National Cancer Recovery Group
National Cancer Quality Steering Group

Testicular Cancer
Clinical Quality Performance Indicators

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This document was updated following formal review (2nd cycle) of the Testicular Cancer Quality Performance Indicators (QPIs) which took place following analysis of year 7 of the Testicular Cancer QPI data. Timing of the review was delayed due to the Covid-19 pandemic.

The following QPIs have been updated:

- QPI 2 – Pre-Operative Assessment
- QPI 6 – Quality of Adjuvant Treatment

The following QPIs have been archived:

- QPI 9 – Imaging for Surveillance Patients
- QPI 10 - 30 Day Mortality*
- QPI 11 – Clinical Trials and Research Study Access*

The following QPI has been added:

- QPI 12 – MRI for stage I Seminoma

* These important indictors will continue to be monitored via other national reporting systems rather than through the QPI process.

As a result of the changes above, the contents page and page numbering differ from earlier versions of this document. Sections 1-11 and the appendices have also been updated.

Please note that this version of the Testicular Cancer QPI Document applies to cases diagnosed from 1st October 2022.

Previous Updates:

September 2018 (v3.0)

This document was updated following formal review of the Testicular Cancer Quality Performance Indicators (QPIs) which took place following analysis of year 3 of the Testicular Cancer QPI data.

The following QPIs have been updated:

- QPI 3 – Primary Orchidectomy
- QPI 9 – Computed Tomography Scanning for Surveillance Patients

The following QPIs have been archived:

- QPI 5 – Pathology Reporting
- QPI 7 – Serum Tumour Markers

Please note the Clinical Trial and Research Study Access has now been added into each tumour specific QPI document (see QPI 11 - Clinical Trial and Research Study Access).

As a result of the changes above the contents page and page numbering differ from earlier version of this document. Sections 1 – 11 and the appendices have also been updated.

Please note that this version of the Testicular Cancer QPI Document applies to cases diagnosed from 1st October 2017 onwards. Where amended or new QPIs require new data items for measurement, this will apply for patients diagnosed from 1st October 2018.

June 2016 (v2.0)

This document was updated following baseline review of the Testicular Cancer QPIs which took place following analysis of year 1 of the Testicular Cancer data. As a result, the following QPIs have been updated:

QPI 1 – Radiological Staging
QPI 3 – Primary Orchidectomy
QPI 5 – Pathology Reporting
QPI 6 – Adjuvant Treatment of Stage I Seminoma with Carboplatin
QPI 8 – Systemic Therapy

Please note that this version of the Testicular Cancer QPI document applies to cases diagnosed from 1st October 2015.

Contents Page

1. National Cancer Quality Programme

Better Cancer: Ambition and Action (2016)[1] details a commitment to delivering the national cancer quality programme across NHSScotland, with a recognised need for national cancer QPIs to support a culture of continuous quality improvement. Addressing variation in the quality of cancer services is pivotal to delivering improvements in quality of care. This is best achieved if there is consensus and clear indicators for what good cancer care looks like.

Small sets of cancer specific outcome focussed, evidence based indicators are in place for 19 different tumour types. These QPIs ensure that activity is focused on those areas that are most important in terms of improving survival and individual care experience whilst reducing variation and supporting the most effective and efficient delivery of care for people with cancer. QPIs are kept under regular review and are responsive to changes in clinical practice and emerging evidence.

A programme to review and update the QPIs in line with evolving evidence is in place as well as robust mechanism by which additional QPIs will be developed over the coming years.

1.1 Quality Assurance and Continuous Quality Improvement

The ultimate aim of the programme is to develop a framework, and foster a culture of continuous quality improvement, whereby real time data is reviewed regularly at an individual Multi Disciplinary Team (MDT)/Unit level and findings actioned to deliver continual improvements in the quality of cancer care. This is underpinned and supported by a programme of regional and national comparative reporting and review.

NHS Boards are required to report against QPIs as part of a mandatory, publicly reported, programme at a national level. A rolling programme of reporting is in place, with approximately three national tumour specific summary reports published annually. These reports highlight the publication of the QPIs in the Cancer QPI Dashboard which includes comparative reporting of performance against QPIs at MDT/Unit level across NHSScotland, trend analysis and survival. This approach helps to overcome existing issues relating to the reporting of small volumes in any one year.

In the intervening years tumour specific QPIs are monitored on an annual basis through established Regional Cancer Network and local governance processes, with analysed data submitted to Public Health Scotland (PHS) (previously ISD Scotland) for inclusion in the Cancer QPI Dashboard and subsequent national summary report. This approach ensures that timely action is taken in response to any issues that may be identified through comparative reporting and systematic review.

2. Quality Performance Indicator Development Process

The QPI development process was designed to ensure that indicators are developed in an open, transparent and timely way. The development process can be found in appendix 1.

The Testicular Cancer QPI Development Group was convened in November 2013, chaired by Dr Noelle O'Rourke, Consultant Clinical Oncologist. Membership of this group included clinical representatives drawn from the three regional cancer networks, Healthcare Improvement Scotland, ISD and patient/carer representatives. Membership of the development group can be found in appendix 2.

3. QPI Formal Review Process

As part of the National Cancer Quality Programme a systematic national review process has been developed, whereby all tumour specific QPIs published are subject to formal review following 3 years analysis of comparative QPI data.

Formal review of the Testicular Cancer QPIs was undertaken for the first time in March 2018. A Formal Review Group was convened, chaired by Dr Noelle O'Rourke, Consultant Clinical Oncologist. Membership of this group included Clinical Leads from the three Regional Cancer Networks and membership of this group can be found in appendix 3.

The 2nd Cycle of Formal Review commenced in January 2022 following reporting of 7 years of QPI data (review delayed due to the Covid-19 pandemic). This cycle of review is more selective and focussed on ensuring the ongoing clinical relevance of the QPIs. A Formal Review Group was convened with Mr Andy Malyon, Consultant Plastic Surgeon, WoSCAN appointed as Clinical Advisor/Chair to the group. Membership of this group can be found in appendix 4.

The formal review process is clinically driven with proposals for change sought from specialty specific representatives in each of the Regional Cancer Networks. Formal review meetings to further discuss proposals will be arranged where deemed necessary. The review builds on existing evidence using expert clinical opinion to identify where new evidence is available, and a full public engagement exercise will take place where significant revisions have been made or new QPIs developed.

During formal review QPIs may be archived and replaced with new QPIs. Triggers for doing so include significant change to clinical practice, targets being consistently met by all Boards and publication of new evidence. Where QPIs have been archived, for those indictors which remain clinically relevant, data will continue to be collected to allow local / regional analysis of performance as required.

Any new QPIs have been developed in line with the following criteria:

- **Overall importance** – does the indicator address an area of clinical importance that would significantly impact on the quality and outcome of care delivered?

- **Evidence based** – is the indicator based on high quality clinical evidence?

- **Measurability** – is the indicator measurable i.e. are there explicit requirements for data measurement and are the required data items accessible and available for collection?

4. Format of the Quality Performance Indicators

QPIs are designed to be clear and measurable, based on sound clinical evidence whilst also taking into account other recognised standards and guidelines.

- Each QPI has a **short title** which will be utilised in reports as well as a fuller **description** which explains exactly what the indicator is measuring.

- This is followed by a brief overview of the **evidence base and rationale** which explains why the development of this indictor was important.

- The measurability **specifications** are then detailed; these highlight how the indicator will actually be measured in practice to allow for comparison from across NHSScotland.

- Finally a **target** is indicated, which dictates the level each unit should be aiming to achieve against each indicator.

In order to ensure that the chosen target levels are the most appropriate and drive continuous quality improvement as intended they are kept under review and revised as necessary, if further evidence or data becomes available.

Rather than utilising multiple exclusions, a tolerance level has been built into the QPIs. It is very difficult to accurately measure patient choice, co-morbidities and patient fitness therefore target levels have been set to account for these factors. Further detail is noted within QPIs where there are other factors which influenced the target level.

Where 'less than' (<) target levels have been set the rationale has been detailed within the relevant QPI. All other target levels should be interpreted as 'greater than' (>) levels.

5. Supporting Documentation

A national minimum core dataset and a measurability specification document have been developed in parallel with the indicators to support the monitoring and reporting of Testicular Cancer QPIs. The updated document will be implemented for patients diagnosed with Cancer on, or after, 1st October 2022.

6. Testicular Cancer Definition

Approximately 90 – 95% of testicular cancers are germ cell tumours[2]. Non-germ cell tumours are rarer and include histological sub-types such as Leydig cell and Sertoli cell tumours. The presentation and management of these rarer cancers is different from germ cell tumours, therefore, the Testicular Cancer QPI Formal Review Group agreed that these QPIs are applicable to germ cell tumours only.

7. Quality Performance Indicators for Testicular Cancer

QPI 1: Radiological Staging

QPI Title:	Patients with testicular cancer should be evaluated with appropriate imaging to detect the extent of disease and guide treatment decision making*.	
Description:	Proportion of patients with testicular cancer who undergo Computed Tomography (CT) scanning, ideally contrast-enhanced CT, of the chest, abdomen and pelvis within 3 weeks of orchidectomy.	
Rationale and Evidence:	Timely imaging is important to ensure treatment decision making can occur as soon as possible. Unnecessary delays can have an impact on prognostic groups and hence survival rates. CT scanning is an essential part of the staging of all germ cell tumours[2,3].	
Specifications:	**Numerator:**	Number of patients with testicular cancer undergoing CT scanning of the chest, abdomen and pelvis within 3 weeks of orchidectomy.
	Denominator:	All patients with testicular cancer undergoing orchidectomy.
	Exclusions:	• Patients undergoing chemotherapy prior to orchidectomy.
Target:	95% The tolerance within this target is designed to account for factors of patient choice.	

* This includes CT performed pre-operatively providing this is carried out no longer than 3 weeks prior to surgery.

QPI 2: Pre-operative Assessment

QPI Title:	Patients with testicular cancer should have pre-operative assessment of the testicle and Serum Tumour Markers (STMs)†.
Description:	Proportion of patients with testicular cancer who undergo pre-operative assessment of the testicle which, at a minimum, includes: (i) STMs*, and (ii) testicular ultrasound.
Rationale and Evidence:	In most instances, the diagnosis of testicular tumours is established with a carefully performed physical examination and scrotal ultrasound[2,4]. When conducting pre-operative assessments, evidence has demonstrated the importance of investigating STM* concentrations and conducting a testicular ultrasound[3]. Serum determination of tumour markers before and after orchidectomy allow for staging and prognosis to be determined[2,4]. Evidence has shown the importance of conducting this scan pre-operatively, with suggestion that it should be regarded as urgent carried out as soon as possible[3].
Specifications:	**Numerator:** Number of patients with testicular cancer undergoing orchidectomy, who undergo a pre-operative assessment of the testicle which, at a minimum, includes: (i) STMs (ii) testicular ultrasound. **Denominator:** All patients with testicular cancer undergoing orchidectomy. **Exclusions:** • Patients who decline pre-operative assessment. • Patients undergoing chemotherapy prior to orchidectomy.
Target:	95% The tolerance within this target is designed to account for situations where emergency surgical resection is needed.

† AFP – Alpha Feta Protein,
HCG – Human chorionic Gonodotrophin

QPI 3: Primary Orchidectomy

QPI Title:	Patients with testicular cancer should have primary orchidectomy within 3 weeks of ultrasonographic diagnosis.
Description:	Proportion of patients with testicular cancer who undergo primary orchidectomy within 3 weeks of ultrasonographic diagnosis
Rationale and Evidence:	Orchidectomy is the primary therapeutic intervention for patients who have early-stage testicular cancer[5]. The overall aim of primary orchidectomy is to remove the tumour and minimise local recurrence and abnormal lymphatic spread[6]. To ensure pathological information is obtained and future treatment decision making can be made, it is important that orchidectomy is carried out as quickly as possible from diagnosis. This QPI utilises a 3 week timeframe from ultrasonographic diagnosis to orchidectomy. The timeframe has been deemed appropriate by the QPI Review Group to account for patients who require repeat ultrasound for clinical confirmation or pre-surgical semen storage. This ensures that any delays within the pathway can be identified and action for improvement targeted appropriately.
Specifications:	**Numerator:** Number of patients with testicular cancer undergoing orchidectomy within 3 weeks of ultrasonographic diagnosis. **Denominator:** All patients with testicular cancer undergoing orchidectomy. **Exclusions:** • Patients undergoing chemotherapy prior to orchidectomy.
Target:	95% The tolerance within this target is designed to account for situations where patients cannot undergo immediate surgery due to co-morbidities or factors of patient choice.

QPI 4: Multi-Disciplinary Team Meeting

QPI Title:	Patients with testicular cancer should be discussed by a Multi-Disciplinary Team (MDT) to agree a definitive management plan post orchidectomy with staging and pathology.	
Description:	Proportion of patients with testicular cancer who are discussed at a MDT meeting to agree a definitive management plan post orchidectomy.	
Rationale and Evidence:	Evidence suggests that patients with cancer managed by a multi-disciplinary team have a better outcome. There is also evidence that the multidisciplinary management of patients increases their overall satisfaction with their care[7]. Discussion prior to definitive treatment decisions being made provides reassurance that patients are being managed appropriately. Orchidectomy can be used as a diagnostic tool as well as definitive treatment for patients with testicular cancer. It is important to have the information that is gained from this procedure available at the MDT meeting to ensure a fully informed decision, including tumour type, prognosis and risk factors, can be made on the best management plan for the patient.	
Specifications:	**Numerator:**	Number of patients with testicular cancer undergoing orchidectomy who are discussed at the MDT to agree a definitive management plan post orchidectomy.
	Denominator:	All patients with testicular cancer undergoing orchidectomy.
	Exclusions:	• No exclusions.
Target:	95% The tolerance within this target is designed to account for situations where patients have advanced disease.	

QPI 6: Quality of Adjuvant Treatment

QPI Title:	Patients with stage I seminoma receiving adjuvant single dose carboplatin should have an AUC‡ of 7mg/ml/min based on isotopic estimation of creatinine clearance.	
Description:	Proportion of patients with stage I seminoma receiving adjuvant single dose carboplatin AUC of 7mg/ml/min (AUC7), based on isotopic estimation of creatinine clearance, within 8 weeks of orchidectomy.	
Rationale and Evidence:	Evidence has shown that the administration of carboplatin can prevent metastatic relapse and contralateral cancer in patients with testicular cancer[8]. The trial suggested that ethylene diamine tetra-acetic acid (EDTA) or a comparable isotope measurement technique should be used when calculating GFR; this allowed for the best survival outcomes[8]. Patients receiving a single dose of adjuvant carboplatin should be given the dose AUC7, i.e. that dose required to achieve an area under the concentration time curve of 7 mg/ml per minute, based on EDTA clearance[3].	
Specifications:	**Numerator:**	Number of patients with stage I seminoma undergoing adjuvant single dose carboplatin AUC7, based on isotopic estimation of creatinine clearance, within 8 weeks of orchidectomy.
	Denominator:	All patients with stage I seminoma undergoing adjuvant single dose carboplatin AUC7.
	Exclusions:	• Patients who are treated within a clinical trial.
Target:	95% The tolerance within this target accounts for the fact that due to co-morbidities, fitness and age not all patients will require or be suitable for adjuvant carboplatin, and clinical factors may indicate a different dose or delay in treatment. It is also intended to reflect factors of patient choice with regards to delaying treatment.	

‡ AUC stands for 'Area Under the Curve'. It represents the area under the plasma concentration curve, plotted over time. The AUC, in this context, is a measure of how a drug is eliminated over time and helps to determine the accurate, effective and safe dosage of a drug.

QPI 8*:* Systemic Therapy

QPI Title:	Patients with metastatic testicular cancer who are undergoing systemic therapy should receive Systemic Anti-Cancer Therapy (SACT) within 3 weeks of a MDT decision to treat with SACT[§].	
Description:	Proportion of patients with metastatic testicular cancer who undergo SACT within 3 weeks of a MDT decision to treat with SACT.	
Rationale and Evidence:	Evidence has demonstrated that delays in diagnosis and treatment can have a negative impact on the survival rates of patients[9,10]. In certain types of testicular cancer this can have a bigger impact on prognosis and survival[9].	
Specifications:	**Numerator:**	Number of patients with metastatic testicular cancer undergoing SACT within 3 weeks of an MDT decision to treat with SACT.
	Denominator:	All patients with metastatic testicular cancer undergoing SACT.
	Exclusions:	• Patients whose primary chemotherapy management is as part of a chemotherapy clinical trial[**].
Target:	95% The tolerance within this target accounts for the fact that due to co-morbidities, fitness and age not all patients will require or be suitable for systemic therapy.	

[§] Patients may also begin treatment up to 3 weeks prior to MDT in order to ensure there are no delays to treatment

[**] **Please note**: patients taking part in trials that are not related to chemotherapy cycles are still to be included.

QPI 12: Surveillance for Stage I Seminoma

QPI Title:	Patients with stage I seminoma under surveillance should undergo Magnetic Resonance Imaging (MRI) scanning of the abdomen (+/- pelvis) within 8 months of initial staging CT scan.	
Description:	Proportion of patients with stage I seminoma under surveillance who undergo MRI scan of the abdomen (+/- pelvis) within 8 months of initial staging CT scan.	
Rationale and Evidence:	Patients with early stage seminoma who undergo orchidectomy will almost always have survival rates of 100%. Although adjuvant treatment has been shown to reduce relapses, alternative approaches are now discussed/offered in order to reduce over treatment[11]. Minimising exposure to potentially harmful radiation is of benefit to patients therefore MRI is a favourable approach[11]. The frequency of surveillance has been researched and it has been found that a schedule with 3 MRI scans demonstrates excellent outcomes and is both cost effective and preferable over CT where there is concern over radiation dose[11]. **Please note:** Due to timing restrictions within the audit process, it has been agreed that for the purpose of this QPI, measurement will focus on the first MRI scan initially. This will be used to drive improvement in the implementation of standardised surveillance protocols using appropriate imaging.	
Specifications:	**Numerator:**	Patients with stage I seminoma under surveillance who undergo MRI scan of the abdomen (+/- pelvis) within 8 months of initial staging CT scan.
	Denominator:	All patients with stage I seminoma under surveillance.
	Exclusions:	• Patients who are unable to undergo a MRI scan (e.g. pacemaker, cerebral aneurysm clip, claustrophobia etc.) • Patients who decline MRI. • Patients who have received adjuvant chemotherapy. • Patients who have received adjuvant radiotherapy.
Target:	85% The tolerance within this target is to account for situations where patients are deemed clinically unfit to undergo MRI, or where patients may be unavailable at the specified timeframe or do not comply with surveillance.	

8. Survival

Improving survival forms an integral part of the national cancer quality improvement programme. Testicular cancer survival analysis will be reported and analysed on a 3 yearly basis by Public Health Scotland (PHS). The specific issues which will be addressed will be identified by an expert group ahead of any analysis being undertaken, as per the agreed national cancer quality governance and improvement framework.

The Testicular Cancer QPI Group has identified during the QPI development process, the following issues for survival analysis:

- 2 and 5 year overall survival

To ensure consistent application of survival analysis, it has been agreed that a single analyst on behalf of all three regional cancer networks undertakes this work. Survival analysis will be scheduled as per the national survival analysis and reporting timetable, agreed with the National Cancer Quality Steering Group and National Cancer Recovery Group. This reflects the requirement for record linkage and the more technical requirements of survival analyses which would make it difficult for individual Boards to undertake routinely and in a nationally consistent manner.

9. Areas for Future Consideration

The Testicular Cancer QPI Groups have not been able to identify sufficient evidence, or determine appropriate measurability specifications, to address all areas felt to be of key importance in the treatment of Testicular Cancer and therefore in improving the quality of care for patients affected by Testicular Cancer.

The following areas for future consideration have been raised across the lifetime of the Testicular Cancer QPIs.

- Fertility conservation – sperm storage.
- Use of prosthesis.
- Gonadal Function and Hypogonadism

10. Governance and Scrutiny

A national and regional governance framework to assure the quality of cancer services in NHSScotland has been developed; key roles and responsibilities within this are set out below. Appendices 5 and 6 provide an overview of these governance arrangements diagrammatically. The importance of ensuring robust local governance processes are in place is recognised and it is essential that NHS Boards ensure that cancer clinical audit is fully embedded within established processes.

10.1 National

- National Cancer Recovery Group
    - Accountable for overall national cancer quality programme and overseeing the quality of cancer care across NHSScotland.

- Healthcare Improvement Scotland
    - Proportionate scrutiny of performance.
    - Support performance improvement.
    - Quality assurance: ensure robust action plans are in place and being progressed via regions/Boards to address any issues identified.

- Public Health Scotland (PHS) (previously Information Services Division))
    - Publish national comparative report on tumour specific QPIs and survival for three tumour types per annum and specified generic QPIs as part of the rolling programme of reporting.

10.2 Regional – Regional Cancer Networks

- Annual regional comparative analysis and reporting against tumour specific QPIs.
- Support national comparative reporting of specified generic QPIs.
- Identification of regional and local actions required and development of an action plan to address regional issues identified.
- Performance review and monitoring of progress against agreed actions.
- Provide assurance to NHS Board Chief Executive Officers and National Cancer Recovery Group that any issues identified have been adequately and timeously progressed.

10.3 Local – NHS Boards

- Collect and submit data for regional comparative analysis and reporting in line with agreed measurability and reporting schedule (generic and tumour specific QPIs).
- Utilise local governance structures to review performance, develop local action plans and monitor delivery.
- Demonstrate continual improvements in quality of care through on-going review, analysis and feedback of clinical audit data at an individual multidisciplinary team (MDT) or unit level.

11. References

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12. Appendices

Appendix 1: QPI Development Process

Preparatory Work and Scoping

The preparatory work involved the development of a structured briefing paper by Healthcare Improvement Scotland. This paper took account of existing, high quality, clinical guidance and provided a basis for the development of QPIs.

The scope for development of Testicular Cancer QPIs and a search narrative were defined and agreed by the Testicular Cancer QPI Development Group. The table below shows the final search criteria used in the literature search.

Inclusion	Exclusion

• Primary testicular cancer, including:
  • seminomas
  • non-seminomatous germ cell tumours;
  • germinomas and
  • teratocarcinomas
 	
• Diagnosis
• Staging
• Surgical management of disease
• Non-surgical management of disease (chemotherapy, radiotherapy)
• Surveillance
Age range: Adults
	• Related cancers, including:
	  • Lymphomas
	  • Leydig and sertoli cell tumours
	
	• Recurrent disease/relapsed disease management
	• Primary care/referral
	• Pre-cancerous conditions including: carcinoma in situ/testicular intraepithelial neoplasia (TIN)
	• Prevention
	• Screening
	• Clinical trials recruitment and protocols. Symptom management (e.g. nausea and vomiting, neutropenic sepsis)
	• Communication, information sharing and support
	• Palliative/end of life care (pain management, end of life counselling, hospice management)

Date: 2005 to present day	
Language: English only	
Document type: Clinical guidelines	

Table 1: Testicular Cancer Literature Search Criteria

A systematic search was carried out by Healthcare Improvement Scotland using selected websites and two primary medical databases to identify national and international guidelines.

Twenty one guidelines were appraised for quality using the AGREE II[12] instrument. This instrument assesses the methodological rigour used when developing a guideline. Fifteen of the guidelines were not recommended for use. The remaining six were recommended for use with consideration of their applicability or currency.

Indicator Development

The Testicular QPI Development group defined evidence based, measurable indicators with a clear focus on improving the quality and outcome of care provided.

The Group developed QPIs using the clinical recommendations set out in the briefing paper as a base, ensuring all indicators met the following criteria:

- **Overall importance** – does the indicator address an area of clinical importance that would significantly impact on the quality and outcome of care delivered?

- **Evidence based** – is the indicator based on high quality clinical evidence?

- **Measurability** – is the indicator measurable i.e. are there explicit requirements for data measurement and are the required data items accessible and available for collection?

Engagement Process

A wide clinical and public engagement exercise was undertaken as part of development in April 2014 where the Testicular Cancer QPIs, along with accompanying draft minimum core dataset and measurability specifications, were made available on the Scottish Government website. During the engagement period clinical and management colleagues from across NHSScotland, patients affected by Testicular Cancer and the wider public were given the opportunity to influence the development of Testicular Cancer QPIs.

Draft documentation was circulated widely to professional groups, health service staff, voluntary organisations and individuals for comment and feedback.

Following the engagement period all comments and responses received were reviewed by the Testicular Cancer QPI Development Group and used to produce and refine the final indicators.

Appendix 2: Testicular Cancer QPI Development Group Membership (2013)

Name	Designation	Cancer Network/ NHS Board
Noelle O'Rourke (Chair)	Consultant Clinical Oncologist	WoSCAN / NHS Greater Glasgow and Clyde
Lauren Aitken	Audit facilitator	SCAN
Sudhir Borgaonkar	Consultant Urologist	NOSCAN / NHS Highland
Paul Fineron	Consultant Pathologist	SCAN / NHS Lothian
Sioban Fraser	Consultant Pathologist	WoSCAN / NHS Greater Glasgow and Clyde
Colin Hartley	Patient Representative	
David Hendry	Consultant Urologist	WoSCAN / NHS Greater Glasgow and Clyde
Michelle Hilton Boon	Programme Manager	Healthcare Improvement Scotland
Julian Keanie	Consultant Radiologist	SCAN / NHS Lothian
Alastair Law	Consultant Oncologist	SCAN / NHS Lothian
Adam Lawie	Patient Representative	
Graham Macdonald	Consultant Oncologist	NOSCAN / NHS Grampian
Kelly Macdonald	Project Manager	National Cancer QPI Development Programme
Finlay McKay	Cancer Audit facilitator	WoSCAN
Jahangeer Malik	Consultant Oncologist	SCAN / NHS Lothian
John Morrison	Consultant Radiologist	WoSCAN / NHS Greater Glasgow and Clyde
Brian Murray	Principle Information Development Manager	Information Services Division
CJ Shukla	Consultant Urologist	SCAN / NHS Lothian
Seamus Teahan	Consultant Urologist	WoSCAN / NHS Forth Valley
Evelyn Thomson	Regional Manager (Cancer)	WoSCAN
Nicola Thomson	Clinical Nurse Specialist	WoSCAN / NHS Greater Glasgow and Clyde
Ashita Waterston	Consultant Oncologist	WoSCAN / NHS Greater Glasgow and Clyde
Jeff White	Consultant Oncologist	WoSCAN / NHS Greater Glasgow and Clyde
Sandra White	Consultant Nurse in Cancer	WoSCAN / NHS Greater Glasgow and Clyde

NOSCAN - North of Scotland Cancer Network
SCAN - South East Scotland Cancer Network
WoSCAN - West of Scotland Cancer Network

Appendix 3: Testicular Cancer QPI Formal Review Group Membership (2018)

Name	Designation	Cancer Network/ NHS Board
Noelle O'Rourke (Chair)	Consultant Clinical Oncologist	WoSCAN / NHS Greater Glasgow & Clyde
Jen Doherty	Project Co-ordinator	National Cancer Quality Programme
Roland Donat	Consultant Urological Surgeon	NOSCAN / NHS Lothian
Tom Kane	Urological Cancers MCN Manager	WoSCAN
Alastair Law	Consultant Clinical Oncologist	SCAN / NHS Lothian
Graham MacDonald	Consultant Clinical Oncologist	NOSCAN / NHS Grampian
Lorraine Stirling	Project Officer	National Cancer Quality Programme
Christine Urquhart	Cancer Audit Manager	NOSCAN
Jeff White	Consultant Medical Oncologist	WoSCAN / NHS Greater Glasgow & Clyde

Formal review of the Testicular Cancer QPIs have been undertaken in consultation with various other clinical specialties.

NOSCAN - North of Scotland Cancer Network
SCAN - South East Scotland Cancer Network
WoSCAN - West of Scotland Cancer Network

Appendix 4: Testicular Cancer QPI Formal Review Group Membership (2022)

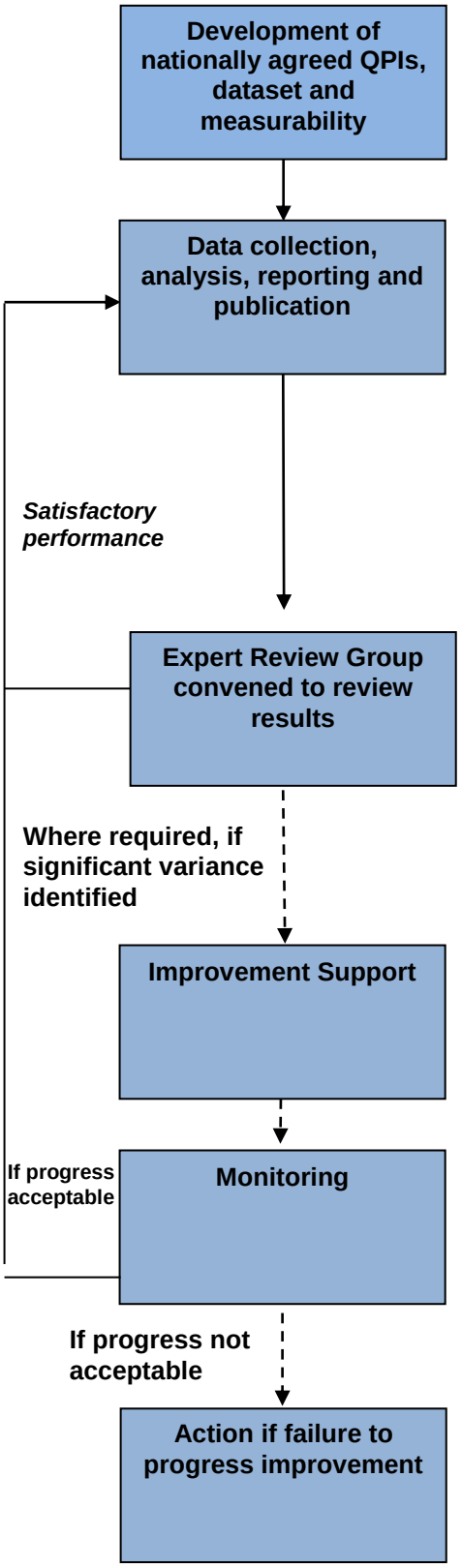
Name	Designation	Cancer Network/ NHS Board
Andy Malyon (Chair)	Consultant Plastic Surgeon	WoSCAN
David Cameron	Programme Coordinator	NCA
Jen Doherty	Project Co-ordinator	National Cancer Quality Programme
David Hendry	Consultant Urological Surgeon	WoSCAN
Alastair Law	Consultant Clinical Oncologist	SCAN
Graham Macdonald	Consultant Clinical Oncologist	NCA
Andrew Martindale	Urology MCN Clinical Lead	NCA
Lorraine Stirling	Project Officer	National Cancer Quality Programme
Evelyn Thomson	Regional Manager (Cancer)	WoSCAN
Jeff White	Consultant Medical Oncologist	WoSCAN
Abdullah Zreik	Consultant Urologist	WoSCAN
Nkem Umez-Eronini	Urology MCN Clinical Lead	WoSCAN

Formal review of the Testicular Cancer QPIs have been undertaken in consultation with various other clinical specialties.

NCA - North Cancer Alliance
SCAN - South East Scotland Cancer Network
WoSCAN - West of Scotland Cancer Network

Appendix 5: 3 Yearly National Governance Process & Improvement Framework for Cancer Care

This process is underpinned by the annual regional reporting and governance framework (see appendix 6).



1. National QPI Development Stage

- QPIs developed by QPI development groups, which include representation from Regional Cancer Networks, Healthcare Improvement Scotland, ISD, patient representatives and the Cancer Coalition.

2. Data Analysis Stage:

- NHS Boards and Regional Cancer Advisory Groups (RCAGs)* collect data and analyse on yearly basis using nationally agreed measurability criteria and produce action plans to address areas of variance, see appendix 6.
- Submit yearly reports to PHS for collation and publication every 3 years.
- National comparative report approved by NHS Boards and RCAGs.
- PHS produce comparative, publicly available, national report consisting of trend analysis of 3 years data and survival analysis.

3. Expert Review Group Stage (for 3 tumour types per year):

- Expert group, hosted by Healthcare Improvement Scotland, review comparative national results.
- Write to RCAGs highlighting areas of good practice and variances.
- Where required NHS Boards requested to submit improvement plans for any outstanding unresolved issues with timescales for improvement to expert group.
- Improvement plans ratified by expert group and National Cancer Recovery Group.

4. Improvement Support Stage:

- Where required Healthcare Improvement Scotland provide expertise on improvement methodologies and support.

5. Monitoring Stage:

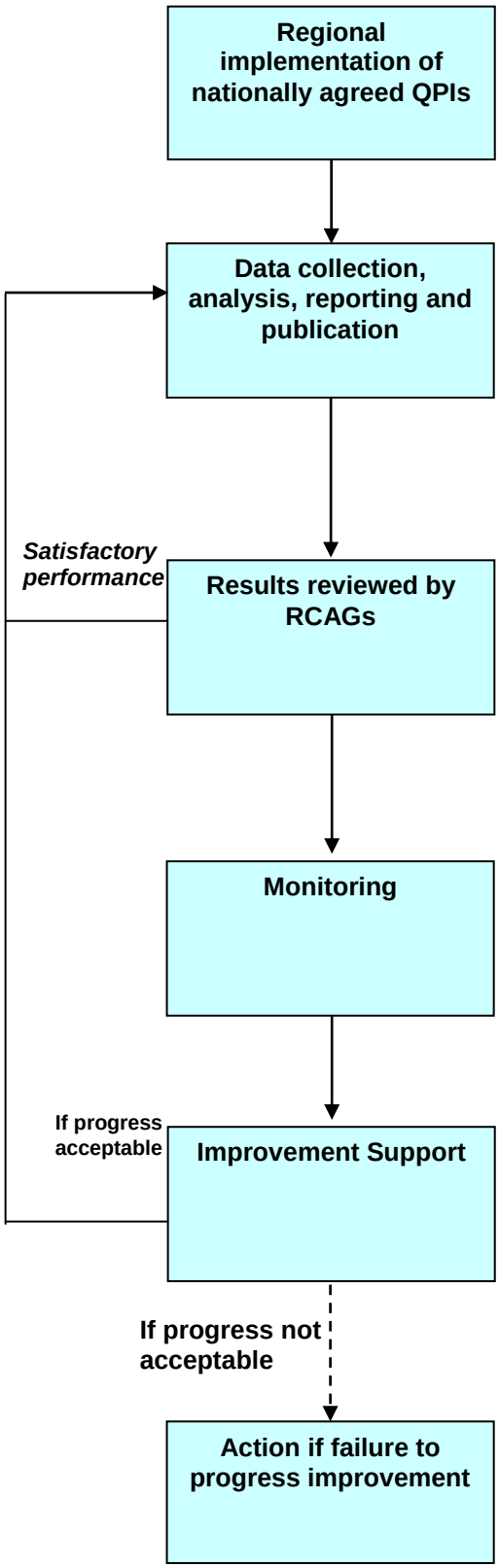
- RCAGs work with Boards to progress outstanding actions, monitor improvement plans and submit progress report to Healthcare Improvement Scotland.
- Healthcare Improvement Scotland report to National Cancer Recovery Group as to whether progress is acceptable**.**

6. Escalation Stage:

- If progress not acceptable, Healthcare Improvement Scotland will visit the service concerned and work with the RCAG and Board to address issues.
- Report submitted to National Cancer Recovery Group and escalation with a proposal to take forward to Scottish Government Health Department.

*The Regional Cancer Planning Group (South and East of Scotland) and the North Cancer Clinical Leadership Group (North Cancer Alliance) are equivalent to the Regional Cancer Advisory Group (RCAG) in the West of Scotland.

Appendix 6: Regional Annual Governance Process and Improvement Framework for Cancer Care



1. Regional QPI Implementation Stage:

- National cancer QPIs and associated national minimum core dataset and measurability specifications, developed by QPI development groups.
- Regional implementation of nationally agreed dataset to enable reporting of QPIs.

2. Data Analysis Stage:

- NHS Boards collect data and data is analysed on a yearly basis using nationally agreed measurability criteria at local/ regional level.
- Data/results validated by Boards and annual regional comparative report produced by Regional Networks.
- Areas of best practice and variance across the region highlighted.
- Yearly regional reports submitted to PHS for collation and presentation in national report every 3 years.

3. Regional Performance Review Stage:

- RCAGs* review regional comparative report.
- Regional or local NHS Board action plans to address areas of variance developed.
- Appropriate leads identified to progress each action.
- Action plans ratified by RCAGs.

4. Monitoring Stage:

- Where required, NHS Boards monitor progress with action plans and submit progress reports to RCAGs.
- RCAGs review and monitor regional improvement.

5. Improvement Support Stage:

- Where required Healthcare Improvement Scotland maybe requested to provide expertise to NHS Boards/RCAGs on improvement methodologies and support.

6. Escalation Stage:

- If progress not acceptable, RCAGs will escalate any issues to relevant Board Chief Executives. If progress remains unacceptable RCAGs will escalate any relevant issues to Healthcare Improvement Scotland.

*The Regional Cancer Planning Group (South and East of Scotland) and the North Cancer Clinical Leadership Group (North Cancer Alliance) are equivalent to the Regional Cancer Advisory Group (RCAG) in the West of Scotland.

Appendix 7: Glossary of Terms

Adjuvant therapy / treatment	Additional cancer treatment given after the primary treatment to lower the risk that the cancer will come back. Adjuvant therapy may include chemotherapy, radiation therapy, hormone therapy, targeted therapy, or biological therapy.
Carboplatin	A chemotherapy drug used to treat types of cancer.
Chemotherapy	The use of drugs used to kill cancer cells, to prevent or slow their growth.
Clinical trial(s)	A type of research study that tests how well new medical approaches or medicines work. These studies test new methods of screening, prevention, diagnosis, or treatment of a disease.
Co-morbidity/Comorbidities	Other conditions and symptoms prevalent other than the primary diagnosis.
Computed Tomography (CT)	An x-ray imaging technique, which allows detailed investigation of the internal organ of the body.
Definitive treatment	Treatment designed to potentially cure cancer using one or a combination of interventions.
Lymphatic Spread	The spread of cancer throughout the lymphatic system.
Lymphatic System	The lymphatic system plays an important role in controlling the movement of fluid throughout the body.
Magnetic Resonance Imaging (MRI)	A procedure in which radio waves and a powerful magnet linked to a computer are used to create detailed pictures of areas inside the body. These pictures can show the difference between normal and diseased tissue.
Metastatic	Spread of cancer away from the primary site to somewhere else via the bloodstream or the lymphatic system. Metastatic disease can be local (close to the area where the cancer is) or distant (in another area of the body).
Morbidity	How much ill health a particular condition causes.
Mortality	Either (1) the condition of being subject to death; or (2) the death rate, which reflects the number of deaths per unit of population in and specific region, age group disease or other classification, usually expressed as deaths per 1,000, 10,000 or 100,000.
Multidisciplinary team meeting (MDT)	A meeting which is held on a regular basis, which is made up of participants from various disciplines appropriate to the disease area, where diagnosis, management and appropriate treatment of patients is discussed and agreed.
Non-seminomatous germ cell tumours (NSGCTs)	This group of tumours are sometimes called teratomas. NSGCTs usually affect younger men aged between 15-35 years old. They occur in about 40-45% of (4-4.5 in 10) men with testicular cancer.
Orchidectomy	The surgical removal of one or both testicles.
Pathological	The study of disease processes with the aim of understanding their nature and causes. This is achieved by observing samples of fluid and tissues obtained from the living patient by various methods, or at a post mortem.
Radiotherapy	The use of radiation to treat disease.
Serum Tumour Markers	Molecules occurring in blood or tissue that are associated with cancer and whose measurement or identification is

	useful in patient diagnosis or clinical management.
Seminomas	These usually occur in men between the ages of 25 and 55. About 40-45% of (4-4.5 in 10) men with testicular cancer have a seminoma.
Surveillance	This is to look for signs of the cancer coming back so that it can be found and treated early, when it's easier to cure.
Survival	The percentage of people in a study or treatment group who are alive for a certain period of time after they were diagnosed with or treated for a disease, such as cancer.
Systematic Anti Cancer Therapy (SACT)	Treatment of cancer using drugs which prevent the replication or growth of cancer cells. This encompasses biological therapies and cytotoxic chemotherapy.
Testicular Cancer	Cancer that exists within the testis. There are 2 main types of testicular cancer, seminomas and non seminomas
Vascular Invasion	This occurs when cancer cells break into the blood vessels. This increases the risk of the cancer traveling outside the area or coming back in the future.