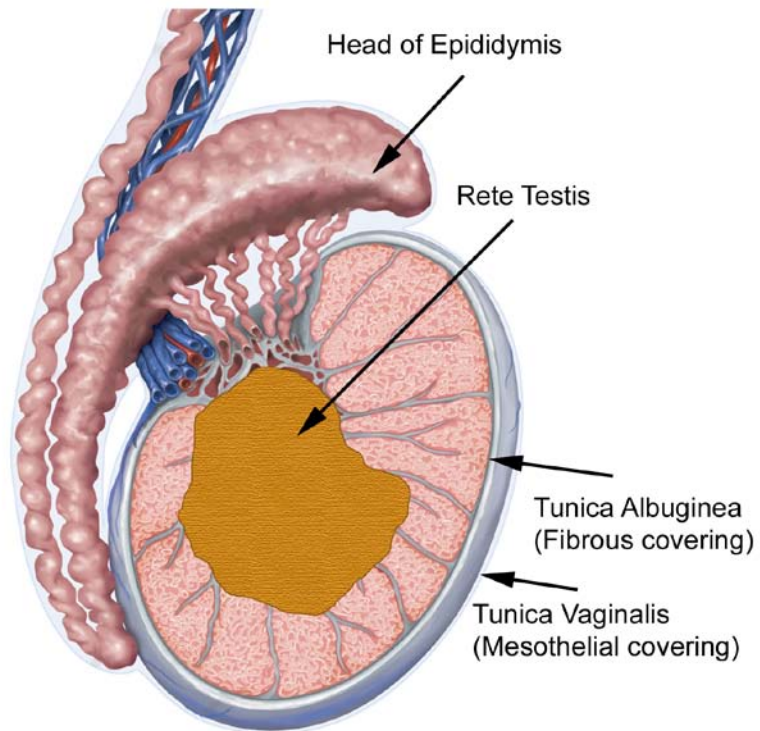
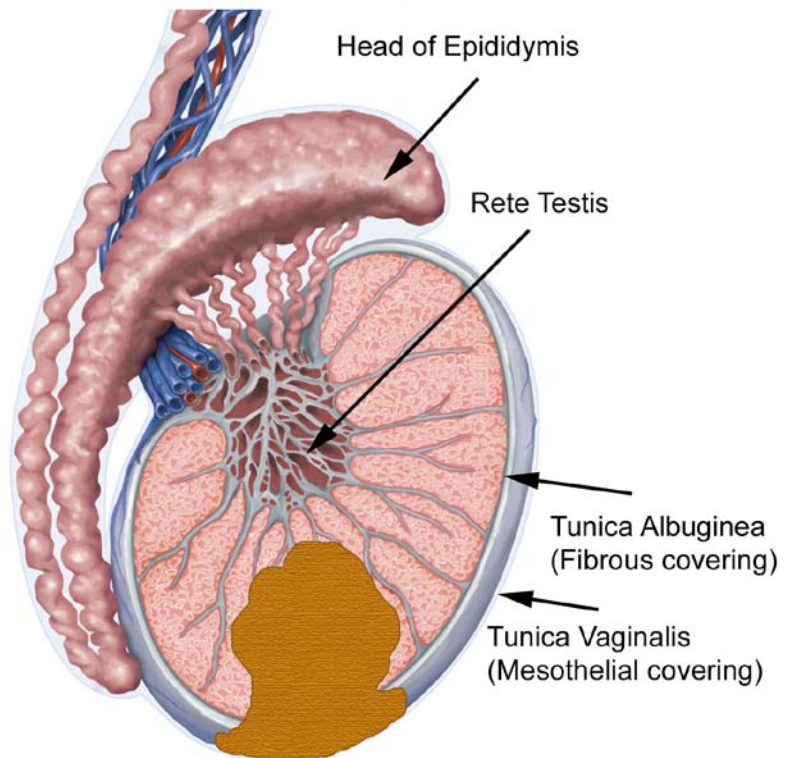


Figure 2:



Figures 1 and 2 show the anatomical landmarks used to assess the extent of a testicular tumour. In figure 1, the tumour is involving the rete testis (stage pT1). In figure 2, the tumour has invaded through the tunica albuginea and breached the tunica vaginalis (stage pT2).

S3.05 The presence or absence of lymphovascular invasion (LVI) must be specified.

CS3.05a LVI can be best appreciated in the peritumoural tissue or in the vessels adjacent to the tunica.

CS3.05b LVI is associated with a higher frequency of metastatic disease and accordingly is assigned a higher stage pT2.¹⁸ In men with clinically stage 1 disease and no other evidence of metastatic disease on radiological assessment and negative serum markers, the presence of LVI alone may be sufficient for further treatment.

S3.06 The presence or absence of intratubular germ cell neoplasia (ITGCN) must be specified.

CS3.06a Type should be listed as either “unclassified” or specific as to type, such as Intratubular seminoma or embryonal carcinoma.

G3.03 Extent of ITGCN should be specified, and can be listed as widespread or focal.

S3.07 The surgical margin status must be reported.

CS3.07a For radical orchidectomy, the status of the spermatic cord margin must be given as positive (involved by tumour) or negative (not involved by tumour), with other margins such as scrotum recorded as required.

CS3.07b For partial orchidectomy, the margin status must be given as either negative or positive surgical margins.

- For negative margins, the shortest distance between tumour and the closest surgical margin should be given in mm.
- For positive surgical margins, the length of the positive margin should be given.
- The presence or absence of ITGCN at the surgical margin should be documented.

S3.08 The nature of any co-existing testicular abnormalities must be described, such as atrophy, inflammation or Leydig cell abnormalities.

CS3.08a Leydig cell abnormalities are common, with reduction in Leydig cells seen with ischaemia or hormonal deficits, and Leydig cell hyperplasia in Klinefelter’s syndrome, cryptorchidism, varicoceles, and with drug therapy.

S3.09 Lymph node status must be recorded (if applicable).

CS3.09a If lymph nodes are received, then state whether the lymph nodes are involved (positive) or not (negative). If involved, specify the number of positive nodes compared with the total number of nodes, and give the size of metastases in mm. If the nodal metastases are forming a confluent mass, then the overall maximum dimension of the mass must be given.

CS3.09b Lymph node stage depends on the size of the "lymph node mass", which is either the dimension of the largest nodal metastasis if individual nodes are involved, or the overall dimension of a matted group of involved nodes.

The site(s) of involved lymph nodes should be given.

G3.04 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 Immunohistochemistry could be performed and the results incorporated into the pathology report.

CG4.01a While most testicular tumours can be identified on histological examination, some difficulties may be encountered in differentiating between some types, particularly with the identification of trophoblast. A variety of studies have investigated the utility of immunohistochemistry in distinguishing between tumour types and may be helpful in some cases.

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 pathologic tumour staging category (pT) must be recorded according to the UICC/AJCC TNM Classification 2010 (Seventh Edition). (See Appendix 5)

CS5.01a Usually only the testis is received in the laboratory and it is not possible to comment on the nodal status; the presence or absence of metastases or the S stage. If a node dissection is received, it is possible to give an N stage according to the AJCC guidelines in Appendix 5.

S5.02 The year of publication 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 type and laterality (S1.04 and S1.05)
- b. Tumour type (S3.01), and whether tumour(s) is "pure" or mixed", with different subtypes specified (S3.02) including percentages
- c. Tumour size (S3.03)
- d. Tumour extent, including involvement of rete testis (S3.04)
- e. Tumour stage (S5.01)
- f. Involvement of surgical margin (completeness of excision) (S3.07)

G5.02 The reporting system must provide a field for free text or narrative in which the reporting pathologist can give overarching case comment.

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

- document any noteworthy adverse gross and/or histological features
- Explain any elements of clinicopathological ambiguity

- 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 testicular tumours. 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*.¹⁹

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	
G1.02	Clinical history	Text	
G1.03	Clinical extent of disease	Text	
G1.04	Serum tumour markers		
	LDH	Numeric: ___ IU/L	
	AFP	Numeric: ___ ug/L	
	b-hCG	Numeric: ___ IU/L	
G1.05	Details of any previous therapy eg adjuvant therapy	Text	
S1.04	Surgical procedure	Single selection value list:	

S/G	Item description	Response type	Conditional
		<ul style="list-style-type: none"> • Partial orchidectomy • Radical orchidectomy 	
S1.05	Laterality	Single selection value list: <ul style="list-style-type: none"> • Left • Right 	
S1.06	New primary cancer or recurrence	Single selection value list: <ul style="list-style-type: none"> • New primary • Recurrence – regional • Recurrence - distant • Not stated 	
Macroscopic findings			
G2.02	Measurement of specimen	Numeric: __x__x__mm <u>Notes:</u> (length x width x thickness)	
	Length of spermatic cord	Numeric: ___mm	
S2.02	Abnormalities of spermatic cord	Single selection value list: <ul style="list-style-type: none"> • No 	If yes, specify details.

S/G	Item description	Response type	Conditional
		<ul style="list-style-type: none"> • Yes 	
	<i>Details</i>	Text	
G2.03	Abnormalities of the surface of tunica vaginalis	Single selection value list: <ul style="list-style-type: none"> • No • Yes 	If yes, specify details.
	<i>Details</i>	Text	
	Intratunical fluid		
	Quantity	Numeric: ___mL	
	Nature	Text	
G2.04	Size of testis (without tunical sac)	Numeric: __x__x__mm <u>Notes:</u> length x width x thickness	
S2.03	Tumour size	Numeric: __x__x__mm <u>Notes:</u> length x width x thickness	
	APPEARANCE OF TUMOUR CUT SURFACE		
G2.09	Multi-nodularity	Single selection value list:	

S/G	Item description	Response type	Conditional
		<ul style="list-style-type: none"> • Absent • Present 	
G2.10	Heterogeneity	Single selection value list: <ul style="list-style-type: none"> • Uniform • Variegated 	
	Colour	Text	
	Consistency	Multi select value list (select all that apply): <ul style="list-style-type: none"> • firm • solid • cystic • gelatinous 	
G2.11	Cysts	Single selection value list: <ul style="list-style-type: none"> • Absent • Present 	
	Bone	Single selection value list: <ul style="list-style-type: none"> • Absent • Present 	
	Other areas of macroscopic difference?	Text	

S/G	Item description	Response type	Conditional
G2.12	Haemorrhage	Single selection value list: <ul style="list-style-type: none"> • Absent • Present 	
	Necrosis	Single selection value list: <ul style="list-style-type: none"> • Absent • Present 	
G2.13	Macroscopic extent of tumour	Multi select value list (select all that apply): <ul style="list-style-type: none"> • Confined to testis • Invades hilar soft tissues • Invades epididymis • Invades tunica vaginalis • Invades scrotum • Invades spermatic cord 	
G2.14	Appearance of uninvolved testis	Multi select value list (select all that apply): <ul style="list-style-type: none"> • Normal • Fibrosis • Other nodules • Other 	If other is specified describe details
	<i>Details</i>	Text	

S/G	Item description	Response type	Conditional
G2.08	Lymph nodes	Single selection value list: <ul style="list-style-type: none"> • Submitted • Not submitted 	If submitted record, site(s) and number of lymph nodes.
	<p style="text-align: center;">Site(s) and number of lymph nodes</p>	<p>Text: Site</p> <p>AND</p> <p>Numeric: Number of LN's</p> <p>AND</p> <p>Text: Comment</p> <p><u>Notes:</u></p> <p>Note that the site and number of LN's for that site will need to be repeated for each site received. The addition of comments for each site is optional.</p>	
G2.15	Nodal metastases/mass	Single selection value list: <ul style="list-style-type: none"> • Absent • Present 	<p>Conditional on lymph nodes being submitted in G2.08</p> <p>If present, record the site(s) and max. size of nodal metastases/mass</p>

S/G	Item description	Response type	Conditional
	<i>Site(s) and max. size of nodal metastases/mass</i>	<p>Text: Site</p> <p>AND</p> <p>Numeric: ___mm</p> <p><u>Notes:</u></p> <p><i>The site and maximum size of any nodal metastases/mass per site will need to be recorded for <u>each</u> site with a macroscopically observable nodal metastases/mass</i></p>	
G2.16	Other macroscopic comment	Text	
Microscopic findings			
S3.01	Histologic type	<p>Select value: Germ cell tumour</p> <p>OR</p> <p>Other (specify tumour type)</p>	If other is specified, record the specific tumour type
	<i>Tumour type</i>	Text	
S3.02	Germ cell tumour type(s) and %	<p>Single selection value list:</p> <ul style="list-style-type: none"> • <i>Pure</i> • <i>Mixed</i> 	<i>This is conditional on germ cell tumour being selected in S3.01.</i>

S/G	Item description	Response type	Conditional
		<p>AND</p> <p>Select the types* of germ cell tumour identified from the list below and record the percentage of each type.</p> <ul style="list-style-type: none"> • Seminoma:___% (Percentage of this type) • Embryonal carcinoma:___% (Percentage of this type) • Teratoma:___% (Percentage of this type) • Yolk Sac tumour:___% (Percentage of this type) • Choriocarcinoma:___% (Percentage of this type) <p><u>Notes:</u></p> <p><i>*Note that if pure is selected above then only a single type should be selected here with a percentage of 100%.</i></p>	
G3.01	Scarring	<p>Single selection value list:</p> <ul style="list-style-type: none"> • Absent • Present 	If present, indicate if partial or complete

S/G	Item description	Response type	Conditional
	<i>Partial or complete</i>	Single selection value list: <ul style="list-style-type: none"> • <i>Partial</i> • <i>Complete</i> 	
G3.02	Syncytiotrophoblastic giant cells	Single selection value list: <ul style="list-style-type: none"> • Absent • Present 	
S3.03	Maximum tumour size	Numeric: ____mm	
S3.04	EXTENT OF TUMOUR		
	Rete testis invasion	Single selection value list: <ul style="list-style-type: none"> • Not applicable • Absent • Present 	
	Epididymis invasion	Single selection value list: <ul style="list-style-type: none"> • Not applicable • Absent • Present 	
	Tunica albuginea invasion	Single selection value list: <ul style="list-style-type: none"> • Not applicable • Absent 	

S/G	Item description	Response type	Conditional
		<ul style="list-style-type: none"> • Present 	
	Tunica vaginalis invasion	Single selection value list: <ul style="list-style-type: none"> • Not applicable • Absent • Present 	
	Spermatic cord invasion	Single selection value list: <ul style="list-style-type: none"> • Not applicable • Absent • Present 	
	Scrotal wall invasion	Single selection value list: <ul style="list-style-type: none"> • Not applicable • Absent • Present 	
S3.05	Lymphovascular invasion	Single selection value list: <ul style="list-style-type: none"> • Absent • Present 	
S3.06	ITGCN	Single selection value list: <ul style="list-style-type: none"> • Absent • Present - Unclassified 	If 'Present – specific type' is selected, describe the type

S/G	Item description	Response type	Conditional
		<ul style="list-style-type: none"> Present - Specific type 	
	<i>Type</i>	<i>Text</i>	
G3.03	Extent of ITGCN	Single selection value list: <ul style="list-style-type: none"> Focal Widespread 	
S3.07	SURGICAL MARGIN STATUS		
	<i>Spermatic cord margin</i>	Single selection value list: <ul style="list-style-type: none"> <i>Negative</i> <i>Positive</i> 	<i>This question is conditional on Radical orchidectomy being selected in S1.04.</i>
	<i>Other margin(s)</i>	Text (<i>specify margin</i>) AND Single selection value list: <ul style="list-style-type: none"> <i>Negative</i> <i>Positive</i> <u>Notes:</u> <i>Note that the margin and whether it is positive or negative may need to be repeated for each other surgical margin.</i>	<i>This question is conditional on Radical orchidectomy being selected in S1.04.</i>

S/G	Item description	Response type	Conditional
	Margin	<p><i>Text (specify margin)</i></p> <p>AND</p> <p>Single selection value list:</p> <ul style="list-style-type: none"> • Negative • Positive <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>	<p><i>This question is conditional on Partial orchidectomy being selected in S1.04.</i></p> <p><i>If negative, specify the distance to closest margin.</i></p> <p><i>If positive, specify the length of positive margin</i></p>
	Distance to closest margin	Numeric: ___mm	
	Length of positive margin	Numeric: ___mm	
	ITGCN at margin	<p>Single selection value list:</p> <ul style="list-style-type: none"> • Absent • Present 	<i>This question is conditional on Partial orchidectomy being selected in S1.04.</i>
S3.08	Co-existing testicular abnormalities	Text	
S3.09	Lymph node status	<p>Text: Site</p> <p>AND</p>	<i>Conditional on lymph nodes being submitted in G2.08.</i>

S/G	Item description	Response type	Conditional
		<p>Single selection value list:</p> <ul style="list-style-type: none"> • Negative • Positive <p><u>Notes:</u></p> <p>Note that the site and whether the Lymph Nodes are positive or negative for that site will need to be repeated for each site received in G2.08.</p>	<p>Note that the site of lymph nodes received and the number of lymph nodes at each site may have been recorded in G2.08. If recorded in G2.08 each site should be presented to the pathologist for confirmation and evaluation at this point.</p> <p>If positive, record the number of positive nodes and maximum size of metastases/nodal mass.</p>
	<p>Number of positive nodes</p>	<p>Numeric: ____/____</p> <p>ie. Nbr positive/Nbr of nodes from this site</p> <p><u>Notes:</u></p> <p>Note that the number of positive Lymph Nodes will need to be repeated for each site received with positive nodes.</p>	<p>Note that the number of nodes from this site may have been previously recorded in G2.08 and should be presented to the pathologist for confirmation and comparison.</p>

S/G	Item description	Response type	Conditional
	<i>Maximum size of metastases/nodal mass</i>	Numeric: ___mm <i>Notes:</i> <i>Note that for <u>each</u> positive node recorded above a maximum size of metastases/nodal mass should be recorded.</i>	
G3.04	Other microscopic comment	Text	
Ancillary test findings			
G4.01	IMMUNOHISTOCHEMICAL STAINS		
	Performed	Single selection value list: <ul style="list-style-type: none"> • No • Yes 	If yes, record antibodies.
	Antibodies	List (as applicable) all: <ul style="list-style-type: none"> • Positive antibodies • Negative antibodies • Equivocal antibodies 	

S/G	Item description	Response type	Conditional
Synthesis and overview			
S5.01	AJCC Tumour staging category (pT)	<p>Single selection value list:</p> <p>TX Primary tumour cannot be assessed</p> <p>T0 No evidence of primary tumour (e.g., histologic scar in testis)</p> <p>Tis Intratubular germ cell neoplasia (carcinoma <i>in situ</i>)</p> <p>T1 Tumour limited to the testis and epididymis without vascular/lymphatic invasion; tumour may invade into the tunica albuginea but not the tunica vaginalis</p> <p>T2 Tumour limited to the testis and epididymis with vascular/lymphatic invasion, or tumour extending through the tunica albuginea with involvement of the tunica vaginalis</p> <p>T3 Tumour invades the spermatic cord with or without vascular/lymphatic invasion</p> <p>T4 Tumour invades the scrotum with or without vascular/lymphatic invasion</p> <p><u>Notes:</u> The extent of primary tumour is usually classified</p>	

S/G	Item description	Response type	Conditional
		<p>after radical orchidectomy and, for this reason, a <i>pathologic</i> stage is assigned.</p> <p>Except for pTis and pT4, extent of primary tumour is classified by radical orchidectomy. TX may be used for other categories in the absence of radical orchidectomy.</p>	
S5.02	Year and edition of staging system	<p>Numeric: year</p> <p>AND</p> <p>Text: Edition eg 1st, 2nd etc</p>	
G5.01	<p>Diagnostic summary</p> <p>Include:</p> <ul style="list-style-type: none"> a. Specimen type and laterality (S1.04 and S1.05) b. Tumour type (S3.01), and whether tumour(s) is "pure" or mixed", with different subtypes specified (S3.02) including percentages c. Tumour size (S3.03) d. Tumour extent, including involvement of rete testis (S3.04) 	Text	

S/G	Item description	Response type	Conditional
	e. Tumour stage (S5.01) f. Involvement of surgical margin (completeness of excision) (S3.07)		
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.

Appendix 1 Pathology request form for testicular tumours

Testicular Tumours Histopathology Request Information

Mandatory questions (i.e. protocol standards) are in bold (e.g. **S1.01**).

S1.01 Identification

<p>Family name <input style="width: 90%;" type="text"/></p> <p>Given name(s) <input style="width: 90%;" type="text"/></p> <p>Date of birth <input style="width: 80%; border: 1px solid #ccc;" type="text" value="DD - MM - YYYY"/></p>	<p>Sex <input type="checkbox"/> Male <input type="checkbox"/> Female <input type="checkbox"/> Intersex/indeterminate</p> <p>Ethnicity <input type="checkbox"/> Unknown <input type="checkbox"/> Aboriginal/Torres Strait Islander <input type="checkbox"/> Other ethnicity: <input style="width: 80%;" type="text"/></p>
<p>Date of request <input style="width: 80%; border: 1px solid #ccc;" type="text" value="DD - MM - YYYY"/></p> <p>G1.01 Patient identifiers e.g. MRN, IHI or NHI (please indicate which) <input style="width: 90%;" type="text"/></p>	<p>Requesting doctor - name and contact details <input style="width: 95%;" type="text"/></p>

<p>S1.03 Principal clinician <input style="width: 90%;" type="text"/></p> <p>G1.02 Clinical history <input style="width: 95%; height: 40px;" type="text"/></p> <p>G1.03 Clinical extent of disease <input style="width: 95%; height: 40px;" type="text"/></p> <p>G1.04 Serum tumour markers</p> <table style="width: 100%; margin-left: 20px;"> <tr> <td style="width: 20%;">LDH</td> <td style="width: 50%;"><input style="width: 90%;" type="text"/></td> <td style="width: 30%; text-align: right;">IU/L</td> </tr> <tr> <td>AFP</td> <td><input style="width: 90%;" type="text"/></td> <td style="text-align: right;">ug/L</td> </tr> <tr> <td>b-hCG</td> <td><input style="width: 90%;" type="text"/></td> <td style="text-align: right;">IU/L</td> </tr> </table>	LDH	<input style="width: 90%;" type="text"/>	IU/L	AFP	<input style="width: 90%;" type="text"/>	ug/L	b-hCG	<input style="width: 90%;" type="text"/>	IU/L	<p>G1.05 Details of any previous therapy eg adjuvant therapy <input style="width: 95%; height: 40px;" type="text"/></p> <p>S1.04 Surgical procedure <input type="checkbox"/> Partial orchidectomy <input type="checkbox"/> Radical orchidectomy</p> <p>S1.05 Laterality Left <input type="checkbox"/> Right <input type="checkbox"/></p> <p>S1.06 New primary cancer or recurrence <input type="checkbox"/> New primary cancer <input type="checkbox"/> Recurrence <input type="checkbox"/> Distant <input type="checkbox"/> Regional <input type="checkbox"/></p>
LDH	<input style="width: 90%;" type="text"/>	IU/L								
AFP	<input style="width: 90%;" type="text"/>	ug/L								
b-hCG	<input style="width: 90%;" type="text"/>	IU/L								

Vers. 1.0 Request Information from Testicular Tumours 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 like data elements under headings and using 'white space' assists in rapid transfer of information.²⁰

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.²⁰
- 'Clutter' should be reduced to a minimum.²⁰ 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 for testicular cancer

Citizen, Gerald W. C/O Paradise Close Wreck Bay Resort Nar Nar Goon East, 3181 Male DOB 1/7/1982 MRN M1196785	Lab Ref: 11/P28460 Referred: 30/8/2011
	Copy to: Dr N.G.Chappie Rainforest Cancer Centre. 46 Smith Road, Woop Woop, 3478

TESTICULAR CANCER STRUCTURED REPORT

Page 1 of 2

Diagnostic Summary

Left radical orchidectomy

Mixed germ cell tumour, with Seminoma (10%), Embryonal carcinoma (50%), Yolk sac tumour (10%) and Teratoma (30%), measuring 52mm, Tumour invades the rete testis, Stage pT1 (AJCC 7th edition, 2010); Surgical margins negative

Comment: Nil.

Supporting Information

CLINICAL

Serum tumour markers

LDH: 860 IU/L

AFP: 430 ug/L

b-hCG: 270 IU/L

Extent of disease: No retroperitoneal lymphadenopathy

Surgical procedure/laterality: Left radical orchidectomy

MACROSCOPIC

Length of spermatic cord: 70mm

Size of testis (without tunical sac): 60x45x40mm

Tumour size: 52x35x25mm

Appearance of tumour cut surface:

Heterogeneity: Variegated

Colour: White, yellow and gray

Consistency: Firm

Cysts: Present. Ranging from 1 to 5mm, some containing clear fluid, others containing pultaceous material

Bone: Absent

Necrosis: Absent

Macroscopic extent of tumour: Confined to testis. No macroscopic extension into the hilar structures or onto the surface of the tunica vaginalis

Appearance of uninvolved testis: Normal

MICROSCOPIC

Tumour

Histologic type: Mixed germ cell tumour with types as follows:
Seminoma 10%
Embryonal Carcinoma 50%
Yolk Sac Tumour 10%
Teratoma 30%

Scarring: Absent

Syncytiotrophoblastic giant cells: Present

Tumour size (max dimension): 52mm

Extent

TUMOUR

Rete testis invasion: Present

Epididymis invasion: Absent

Tunica albuginea invasion: Absent

Tunica vaginalis invasion: Absent

Spermatic cord invasion: Absent

Scrotal wall invasion: Absent

Lymphovascular invasion: Absent

ITGCN Present - Unclassified

Extent of ITGCN: Widespread

Margins

Spermatic cord margin Negative

Co-existing testicular abnormalities: None

Lymph nodes Absent

ANCILLARY TESTS

None performed.

Reported by Dr Bernard Beckstein

Authorised 4/9/2011

Appendix 4 WHO Classification of Tumours of the testis and paratesticular tissue¹³

Germ cell tumours	
Intratubular germ cell neoplasia, unclassified	9064/2*
Other types	
Tumours of one histological type (pure forms)	
Seminoma	9061/3
Seminoma with syncytiotrophoblastic cells	
Spermatocytic seminoma	9063/3
Spermatocytic seminoma with sarcoma	
Embryonal carcinoma	9070/3
Yolk sac tumour	9071/3
Trophoblastic tumours	
Choriocarcinoma	9100/3
Trophoblastic neoplasms other than choriocarcinoma	
Monophasic choriocarcinoma	
Placental site trophoblastic tumour	9104/1
Teratoma	9080/3
Dermoid cyst	9084/0
Monodermal teratoma	
Teratoma with somatic type malignancies	9084/3
Tumours of more than one histological type (mixed forms)	
Mixed embryonal carcinoma and teratoma	9081/3
Mixed teratoma and seminoma	9085/3
Choriocarcinoma and teratoma/embryonal carcinoma	9101/3
Others	
Sex cord/gonadal stromal tumours	
Pure forms	
Leydig cell tumour	8650/1
Malignant Leydig cell tumour	8650/3
Sertoli cell tumour	8640/1
Sertoli cell tumour lipid rich variant	8641/0
Sclerosing Sertoli cell tumour	
Large cell calcifying Sertoli cell tumour	8642/1
Malignant Sertoli cell tumour	8640/3
Granulosa cell tumour	8620/1
Adult type granulosa cell tumour	8620/1
Juvenile type granulosa cell tumour	8622/1
Tumours of the thecoma/fibroma group	
Thecoma	8600/0
Fibroma	8810/0
Sex cord/gonadal stromal tumour:	
Incompletely differentiated	8591/1
Sex cord/gonadal stromal tumours, mixed forms	8592/1
Malignant sex cord/gonadal stromal tumours	8590/3
Tumours containing both germ cell and sex cord/gonadal stromal elements	

Gonadoblastoma	9073/1
Germ cell-sex cord/gonadal stromal tumour, unclassified	
Miscellaneous tumours of the testis	
Carcinoid tumour	8240/3
Tumours of ovarian epithelial types	
Serous tumour of borderline malignancy	8442/1
Serous carcinoma	8441/3
Well differentiated endometrioid carcinoma	8380/3
Mucinous cystadenoma	8470/0
Mucinous cystadenocarcinoma	8470/3
Brenner tumour	9000/0
Nephroblastoma	8960/3
Paranglioma	8680/1
Haematopoietic tumours	
Tumours of collecting ducts and rete	
Adenoma	8140/0
Carcinoma	8140/3
Tumours of paratesticular structures	
Adenomatoid tumour	9054/0
Malignant mesothelioma	9050/3
Benign mesothelioma	
Well differentiated papillary mesothelioma	9052/0
Cystic mesothelioma	9055/0
Adenocarcinoma of the epididymis	8140/3
Papillary cystadenoma of the epididymis	8450/0
Melanotic neuroectodermal tumour	9363/0
Desmoplastic small round cell tumour	8806/3

Mesenchymal tumours of the spermatic cord and testicular adnexae

Secondary tumours of the testis

* Morphology code of the International Classification of Diseases for Oncology (ICD-O) and the Systematized Nomenclature of Medicine (<http://snomed.org>). Behaviour is coded /0 for benign tumours, /2 for in situ carcinomas and grade III intraepithelial neoplasia, /3 for malignant tumours, and /1 for borderline or uncertain behaviour.

From: Eble, JN, Sauter, G, Epstein JI, Sesterhenn IA. World Health Organization Classification of Tumours. Pathology and Genetics of Tumours of the Urinary System and Male Genital Organ. Volume 7. IARC, Lyon, 2004. Reproduced with permission.

Appendix 5 AJCC Cancer Staging System

TNM Descriptors

(required only if applicable) (select all that apply)

m (multiple primary tumours)

r (recurrent)

y (post treatment)

AJCC primary tumour definitions.^a

Primary Tumour (pT)	
The extent of primary tumour is usually classified after radical orchidectomy and, for this reason, a <i>pathologic</i> stage is assigned.	
TX	Primary tumour cannot be assessed
T0	No evidence of primary tumour (e.g., histologic scar in testis)
Tis	Intratubular germ cell neoplasia (<i>carcinoma in situ</i>)
T1	Tumour limited to the testis and epididymis without vascular/lymphatic invasion; tumour may invade into the tunica albuginea but not the tunica vaginalis
T2	Tumour limited to the testis and epididymis with vascular/lymphatic invasion, or tumour extending through the tunica albuginea with involvement of the tunica vaginalis
T3	Tumour invades the spermatic cord with or without vascular/lymphatic invasion
T4	Tumour invades the scrotum with or without vascular/lymphatic invasion

* **Note:** Except for pTis and pT4, extent of primary tumour is classified by radical orchidectomy. TX may be used for other categories in the absence of radical orchidectomy.

^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.

AJCC regional lymph node classifications.^b

Regional Lymph Nodes (pN)	
NX	Regional lymph nodes cannot be assessed
N0	No regional lymph node metastasis
N1	Metastasis with a lymph node mass 2 cm or less in greatest dimension; and less than or equal to five nodes positive, none more than 2 cm in greatest dimension
N2	Metastasis with a lymph node mass more than 2 cm but not more than 5 cm in greatest dimension; or more than 5 nodes positive, none more than 5 cm; or evidence of extranodal extension of tumour
N3	Metastasis with a lymph node mass more than 5 cm in greatest dimension

AJCC distant metastases classifications.^b

Distant Metastasis (pM)	
M0	No distant metastasis
M1	Distant metastasis
M1a	Nonregional nodal or pulmonary metastasis
M1b	Distant metastasis other than to non-regional lymph nodes and lung

AJCC Anatomical Stage/Prognostic Groups^b

Group	T	N	M	S (Serum Tumour Markers)
Stage 0	pTis	N0	M0	S0
Stage I	pT1-4	N0	M0	SX
Stage IA	pT1	N0	M0	S0
Stage IB	pT2	N0	M0	S0
	pT3	N0	M0	S0

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Group	T	N	M	S (Serum Tumour Markers)
	pT4	N0	M0	S0
Stage IS	Any pT/Tx	N0	M0	S1-3
Stage II	Any pT/Tx	N1-3	M0	SX
Stage IIA	Any pT/Tx	N1	M0	S0
	Any pT/Tx	N1	M0	S1
Stage IIB	Any pT/Tx	N2	M0	S0
	Any pT/Tx	N2	M0	S1
Stage IIC	Any pT/Tx	N3	M0	S0
	Any pT/Tx	N3	M0	S1
Stage III	Any pT/Tx	Any N	M1	SX
Stage IIIA	Any pT/Tx	Any N	M1a	S0
	Any pT/Tx	Any N	M1a	S1
Stage IIIB	Any pT/Tx	N1-3	M0	S2
	Any pT/Tx	Any N	M1a	S2
Stage IIIC	Any pT/Tx	N1-3	M0	S3
	Any pT/Tx	Any N	M1a	S3
	Any pT/Tx	Any N	M1b	Any S

Serum tumour markers^c

SX Serum marker studies not available or not performed

S0 Serum marker study levels within normal limits

	LDH	b-hCG (mIU/mL)	AFP (ng/mL)
S1	<1.5 x N and	<5,000 and	<1,000
S2	1.5-10 x N or	5,000-50,000 or	1,000-10,000
S3	>10 x N or	>50,000 or	>10,000

^c 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.

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