MESOTHELIOMA

IN THE PLEURA AND PERITONEUM

STRUCTURED REPORTING PROTOCOL

(1st Edition 2016)

Based on the:

International Collaboration on Cancer Reporting (ICCR)

Mesothelioma of the Pleura and Peritoneum Dataset

www.ICCR-Cancer.org

Core Document versions:

- ICCR Mesothelioma of the Pleura and Peritoneum Histopathology Reporting Guide 1st edition v1.0
- WHO (World Health Organization) (2015) Classification of Tumours of the Lung, Pleura, Thymus and Heart. Fourth edition 2015 Travis WD, Brambilla E, Burke AP, Marx A and Nicholson AG. IARC Press, Lyon, France.

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Contents

Scope

This protocol contains standards and guidelines for the preparation of structured reports for biopsy and resection specimens of mesothelioma. The protocol applies to mesothelioma in the pleura and peritoneum as well as in adjacent structures such as pericardium, ribs, etc

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

Abbreviations

AJCC	American Joint Committee on Cancer
IHC	Immunohistochemistry
IHI	Individual health identifier
LIS	Laboratory Information System
MRN	Medical Record Number
NHI	National Health Identifier (NZ)
PBS	Pharmaceutical Benefits Scheme
RCPA	Royal College of Pathologists of Australasia
TNM	tumour-node-metastasis
UHI	Unique Health Identifier
UICC	International Union Against Cancer
WHO	World Health Organization

Definitions

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

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

Guideline	Guidelines are recommendations; they are not mandatory, as indicated by the use of the word 'should'. Guidelines cover items that are unanimously agreed should be included in the dataset but are not supported by 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. 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 eg macroscopic tumour details, block identification key, may be included as either required or recommended elements by consensus of the expert committee. Such findings are essential from a clinical governance perspective, because they provide a clear, evidentiary decision-making trail. Guidelines are not used for research items. In this document, guidelines are prefixed with 'G' and numbered consecutively within each chapter (eg G1.10).
Macroscopic findings	Measurements, or assessment of a biopsy specimen, made by the unaided eye.
Microscopic findings	In this document, the term 'microscopic findings' refers to histo-morphological assessment.
Predictive factor	A *predictive factor* is a measurement that is associated with response or lack of response to a particular therapy.
Prognostic factor	A *prognostic factor* is a measurement that is associated with clinical outcome in the absence of therapy or with the application of a standard therapy. It can be thought of as a measure of the natural history of the disease.
Standard	Standards are mandatory, as indicated by the use of the term 'must'. Standards are essential for the clinical management, staging or prognosis of the cancer. These elements will either have evidentiary support at Level III-2 or above (based on prognostic factors in the NHMRC levels of evidence[1] document). In rare circumstances, where level III-2 evidence is not available an element may be made a Standard where there is unanimous agreement in the expert committee. An appropriate staging system eg Pathological TNM staging would normally be included as a required element.These elements must be recorded and at the discretion of the pathologist included in the pathology report according to the needs of the recipient of the report. The summation of all standards represents the minimum dataset for the cancer. In this document, standards are prefixed with 'S' and numbered consecutively within each chapter (eg **S1.02**).
Structured report	A report format which utilises standard headings, definitions and nomenclature with required information.
Synoptic report	A structured report in condensed form (as a synopsis or precis).

Synthesis

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

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

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

Introduction

Mesothelioma of the pleura and peritoneum

Malignant mesothelioma (MM) is an aggressive malignancy of the serosal membranes lining the pleural, peritoneal and pericardial cavities. In Australia, one patient dies every 12 hours from MM. MM is largely attributable to asbestos exposure, and although asbestos is now banned in most industrialised countries, including Australia, the incidence of pleural MM has been stable or has even risen, due to the long latency between exposure and diagnosis, and the continued presence of asbestos in the built environment.[2] Prognosis for MM patients is poor, with median survivals of less than 12 months, highlighting the importance of novel treatment strategies.[3]

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.

Benefits of structured reporting

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

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

However, the rapid growth in ancillary testing such as immunohistochemistry, flow cytometry, cytogenetics, and molecular studies, have made the task of keeping abreast of advances on specific cancer investigations extremely difficult for pathologists. The use of structured reporting checklists by pathologists ensures that all key elements are included in the report specifically those which have clinical management, staging or prognostic implications. Consequently minimum or comprehensive datasets for the reporting of cancer have been developed[4,5] around the world. Both the United Kingdom,[6] and United States[7] 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 ie cancer registries.

International Collaboration on Cancer Reporting

The International Collaboration on Cancer Reporting (ICCR), founded in 2011 by the Australasian (RCPA), US (CAP) and UK (RCPath) Colleges of Pathology and the Canadian Association of Pathology (CAP-ACP) in association with the Canadian Partnership Against Cancer (CPAC), was established to explore the possibilities of a collaborative approach to the development of common, internationally standardised and evidence-based cancer reporting protocols for surgical pathology specimens.

The ICCR, recognising that standardised cancer datasets have been shown to provide significant benefits for patients and efficiencies for organisations through the ease and completeness of data capture[8-11] 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 Mesothelioma of the pleura and peritoneum 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 complete framework for the assessment and documentation of all the pathological features of mesothelioma.

ICCR dataset elements for mesothelioma of the pleura and peritoneum are included verbatim. ICCR Required elements are mandatory and therefore represented as standards in this document. ICCR Recommended 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:

G3.02	The response to any neoadjuvant therapy should 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 eg

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 'atomic' 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]
- ICCR Mesothelioma of the Pleura and Peritoneum Histopathology Reporting Guide 1st edition v1.0
- WHO (World Health Organization) (2015) Classification of Tumours of the Lung, Pleura, Thymus and Heart. Fourth edition 2015 Travis WD, Brambilla E, Burke AP, Marx A and Nicholson AG. IARC Press, Lyon, France.
- The Pathology Request-Test-Report Cycle — Guidelines for Requesters and Pathology Provider[13]

Changes since the 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 Mesothelioma of the Pleura and Peritoneum Histopathology Reporting Guide 1st edition v1.0. All ICCR elements from this dataset, both required (mandatory) and recommended (optional), are included in this protocol, verbatim. (It should be noted that RCPA feedback from all Anatomical Pathology fellows and specifically the local expert committee was sought during the development process of the ICCR dataset.) Details of the ICCR development process and the international expert authoring committee responsible for the ICCR dataset are available on the ICCR website: iccr-cancer.org.

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

Local expert committee

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Stakeholders

ACT Health

Asbestos Diseases Research Institute (ADRI)

Anatomical Pathology Advisory Committee (APAC)

Australasian Lung Cancer Trials Group (ALTG)

Australasian Society of Cardiac & Thoracic Surgeons (ASCTS)

Australian Association of Pathology Practices Inc (AAPP)

Australian Cancer Network

Australian Commission on Safety and Quality in Health Care

Australian Lung Foundation Lung Cancer Consultative Group

Australian Society of Clinical Oncologists (ASCO)

Cancer Australia

Cancer Council ACT

Cancer Council NSW

Cancer Council Queensland

Cancer Council SA

Cancer Council Tasmania

Cancer Council Victoria

Cancer Council Victoria Clinical Network

Cancer Council Western Australia

Cancer Institute NSW

Cancer Services Advisory Committee (CanSAC)

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

Cancer Voices

Clinical Oncology Society of Australia (COSA)

Department of Health

Dust Diseases Board

Health Informatics Society of Australia (HISA)

Independent Review Group of Pathologists

International Collaboration on Cancer Reporting (ICCR)

Medical Software Industry Association (MSIA)

National E-Health Transition Authority (NEHTA)

National Pathology Accreditation Advisory Council (NPAAC)

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

New Zealand Guidelines Group (NZGG)

NSW Department of Health

Peter MacCallum Cancer Institute

Public Pathology Australia

Pulmonary Pathology Society

Queensland Cooperative Oncology Group (QCOG)

Representatives from laboratories specialising in anatomical pathology across Australia

Royal Australasian College of Physicians (RACP)

Southern Cancer Network, Christchurch, New Zealand

Southern Melbourne Integrated Cancer Service (SMICS)

Standards Australia

The Australasian Lung Cancer Trials Group (ALTG)

The International Association for the Study of Lung Cancer (IASLC)

The Medical Oncology Group of Australia

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 Thoracic Society of Australia & New Zealand (TSANZ)

Victorian Cooperative Oncology Group (VCOG)

Western Australia Clinical Oncology Group (WACOG)

Secretariat

Meagan Judge, Royal College of Pathologists of Australasia.

Development process

This protocol has been developed following the ten-step process set out in *Guidelines for Authors of Structured Cancer Pathology Reporting Protocols.*[14]

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 mesothelioma of the pleura and peritoneum 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 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.

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 Medicare number (Australia), 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 atomically.

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 Knowledge of the clinical presentation is an essential part of the WHO classification yet it may not be available 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 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.

G1.01 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 specimen 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:

  www.rcpa.edu.au/Library/Practising-Pathology/Macroscopic-Cut-Up

- In extrapleural pneumonectomy specimens (or any other specimen where there is sufficient lung tissue present), tissue should be kept in formalin if formal fibre analysis maybe necessary.

Macroscopic findings

S2.01 All measurements are in SI units, unless explicitly stated.

S2.02 The labelling of the specimen(s) must be clearly recorded.

S2.03	**The operative procedure must be recorded.**	
	CS2.03a	Documentation of the operative procedure is useful, as correlation of the type of procedure with the material received can be important for patient safety. In resection specimens, the type of surgical procedure is important in determining the assessment of surgical margins. Due to advanced age, clinical status, or extent of disease, few mesothelioma patients are suitable for extrapleural pneumonectomy or radical pleurectomy and therefore, diagnosis is usually based upon biopsy alone. Although the volume of tissue sampled is more restricted than for surgical resection specimens, biopsy assessment may contribute significant observations for clinical management and prognosis, in addition to the crucial distinction between secondary tumours affecting serosal membranes and mesothelioma, and between mesothelioma and benign reactive mesothelial proliferations.

		The type of biopsy is important as it affects the extent to which a diagnosis may be made with any certainty. Accurate typing of mesothelioma[16-19] has been shown to vary by procedure - 83% for open biopsy in comparison to 74% for VATS biopsy, and 44% for CT-guided biopsy, when compared with the subtype assessed in a follow-up series of 83 extrapleural pneumonectomy specimens (EPP) patients.[19]
S2.04	**The specimens submitted must be recorded.**	
G2.01	Tumour size should be recorded.	
	CG2.01a	For pleural mesotheliomas that are received as radical surgical (EPP or P/D) specimens, attempting to measure the dimensions of individual tumour nodules is neither simple (because the distinction between tumour and fibrotic reaction may be difficult to assess) nor informative. Rather, measuring the maximum thickness of tumour appears to be a more useful indicator of tumour burden and can often be compared to radiologic measurements.[7] For peritoneal mesotheliomas, the specimen is normally received in multiple parts and dimensions of the dominant mass should be measured. Where multiple nodules are present, the dimensions of the largest nodule should be recorded.
	CG2.01b	An aggregate dimension of specimen/tumour nodules should be recorded.
S2.05	**The macroscopic tumour site(s) must be recorded.**	
	CS2.05a	In relation to biopsies, the identification of macroscopic tumour site is dependent on clinical information rather than purely pathological identification.
S2.06	**A block identification key listing the nature and origin of all tissue blocks must be recorded.**	
	CS2.06a	The origin/designation of all tissue blocks must 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. Recording the origin/designation of tissue blocks also facilitates retrieval of blocks for further immunohistochemical or molecular analysis, research studies or clinical trials.
G2.02	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.	

CG2.02a 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.

CG2.02b 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.

CG2.02c A traditional macroscopic description may be required when the Laboratory Information System (LIS) does not allow a structured approach.

CG2.02d 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

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

S3.01	**The histological tumour type must be recorded.**	
	CS3.01a	The major histological tumour types of malignant mesothelioma as recognised by the WHO classification (4th edition)[20] are epithelioid, sarcomatoid and biphasic/mixed. By convention a biphasic mesothelioma is diagnosed if the lesser component reaches 10% of the tumour examined. There are a number of histological patterns of malignant mesothelioma which are important to be aware of primarily because of diagnostic confusion. For epithelioid mesothelioma these include common patterns such as solid, tubulopapillary, and trabecular, also less common forms such as micropapillary, adenomatoid (microcystic), clear cell, transitional, deciduoid, small cell and pleomorphic mesothelioma. It should be noted that, at present, there is no uniformity among pathologists for the definition of many of these patterns nor any clear prognostic significance to most of them, and we do *not* recommend these names be included as part of a diagnosis; their importance lies in the recognition by the pathologist that these are patterns seen in mesotheliomas. For sarcomatoid mesothelioma these histological variants may comprise heterologous (osteosarcomatous, chondrosarcomatous and rhabdomyosarcomatous) elements, and desmoplastic mesothelioma. Desmoplastic mesothelioma is characterised by atypical spindle cells and dense hyalinised fibrous stroma, the latter comprising at least 50% of the tumour.[21] The conventional immunohistochemical panel of markers may require modification in some of these patterns to prevent misdiagnosis. Some of these patterns may have prognostic significance; however, until these prognostic patterns are clearly defined and accepted, the current recommendation is to diagnose mesotheliomas as epithelioid, sarcomatoid/desmoplastic, or biphasic/mixed, particularly since radical surgical approaches depend on these general classifications. In some cases, such as small biopsy specimens a definitive tumour type cannot be assigned and in this case a value of "mesothelioma NOS" would be used.
	CS3.01b	The WHO 2015 classification of tumours of the pleura[a,b] : **Descriptor** | **ICD0 codes**

		Diffuse malignant mesothelioma | | Epithelioid mesothelioma | 9052/3 Sarcomatoid mesothelioma | 9051/3 Biphasic mesothelioma | 9053/3 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. b The classification is modified from the previous WHO classification taking into account changes in our understanding of these lesions.
G3.01	For peritoneal specimens, the mitotic count should be recorded.	
	CG3.01a	In pleural malignant mesothelioma, mitotic count has not been definitively established as an independent parameter in the diagnostic setting or as a determinant of prognosis. However among epithelioid peritoneal malignant mesothelioma, increased mitotic count (greater than 4 in 10 HPF)[22] was reported as a poor prognostic indicator, and, more recently, was validated in a multi-observer study of an independent group of patients[23], establishing a lower cut-off of 5 mitoses in 50 HPF. Ki-67 may also have prognostic significance, but its use as an adjunct to mitotic count has not been investigated.
G3.02	The response to any neoadjuvant therapy should be recorded.	
S3.02	**The extent of invasion must be recorded.**	
	CS3.02a	Extent of invasion is part of staging for radical pleural surgical specimens. In biopsies the presence of invasion is the most important parameter for separating benign from malignant mesothelial proliferations. Invasion into the endothoracic fascia is a staging parameter and should be determined only by the surgeon or radiologist, since there are no characteristic pathological features appreciable by gross or microscopic examination. The endothoracic fascia represents a connective tissue plane that lies between the parietal pleura and the innermost intercostal muscle. Its histology is not well defined. Sections from parietal pleura that appose the chest wall showing histologic involvement of skeletal muscle is the best surrogate indicator that endothoracic fascia has been breached.
S3.03	**Margin status must be recorded.**	

	CS3.03a	In extrapleural pneumonectomy specimens (EPP) the bronchial resection margin status is evaluated by intraoperative frozen section examination. In the surgical pathology specimens, the soft tissue margin status is difficult to assess because the entire pleura represents a margin. Usually in patients with extrapleural pneumonectomy (EPP), the surgeon is performing a blind dissection beneath the endothoracic fascia between the pleura and chest wall.
S3.04	**Lymph node status must be recorded.**	
	CS3.04a	Thoracic or abdominal lymph nodes may be sampled to obtain a diagnosis or for the staging of an already diagnosed tumour. If thoracic, they should be identified by station, for abdominal lymph nodes, a suitable specimen identifier or descriptor should be used. A lymph node station should be regarded as positive for mesothelioma regardless of the number of malignant mesothelial cells present or the number of lymph nodes involved provided one node contains malignant mesothelial cells. However, the identification of mesothelial cells in lymph nodes does not necessarily indicate metastasis. Rarely may they represent incidental inclusions.[24,25] The diagnosis of metastatic mesothelioma should only be made when there is good evidence of a serosa based tumour whether diffuse or, very rarely, localised.

G3.03 For involved nodes, the number of involved nodes over the total number of lymph nodes examined should be recorded.

G3.04	The presence of any coexistent pathology should be recorded.	
	CG3.04a	It is recommended that pathologists comment upon any coexistent non-neoplastic findings present in the submitted materials. These include for extrapleural pneumonectomy specimens such findings as emphysema, small airways disease, respiratory bronchiolitis, asbestosis, asbestos (ferruginous) bodies, talc granulomas and pleural plaques.[26] For diagnosing asbestosis, it is recommended that the criteria published by the asbestosis committee of the College of American Pathologists and Pulmonary Pathology Society be used.[27] For peritoneal resection specimens, additional findings such as endometriosis, endosalpingiosis and mesothelial inclusion cysts should be noted.

G3.05 A descriptive or narrative field should be provided to record any microscopic information that is not recorded in the above standards and guidelines.

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.

Some studies, such as Her-2 testing, are required under the Pharmaceutical Benefits Scheme, to enable certain specific therapies to be prescribed.

	G4.01	Whether or not ancillary tests are performed should be recorded.

S4.01 The results of immunohistochemical studies must be recorded and incorporated into the pathology report.

CS4.01a The national mesothelioma panel recommend at least 2 mesothelial and carcinoma IHC markers for epithelioid tumours.[21] For biphasic/sarcomatoid tumours this may need to be modified according to local laboratory standards.

Major significance is often assigned to TTF-1 labelling for distinction between malignant mesothelioma (usually negative) *versus* adenocarcinoma of lung (positive in the majority of non-mucinous adenocarcinomas) -- so that positive nuclear labelling for TTF-1 is sometimes assigned crucial significance for this distinction, positive labelling being considered strong evidence against a diagnosis of mesothelioma. However, different TTF-1 monoclonal antibodies are available commercially and are based on different clones (e.g., clones 8G7G3/1, SPT24 and SP141), and those antibodies show different affinities for different primary non-small cell carcinomas of lung such as squamous cell carcinoma, sarcomatoid carcinoma and adenocarcinoma, for different extrapulmonary carcinomas, and for some mesotheliomas that include sarcomatoid mesotheliomas.[28-30] Familiarity with the different sensitivities and specificities of those FFT-1 antibodies seems necessary to avoid immunohistochemical misdiagnosis or uncertainty, and at the present time it is recommended that for the distinction between mesothelioma and adenocarcinoma of lung, the TTF-1 antibody used is based upon the antibody most extensively investigated and published.[28-32]

It seems likely that those TTF-1 antibodies that can label TTF-1 in non-adenocarcinomas of lung and other anatomical sites – and some mesotheliomas – do not represent false-positives but rather sensitive detection of very low levels of TTF-1 protein in tumours other than thyroid and lung adenocarcinomas,[30] (and positive labelling can also be encountered with both pulmonary neuroendocrine tumours and extrapulmonary small cell carcinomas).

G4.02	The results of any other ancillary tests should be recorded and incorporated into the pathology report.	
	CG4.02a	The three most common molecular alterations in malignant mesothelioma are loss of neurofibromin 2 (Merlin, NF2), cyclin-dependent kinase inhibitor 2A (CDKN2A, p16), and BRCA1 associated protein-1 (BAP1). While to date NF2 loss has not been exploited diagnostically, p16 FISH and BAP1 appear to be useful markers for separating benign from malignant mesothelial proliferations.[33] Thus far both these markers have been reported as only lost in malignant mesotheliomas when strict cut-offs are applied. One outcome of the strict cut-off is the major problem of low sensitivity. Overall, studies reporting loss of p16 by FISH in mesotheliomas show a sensitivity around 50%, albeit significantly higher in pleural (67%) than peritoneal mesothelioma (25%).[33] Loss of p16 by FISH in pleural mesothelioma is correlated with adverse survival.[34,35] Retention of p16 by immunohistochemistry is a useful prognostic indicator in peritoneal epithelioid malignant mesothelioma, with a significantly prolonged survival in that group.[22] The sensitivity for loss of nuclear expression of BAP1 is not well defined but probably on the order of 50 to 70% for epithelioid mesotheliomas, and very low for sarcomatoid mesotheliomas.[33] But these markers are only useful when lost; positive staining does not rule out a mesothelioma. BAP1 immunohistochemistry in addition is useful as a screening tool for BAP1 germline mutation syndromes, in which there are familial aggregations of mesotheliomas, melanomas including ocular melanomas, renal cell carcinomas, and probably a variety of other tumours.[36] Interestingly, patients with BAP1 germline mutation mesotheliomas are reported to have dramatically better survival rates.[37] However, BAP1 immunohistochemistry is no more than a screening tool in this context, since the vast majority of mesotheliomas that show BAP1 loss only have somatic mutations, and formal genetic analysis is required to confirm germline tumours. Positive immunohistochemistry for EMA, Glut1, IMP3 and CD146 have all been proposed as single markers for malignant mesothelioma when compared to benign proliferations.[33] Since small but significant proportions of benign proliferations are positive for each of these markers, combinations of markers have been proposed, but the correlations are weak.[38-41] Therefore in the absence of morphologic invasion (cytology, small biopsy, or cellular atypia alone) these markers should not be relied upon as the sole determinant of malignancy.

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**	**Pathology stage must be recorded for pleural resection specimens.**

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

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

a. Operative procedure (S2.03)

b. Tumour site (S2.05) in resection specimens

c. Tumour type (S3.01)

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

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

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

CS5.03a 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 must be included on the final report.

CG5.02a For example, the pathology report may include the following wording at the end of the report: "the data fields within this formatted report are aligned to criteria as set out in the RCPA document " XXXXXXXXXX" XXXX Edition dated XXXXXXX".

6 Structured checklist

The following checklist(s) include 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 mesothelioma. For emphasis, standards (mandatory elements) are formatted in bold font.

S6.01 The structured checklist(s) 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(s) may be varied according to the laboratory information system (LIS) capabilities and as described in *Functional Requirements for Structured Pathology Reporting of Cancer* Protocols.[12]

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 a 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.

BIOPSY SPECIMENS

S/G	Item description	Response type	Conditional
Clinical information and surgical handling			
S1.01	**Demographic information provided**		
S1.02	**Clinical information provided on request form**	**Text** OR **Structured entry as below:**	
	CLINICAL HISTORY		
	Radiological appearance	Text	
	History of previous cancer	Text	
	Other	Text	
	Operative procedure	**Single selection value list:** • Core biopsy • Open biopsy • VATS biopsy • Other (specify)	
S1.03	**Pathology accession number**	**Alpha-numeric**	

S1.04	**Principal clinician**	**Text**	
G1.01	Other relevant comments	**Text**	
Macroscopic findings			
S2.02	**Specimen labelled as**	**Text**	
S2.03	**Operative procedure**	**Single selection value list:** • Not provided • Core biopsy • Open biopsy • VATS biopsy • Other (specify)	
S2.06	**Block identification key**	**Text**	
G2.02	Other macroscopic description	**Text**	
Microscopic findings			
S3.01	**Histological tumour type**	**Single selection value list:** • Epithelioid (Epithelial) • Sarcomatoid (Sarcomatous) • Biphasic (Mixed epithelial and sarcomatous) • Malignant mesothelioma, NOS	
G3.01	Mitotic count *(applicable to peritoneal specimens only)*	**Numeric**:____per mm^2	
G3.04	Coexistent pathology	None identified OR	

		Text	
G3.05	Additional microscopic comment	**Text**	
Ancillary test findings			
G4.01	Ancillary studies	**Single selection value list:** • Not performed • Performed	**If performed, report S4.01 and consider reporting G4.01.**
S4.01	**Immunohistochemistry *(list stains)***	**Text**	
G4.02	Other ancillary studies	**Text**	
Synthesis and overview			
G5.01	Diagnostic summary Include: a. Operative procedure (S2.03) b. Tumour type (S3.01)	**Text**	
S5.03	**Overarching comment** (if applicable)	**Text**	
G5.02	Edition/version number of the RCPA protocol on which the report is based	**Text**	

RESECTION SPECIMENS

S/G	Item description	Response type	Conditional
Clinical information and surgical handling			
S1.01	**Demographic information provided**		
S1.02	**Clinical information provided on request form**	**Text** OR **Structured entry as below:**	
	CLINICAL HISTORY		
	Radiological appearance	Text	
	History of previous cancer	Text	
	Other	Text	
	Neoadjuvant therapy	**Single selection value list:** • Not administered • Administered (describe)	
	Operative procedure	**Single selection value list:** • Decortication • Radical pleurectomy • Extrapleural pneumonectomy • Debulking • Other (specify)	

	New primary cancer or recurrence	**Single selection value list:** • New primary • Recurrence – regional • Recurrence - distant	**If local recurrence or distant metastasis, provide details**
	Details	***Text***	
S1.03	**Pathology accession number**	**Alpha-numeric**	
S1.04	**Principal clinician**	**Text**	
G1.01	Other relevant comments	**Text**	
Macroscopic findings			
S2.02	**Specimen labelled as**	**Text**	
S2.03	**Operative procedure**	**Single selection value list:** • Not provided • Decortication • Radical pleurectomy • Extrapleural pneumonectomy • Debulking • Other (specify)	
S2.04	**Specimens submitted**	Not provided OR **Multi select value list (select all that apply):** <u>Pleura/Thoracic</u> • Diaphragm	

		• Lung
		  ○ Right
		  ▪ Wedge
		  ▪ Lobe
		  ▪ Entire Lung
		  ○ Left
		  ▪ Wedge
		  ▪ Lobe
		  ▪ Entire Lung
		• Mediastinal fat
		• Pericardium
		• Parietal pleura
		• Contralateral pleura
		• Visceral pleura
		• Endothoracic fascia
		• Chest wall
		• Rib
		• Spine
		• Port site
		<u>Peritoneum</u>
		• Peritoneum
		• Omentum
		• Left ovary	

		• Right ovary • Left fallopian tube • Right fallopian tube • Uterus • Other intra-abdominal organs (specify) <u>Other submitted specimens</u> • Lymph nodes (specify site(s)) • Other submitted specimens (specify)	
G2.01	TUMOUR SIZE - Pleural specimens		
	Maximum thickness of any mass	**Numeric**: ___mm Or Indeterminate	
	AND Dimensions of dominant mass	**Numeric**: __x__x__mm Or Indeterminate	
	TUMOUR SIZE - Peritoneal specimens		
	Dimensions of dominant mass	**Numeric**: __x__x__mm Or Indeterminate	

	OR Dimensions of largest nodule	**Numeric**: __x__x__mm Or Indeterminate	
	Aggregate dimension of specimen/tumour nodules	**Numeric**: __x__x__mm	

S2.05	**Macroscopic tumour site(s)**	Indeterminate
		OR
		Multi select value list (select all that apply):
		<u>Pleura/Thoracic</u>
		• Diaphragm
		• Lung
		  ○ Right
		  ○ Left
		• Mediastinal fat
		• Pericardium
		• Parietal pleura
		• Contralateral pleura
		• Visceral pleura
		• Endothoracic fascia
		• Chest wall
		• Rib
		• Spine	

		• Port site Peritoneum • Peritoneum • Omentum • Left ovary • Right ovary • Left fallopian tube • Right fallopian tube • Uterus • Other intra-abdominal organs (specify) Other • Lymph nodes • Other site (specify)	
S2.06	**Block identification key**	**Text**	
G2.02	Other macroscopic description	**Text**	
Microscopic findings			
S3.01	**Histological tumour type**	**Single selection value list:** • Epithelioid (Epithelial) • Sarcomatoid (Sarcomatous) • Biphasic (Mixed epithelial and sarcomatous) • Malignant mesothelioma, NOS	

G3.01	Mitotic count *(applicable to peritoneal specimens only)*	**Numeric**:____per mm^2	
G3.02	Response to neoadjuvant therapy	**Single selection value list:** • Not applicable • Cannot be determined • Greater than 50% residual tumour • Less than 50% residual tumour • No tumour found	
S3.02	**Extent of direct invasion**	• Cannot be assessed • No evidence of primary tumour OR **Multi select value list (select all that apply):** • Parietal pleura without involvement of the ipsilateral visceral pleura • Parietal pleura with focal involvement of the ipsilateral visceral pleura • Endothoracic fascia (as determined by surgeon/radiologist) • Mediastinal fat • Localised focus of tumour invading the soft tissue of the chest wall • Diffuse or multiple foci invading soft tissue of chest wall • Through the pericardium or diaphragm	

		• Into but not through the pericardium or diaphragm • Rib(s) • Peritoneum through the diaphragm • Great vessels/oesophagus/trachea or other mediastinal organ • Extension into contralateral pleura • Spine • Myocardium • Confluent visceral and parietal pleural tumour (including fissure) • Mediastinal organ(s) (specify) • Other (specify)	
S3.03	**Margin status** *(Applicable to extrapleural pneumonectomy specimens only)*	**Single selection value list:** • Not applicable • Cannot be assessed • Not involved • Involved (specify margin(s) if possible)	
S3.04	**Lymph node status**	• Cannot be assessed • No nodes submitted or found OR List as below	
	Lymph node station/location or specimen identification	**Text** *(note the id or location)*	**For involved nodes, the number of positive lymph nodes over the**

		AND **Single selection value list:** • Not involved • Involved Note: repeat for each lymph node station/location or specimen identified	**total number of nodes examined may be recorded at G3.03**
G3.03	Number of positive nodes /Total number of nodes	Numeric: ____/____ Note: This repeated for each involved lymph node station.	
G3.04	Coexistent pathology	None identified OR **Text**	
G3.05	Additional microscopic comment	**Text**	
Ancillary test findings			
G4.01	Ancillary studies	**Single selection value list:** • Not performed • Performed	**If performed, report S4.01 and consider reporting G4.01.**
S4.01	**Immunohistochemistry *(list stains)***	**Text**	
G4.02	Other ancillary studies	**Text**	
Synthesis and overview			
S5.01	**PATHOLOGIC STAGING (TNM 7TH EDITION) *(pleural***		

	specimens only)		
	Suffix(es)	**Multi select value list (select all that apply):** • m - multiple primary tumours at a single site • r - recurrent tumours after a disease free period • y - classification is performed during or following multimodality treatment	

	T - Primary tumour	**Single selection value list:**
		• TX Primary tumour cannot be assessed
		• T0 No evidence of primary tumour
		• T1 Tumour involves ipsilateral parietal pleura, with or without focal involvement of visceral pleura
		• T1a Tumour involves ipsilateral parietal (mediastinal, diaphragmatic) pleura. No involvement of the visceral pleura
		• T1b Tumour involves ipsilateral parietal (mediastinal, diaphragmatic) pleura, with focal involvement of the visceral pleura
		• T2 Tumour involves any of the ipsilateral pleural surfaces with at least one of the following:
		  ○ Confluent visceral pluera tumour (including the fissure)
		  ○ Invasion of diaphragmatic muscle
		  ○ Invasion of lung parenchyma
		• T3* Tumour involves any ipsilateral pleural surfaces with at least one of the	

		following: ○ Invasion of endothoracic fascia ○ Invasion of mediastinal fat ○ Solitary focus of tumour invading soft tissues of the chest wall ○ Non-transmural involvement of the pericardium • T4** Tumour involves any ipsilateral pleural surfaces with at least one of the following: ○ Diffuse or multifocal invasion of soft tissues of chest wall ○ Any involvement of rib ○ Invasion through diaphragm to peritoneum ○ Invasion of any mediastinal organ(s) ○ Direct extension to contralateral pleura ○ Invasion into the spine ○ Extension to internal surface of pericardium ○ Pericardial effusion with positive cytology ○ Invasion of myocardium ○ Invasion of brachial plexus * T3 describes locally advanced, but potentially resectable tumour. ** T4 describes locally advanced, technically unresectable tumour.	

	N - Regional lymph nodes	**Single selection value list:** • NX Regional lymph nodes cannot be assessed • N0 No regional lymph node metastases • N1 Metastasis in ipsilateral bronchopulmonary and/or hilar lymph node(s) • N2 Metastasis in subcarinal lymph node(s) and/or ipsilateral internal mammary or mediastinal lymph node(s) • N3 Metastasis in contralateral mediastinal, internal mammary, or hilar node(s) and/or ipsilateral or contralateral supraclavicular or scalene lymph node(s)	
S5.02	**Year and edition of staging system**	**Text**	
G5.01	Diagnostic summary Include: a. Operative procedure (S2.03) b. Tumour site (S2.05) c. Tumour type (S3.01)	**Text**	
S5.03	**Overarching comment** (if applicable)	**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. For an example pathology report, please refer to Appendix 3.

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 information and surgical handling procedures

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 mesothelioma of the pleura and peritoneum 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
  - The patient's ethnicity should 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.
- 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 Medicare number (Australia), Individual Healthcare Identifier (IHI) (Australia) or the National Healthcare Identifier (New Zealand).
- The Australian Healthcare identifiers i.e. Healthcare Provider Identifier - Individual (HPI-I) and Healthcare Provider Identifier - Organisation (HPI-O) should be use, where possible, to identify the requesting doctor.

Clinical Information

➢	Clinical information should be recorded.	
	•	Clinical information is essential to proper processing and evaluation of pathological specimens as it can influence pre-test probability of a particular diagnosis. This allows the pathology

		laboratory to accurately triage processing, including extent of sampling. It also informs the pathologist as to decisions ultimately influencing the number of slides to be examined (serial sections, levels) and potential ancillary studies to be performed[1], thus avoiding error. For malignant mesothelioma, the radiologic growth pattern and history of previous cancer are important guides to further analysis of a particular specimen. A radiologic nodular growth pattern may prompt correlation with surgical thoracoscopic observations with regard to nodule sampling, while a diffuse growth pattern may lead to a request for deeper or more extensive samples. History of prior cancer could suggest a different panel of immunohistochemical stains to definitively rule out metastasis from a known tumour. A cancer history can prompt a request to review prior outside material or to review an archival in house slide record.[42] Other valuable clinical information includes presence of a pleural effusion and its characteristics (e.g. transudative, bloody, exudative); this can trigger review of and correlation with a concurrent cytological specimen. A history of asbestos exposure is not relevant for the diagnosis of samples in which malignant mesothelioma is a consideration, as this history does not influence sample processing or ultimate diagnosis.[21]

- The administration of neoadjuvant therapy should be documented.
- The operative procedure should be documented on the request form.
- **For resection specimens, record if this is a new primary cancer or a recurrence of a previous cancer, if known.**
  - The term recurrence defines the return, reappearance or metastasis of cancer (of the same histology) after a disease free period.

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

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

    Distant metastasis refers to the spread of cancer of the same histologic type as the original (primary) tumour to distant organs or distant lymph nodes.
  - This information will provide an opportunity for previous reports to be reviewed during the reporting process, which may provide valuable information to the pathologist. This information also has implications for recording cancer incidence and evidence based research.

Surgical handling

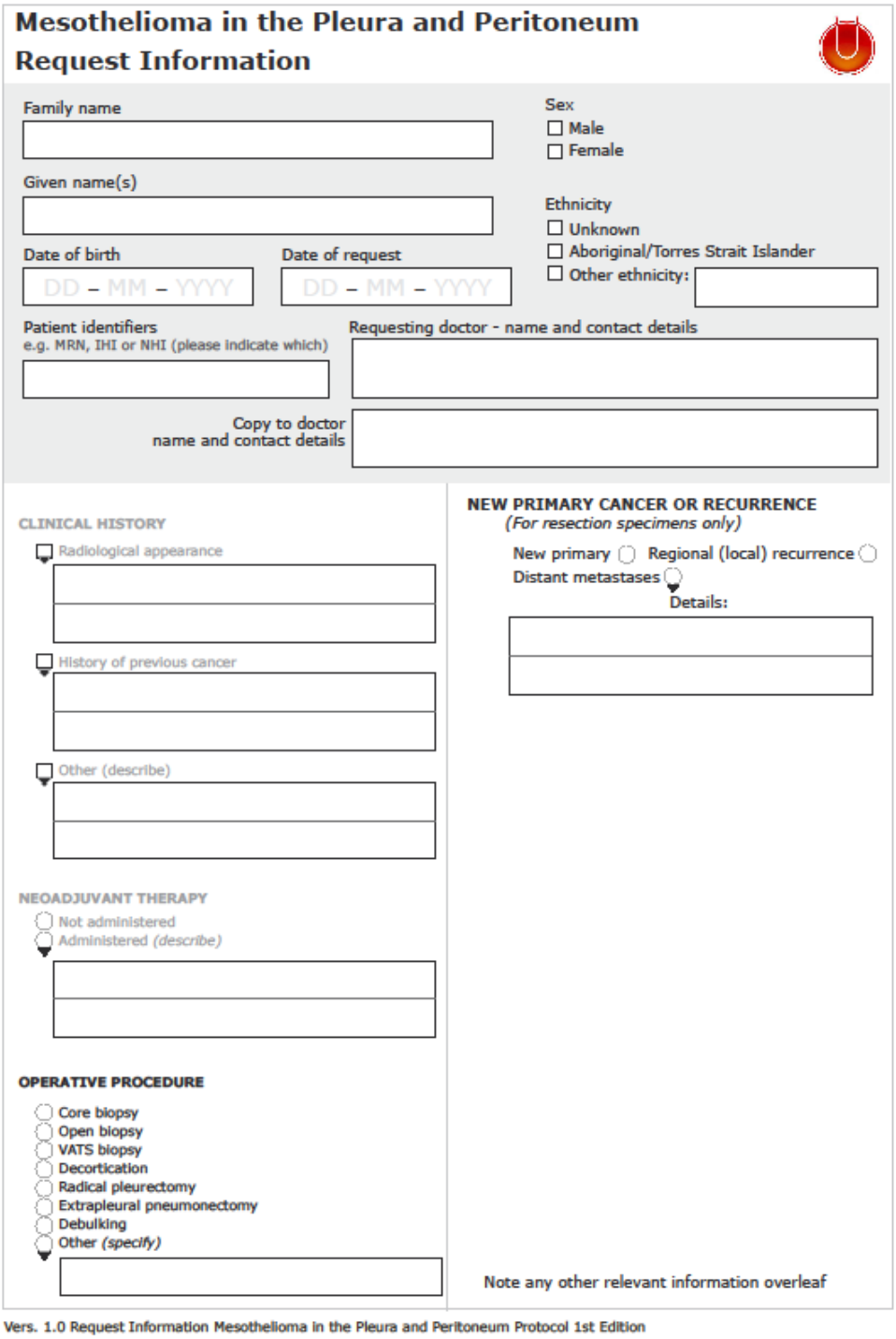
- The specimen should be capable of orientation if the status of specific surgical margins is critical in determining the need for, or extent of,

further surgery.

- Where there are no anatomical landmarks, specimen orientation may be indicated with marking sutures or other techniques. If a specimen is orientated, the orientation should be indicated on the specimen request form (this may be facilitated by the use of a diagram).

➢ Identification of research sections should preferably be done in consultation with the pathologist in order to avoid compromising the diagnosis.

Example Request Information Sheet



Mesothelioma in the Pleura and Peritoneum
Request Information

Family name

Given name(s)

Date of birth DD – MM – YYYY

Date of request DD – MM – YYYY

Sex
☐ Male
☐ Female

Ethnicity
☐ Unknown
☐ Aboriginal/Torres Strait Islander
☐ Other ethnicity:

Patient identifiers
e.g. MRN, IHI or NHI (please indicate which)

Requesting doctor - name and contact details

Copy to doctor name and contact details

CLINICAL HISTORY
☐ Radiological appearance
☐ History of previous cancer
☐ Other (describe)

NEOADJUVANT THERAPY
◯ Not administered
◯ Administered *(describe)*

OPERATIVE PROCEDURE
◯ Core biopsy
◯ Open biopsy
◯ VATS biopsy
◯ Decortication
◯ Radical pleurectomy
◯ Extrapleural pneumonectomy
◯ Debulking
◯ Other *(specify)*

NEW PRIMARY CANCER OR RECURRENCE
(For resection specimens only)
New primary ◯ Regional (local) recurrence ◯
Distant metastases ◯
Details:

Note any other relevant information overleaf

Vers. 1.0 Request Information Mesothelioma in the Pleura and Peritoneum Protocol 1st Edition

The above Request Information Sheet is published to the RCPA website

Appendix 2 Guidelines for formatting of a pathology report

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

- Grouping like data elements under headings and using 'white space' assists in rapid transfer of information.[43]

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. [43]
- 'Clutter' should be reduced to a minimum.[43] Thus, information that is not part of the protocol (e.g. billing information, SNOMED codes, etc) should not appear on the reports or should be minimized.
- Injudicious use of formatting elements (e.g. too much bold, underlining or use of footnotes) constitutes clutter and may distract the reader from the key information.

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

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

As a report is transferred between systems:

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

Appendix 3 Example of a pathology report

Citizen, Gerald Q.
C/O Paradise Close
Wreck Bay Resort
Nar Nar Goon East, 3181
Male
DOB 1/7/1952
MRN M1196785

Lab Ref: **16/P7846**
Referred: 30/3/2016

Copy to: Dr N.G.Chappie
Rainforest Cancer Centre.
46 Smith Road,
Woop Woop, 3478

Referred by: Dr V. Brown
Suite 3, AJC Medical Centre,
Bunyip Crescent
Nar Nar Goon West, 3182

MESOTHELIOMA STRUCTURED REPORT

Diagnostic Summary

VATS Biopsy, Epithelioid malignant mesothelioma

Supporting Information

CLINICAL

Clinical history:	48 year old man, recurrent R pleural effusion, possible history of asbestos exposure. Previous skin melanoma.
Operative procedure:	VATS

MACROSCOPIC

Specimen labelled:	"pleural biopsy right"
Operative procedure:	VATS Biopsy
Block identification key:	block 1/Ax4, AE
Other macroscopic description:	Received are 4 fragments of fibrous tissue measuring 20x 12x8 mm in aggregate and including macroscopic fat.

MICROSCOPIC:

Histologic tumour type:	Epithelioid malignant mesothelioma
Mitotic count:	1 mitosis/mm2
Coexistent pathology:	Pleural plaque
Additional microscopic comment:	Atypical complex papillary surface proliferation noted.

ANCILLARY TESTS Performed

Immunohistochemistry:	Mesothelial related markers calretinin, WT1, D2-40 and CK5/6 are positive, carcinoma-related markers BerEP4, BG8 and CD15 are negative.
Other ancillary:	In view of the previous history of skin melanoma and the young age of the patient BAP1 testing was performed. There is loss of nuclear labelling for BAP1 in the tumour, raising the possibility of BAP I syndrome, but clinical correlation is required and genetic testing could be considered.

Reported by Dr Ruth Maher Authorised 4/4/2016

The data fields within this formatted report adhere to criteria as set out in the RCPA document "MESOTHELIOMA OF THE PLEURA AND PERITONEUM STRUCTURED REPORTING PROTOCOL 1st Ed. 2016.

References

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4 Australian Cancer Network Colorectal Cancer Guidelines Revision Committee (2005). *Guidelines for the Prevention, Early Detection and Management of Colorectal Cancer*. The Cancer Council Australia and Australian Cancer Network, Sydney.

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