West of Scotland Cancer Network

Urological Cancer
Managed Clinical Network

Audit Report

Testicular Cancer
Quality Performance Indicators

Clinical Audit Data: 01 October 2019 to 30 September 2020

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Executive Summary

Introduction

This report contains an assessment of the performance of West of Scotland (WoS) urological cancer services using clinical audit data relating to patients diagnosed with testicular cancer in the twelve months between 01 October 2019 and 30 September 2020

In order to ensure the success of the Cancer QPIs in driving quality improvement in cancer care, QPIs will continue to be assessed for clinical effectiveness and relevance. The initial formal review of Testicular Cancer QPIs took place in 2018. With six years of reporting now complete, a second cycle of review will commence in April 2022. This clinically led review aims to identify potential refinements to the current QPIs and involves key clinicians from each of the Regional Cancer Networks.

Methodology

Further detail on the audit and analysis methodology and data quality is available in the meta data within appendix 1.

Results

A summary of the Testicular Cancer QPIs for 2019/20 clinical audit data is presented below, with a more detailed analysis of the results set out in the main report. Data are analysed by location of diagnosis or treatment, and illustrate NHS Board performance against each target and overall regional performance for each performance indicator. Results are presented graphically and the accompanying tabular format also highlights any missing data and its' possible effect on any of the measured outcomes.

Where the number of cases meeting the denominator criteria for any indicator is between one and four, the percentage calculation has not been shown on any associated charts or tables. This is to avoid any unwarranted variation associated with small numbers and to minimise the risk of disclosure. Any charts or tables impacted by this restricted data are denoted with a dash (-). An asterisk (*) is applied to indicate a denominator of zero and to distinguish between this and a 0% performance.

Any commentary provided by NHS Health Boards relating to the impacted indicators will, however, be included as a record of continuous improvement.

Please note actions have been categorised into the following groupings for internal management purposes to allow regional trends to be identified, and co-ordinated regional action across multiple tumour groups where appropriate; MDT, Pathology, Radiology, Other diagnostic, Treatment Decision, Time to Treatment, Surgery, Oncology, Resource, Workforce, Capacity, Clinical Documentation and Data Capture.

Summary of QPI Results

Colour Key		Symbol Key	
	Above QPI target	†	Analysed by Board/hospital of surgery
	Below QPI target	^	Small numbers in some Boards - percentage comparisons over a single year should be viewed with caution

Summary of the QPI results for clinical audit data. A dash (-) denotes restricted data where the denominator is less than 5. An asterisk (*) denotes data where the denominator is zero.

Testicular MCN					
Year	**AA**	**FV**	**GGC**	**LAN**	**WoSCAN**
2019 - 20	5	6	44	16	**71**
2018 - 19	8	12	46	13	**79**
2017 - 18	12	11	46	17	**86**

Quality Performance Indicator (QPI)	Performance by NHS Board of diagnosis						
	QPI target	Year	AA	FV	GGC	LAN	WoSCAN
QPI 1: Radiological Staging - Patients with testicular cancer should be evaluated with appropriate imaging to detect the extent of disease and guide treatment decision making.	**95%**	2019 - 20	80.0%	66.7%	84.2%	93.3%	84.4%
		2018 - 19	85.7%	72.7%	85.0%	100.0%	85.5%
		2017 - 18	83.3%	63.6%	86.4%	88.2%	83.3%
QPI 2: Pre-operative Assessment - Patients with testicular cancer should have pre-operative assessment of the testicle and Serum Tumour Markers (STMs).	**95%**	2019 - 20	100.0%	100.0%	94.7%	93.3%	95.3%
		2018 - 19	100.0%	54.5%	95.0%	100.0%	89.9%
		2017 - 18	100.0%	100.0%	100.0%	94.1%	98.8%
QPI 3: Primary Orchidectomy - Patients with testicular cancer should have primary orchidectomy within 3 weeks of ultrasonographic diagnosis**.**	**95%**	2019 - 20	100.0%	16.7%	66.7%	71.4%	65.6%
		2018 - 19	71.4%	81.8%	77.3%	90.9%	79.5%
		2017 - 18	75.0%	72.7%	78.7%	100.0%	81.6%
QPI 4: Multi-Disciplinary Team Meeting - 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.	**95%**	2019 - 20	100.0%	100.0%	95.2%	93.8%	95.7%
		2018 - 19	87.5%	100.0%	90.9%	100.0%	93.3%
		2017 - 18	100.0%	100.0%	95.7%	100.0%	97.7%

Quality Performance Indicator (QPI)	Performance by NHS Board of diagnosis						
	QPI target	Year	AA	FV	GGC	LAN	WoSCAN
QPI 6: Quality of Adjuvant Treatment - Patients with stage I seminoma receiving adjuvant single dose carboplatin should have an AUC of 7mg/ml/min based on ethylene diamine tetra-acetic acid (EDTA) clearance.	**95%**	2019 - 20	100.0%	50.0%	87.5%	100.0%	84.6%
		2018 - 19	-	100.0%	92.9%	80.0%	90.5%
		2017 - 18	87.5%	71.4%	89.5%	80.0%	84.6%
QPI 8: Systemic Therapy - 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.	**95%**	2019 - 20	-	100.0%	33.3%	50.0%	40.0%
		2018 - 19	50.0%	-	70.0%	100.0%	70.0%
		2017 - 18	-	100.0%	81.8%	100.0%	85.7%
QPI 9: Imaging for Surveillance Patients - Patients with stage I testicular non-seminomatous (or mixed) germ cell tumour (NSGCT) under surveillance should undergo CT or MRI scanning of the abdomen (+/- imaging of the chest and pelvis), as per clinical relevance.	**85%**	2019 - 20	-	100.0%	75.0%	0.0%	75.0%
		2018 - 19	-	100.0%	100.0%	100.0%	100.0%
		2017 - 18	100.0%	-	100.0%	-	100.0%
QPI 10: 30 Day Mortality (Orchidectomy) - 30 day mortality following treatment for testicular cancer.	**<5%**	2019 - 20	0.0%	0.0%	0.0%	0.0%	0.0%
		2018 - 19	0.0%	0.0%	0.0%	0.0%	0.0%
		2017 - 18	0.0%	0.0%	0.0%	0.0%	0.0%
QPI 10: 30 Day Mortality (Radiotherapy) - 30 day mortality following treatment for testicular cancer.	**<5%**	2019 - 20	-	-	-	0.0%	0.0%
		2018 - 19	0.0%	0.0%	0.0%	0.0%	0.0%
		2017 - 18	-	-	-	-	-
Clinical Trials 2018: Proportion of patients diagnosed with testicular cancer who are consented for a clinical trial / research study.	**15%**	2019 - 20	0.0%	0.0%	0.0%	5.8%	1.1%
		2018 - 19	0.0%	0.0%	4.4%	0.0%	4.4%
		2017 - 18					

Conclusions and Action Required

Overall WoS results from the sixth year of Testicular Cancer QPI analysis demonstrates that NHS Boards have found some QPI targets challenging to meet. Some variance in performance does exist across the region and, as per the agreed Regional governance process, each NHS Board was asked to complete a Performance Summary Report, providing a documented response where performance was below the QPI target. NHS Boards provided detailed comments indicating valid clinical reasons, or in some cases patient choice or co-morbidities, have influenced patient management. Remaining actions are summarised below and outlined in the main report under the relevant section.

The MCN will actively take forward regional actions identified and NHS Boards are asked to develop local Action/Improvement Plans in response to the findings presented in the report. A summary of actions for each NHS Board has been included within the Action Plan templates in Appendix 3.

Action required:

QPI 3 – Primary Orchidectomy

- NHS FV to review current pathway to ensure cases are flagged to on call urology clinician at an earlier stage to minimise delays between ultrasound and urology referral. Additionally NHS FV to reiterate to primary care that cases where there is a clinical suspicion of testis cancer should be referred urgently without ultrasound.

- NHS GGC to ensure the Clyde sector moves to having orchidectomies performed as emergency procedures by the on-call team, in line with the current process in Glasgow, to minimise surgical delays.

QPI 8 – Systemic Therapy

- MCN to propose change at Formal Review to exclude metastatic patients undergoing emergency primary chemotherapy from the measurement of this QPI.

Completed Action Plans should be returned to WoSCAN within two months of publication of this report.

Progress against these plans will be monitored by the MCN Advisory Board and any service or clinical issue which the Advisory Board considers not to have been adequately addressed will be escalated to the NHS Board Territorial Lead Cancer Clinician and Regional Lead Cancer Clinician.

Additionally, progress will be reported annually to the Regional Cancer Advisory Group (RCAG) by NHS Board Territorial Lead Cancer Clinicians and MCN Clinical Leads, and nationally on a three-yearly basis to Healthcare Improvement Scotland as part of the governance processes set out in CEL 06 (2012).

1. Introduction

This report contains an assessment of the performance of West of Scotland (WoS) urological cancer services using clinical audit data relating to patients diagnosed with testicular cancer in the twelve months between 01 October 2019 and 30 September 2020. These audit data underpin much of the regional development/service improvement work of the Managed Clinical Network (MCN) and regular reporting of activity and performance is a fundamental requirement of an MCN to assure the quality of care delivered across the region.

Twelve months of data were measured against the Testicular Cancer Quality Performance Indicators[1] (QPIs) for the sixth consecutive year following the initial Healthcare Improvement Scotland (HIS) publication of the QPIs in 2014. The three most recent years of results are presented within this audit report for QPIs where results have remained comparable.

In order to ensure the success of the Cancer QPIs in driving quality improvement in cancer care, QPIs will continue to be assessed for clinical effectiveness and relevance. The initial formal review of Testicular Cancer QPIs took place in 2018. With six years of reporting now complete, a second cycle of formal review will commence in April 2022. This clinically led review aims to identify potential refinements to the current QPIs and involves key clinicians from each of the Regional Cancer Networks.

2. Background

Four NHS Boards across the WoS serve the 2.5 million population[5]. The configuration of the Multidisciplinary Teams (MDTs) in the region is set out below and each MDT convenes on a weekly basis.

MDT	Constituent Hospitals
Ayrshire & Arran	Ayr Hospital, Crosshouse Hospital
Pan Glasgow	(i) Glasgow Royal Infirmary, Stobhill Hospital (ii) Gartnavel General Hospital, Queen Elizabeth University Hospital, Victoria Infirmary
Clyde	Inverclyde Royal Hospital, Royal Alexandra Hospital, Vale of Leven District General
Forth Valley	Forth Valley Royal Hospital
Lanarkshire	Hairmyres Hospital, Monklands Hospital, Wishaw Hospital

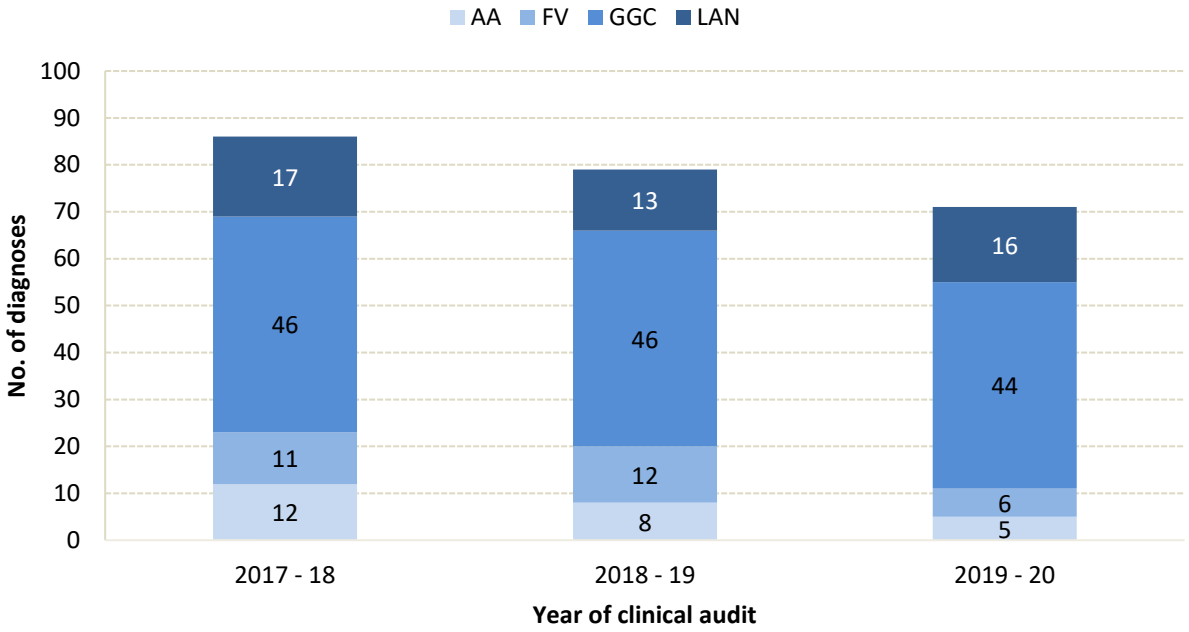
2.1 National Context

Testicular cancer is the 16th most common cancer in males with 210 cases diagnosed in Scotland in 2018[3]. The incidence of testicular cancer decreased by 3.0% in the ten years from 2008 to 2018[3]. Relative survival for testicular cancer is increasing[4] and testicular cancer has the highest survival rates compared to any other cancer type with a 1-year relative survival of 99.4% and a 5-year relative survival of 98.7%[3] (2007-2011). Survival rates are age-standardised to allow fair comparison over time. Major advances in surgical, chemotherapy and radiotherapy treatments for testicular cancer have contributed to the high survival rates observed[4,6].

2.2 West of Scotland Context

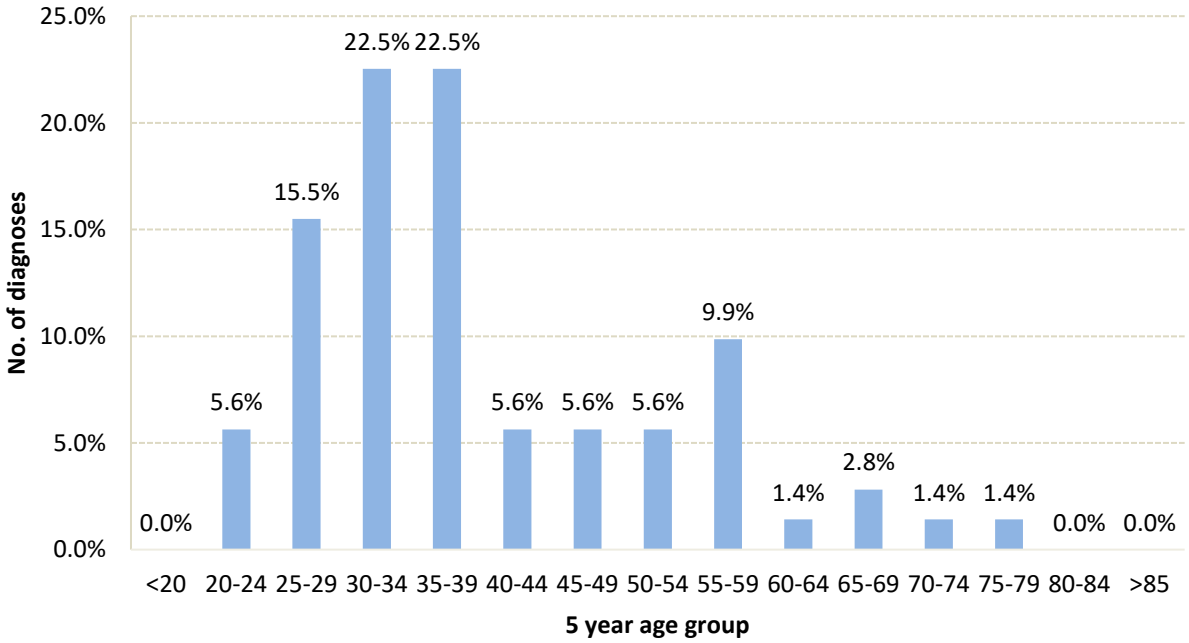
A total of 71 cases of testicular cancer were recorded through audit as diagnosed in the WoS between 01 October 2019 and 30 September 2020. The number and percentage of patients diagnosed within each NHS Board is presented in Figure 1. As the largest WoS Board[5], 62.0% of all new cases of testicular cancer were diagnosed in NHS Greater Glasgow and Clyde (NHSGGC).

Fig 1: Number of patients diagnosed with testicular cancer within each WoS NHS Board, from 2017/18 – 2019/20.



The majority of men diagnosed with testicular cancer are in the younger age groups with more than half of all new diagnoses occurring in males under 40 years old. Figure 2 illustrates the distribution of the number of new diagnoses within each 5-year age group for the WoS.

Fig 2: Number of patients diagnosed with testicular cancer in WoS within each 5-year age group from 01 October 2019 to 30 September 2020.



3. Methodology

Further detail on the audit and analysis methodology and data quality is available in the meta data within appendix 1.

4. Results and Action Required

Results of the analysis of Testicular Cancer QPIs are set out in the following sections. Data are presented by location of diagnosis or treatment, and illustrate NHS Board performance against each target and overall regional performance for each performance indicator.

Results are presented graphically and the accompanying tables also highlight any missing data and its possible effect on any of the measured outcomes for the current year of analysis. Where the number of cases meeting the denominator criteria for any indicator is between one and four, the percentage calculation has not been shown on any associated charts or tables. This is to avoid any unwarranted variation associated with small numbers and to minimise the risk of disclosure. Any charts or tables impacted by this restricted data are denoted with a dash (-). An asterisk (*) is used to specify a denominator of zero and to distinguish between this and a 0% performance. Any commentary provided by NHS Boards relating to the impacted indicators will however be included as a record of continuous improvement.

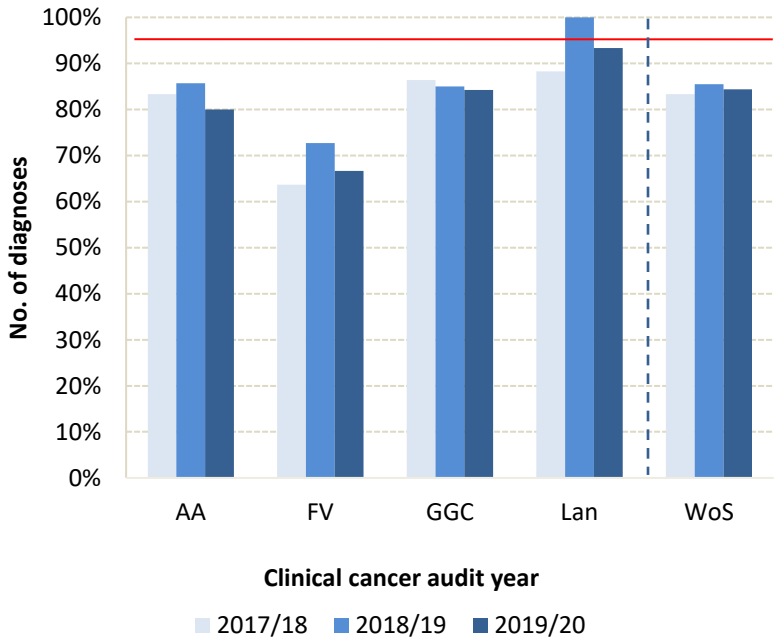
Specific regional and NHS Board actions have been identified to address issues highlighted through the data analysis.

QPI 1: Radiological Staging

Patients with testicular cancer should be evaluated with appropriate imaging to detect the extent of disease and guide treatment decision making. Timely imaging is important to ensure treatment decision making can occur as soon as possible[1]. Unnecessary delays can have an impact on prognostic groups and hence survival rates. Computed Tomography (CT) scanning is an essential part of the staging of all germ cell tumours[1].

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.
Numerator:	Number of patients with testicular cancer undergoing CT scanning of the chest, abdomen and pelvis (CT CAP) within 3 weeks of orchidectomy.
Denominator:	All patients with testicular cancer.
Exclusions:	• Patients undergoing chemotherapy prior to orchidectomy.
Target:	**95%**

Fig 4: The proportion of patients with testicular cancer who undergo CT scanning of the chest, abdomen and pelvis within three weeks of orchidectomy, from 2017/18 – 2019/20.



		2017/18	2018/19	2019/20
AA	N	10	6	4
	D	12	7	5
	%	83.3%	85.7%	80.0%
FV	N	7	8	4
	D	11	11	6
	%	63.6%	72.7%	66.7%
GGC	N	38	34	32
	D	44	40	38
	%	86.4%	85.0%	84.2%
Lan	N	15	11	14
	D	17	11	15
	%	88.2%	100.0%	93.3%
WoS	N	70	59	54
	D	84	69	64
	%	83.3%	85.5%	84.4%

(-) Data is not shown; denominator less than 5.
(*) denotes a zero.

All Boards failed to meet the 95% target. Performances ranged from 66.7% in NHS Forth Valley to 93.3% in NHS Lanarkshire. The overall performance for the WoS was 84.4%.

NHS Forth Valley, NHS Greater Glasgow and Clyde and NHS Lanarkshire have reviewed cases not meeting the target and provided detailed clinical feedback. The majority of cases not meeting the target did receive a CT scan, but this took place out with the specified 3 week window. A small number of the CT delays were attributable to the COVID-19 pandemic.

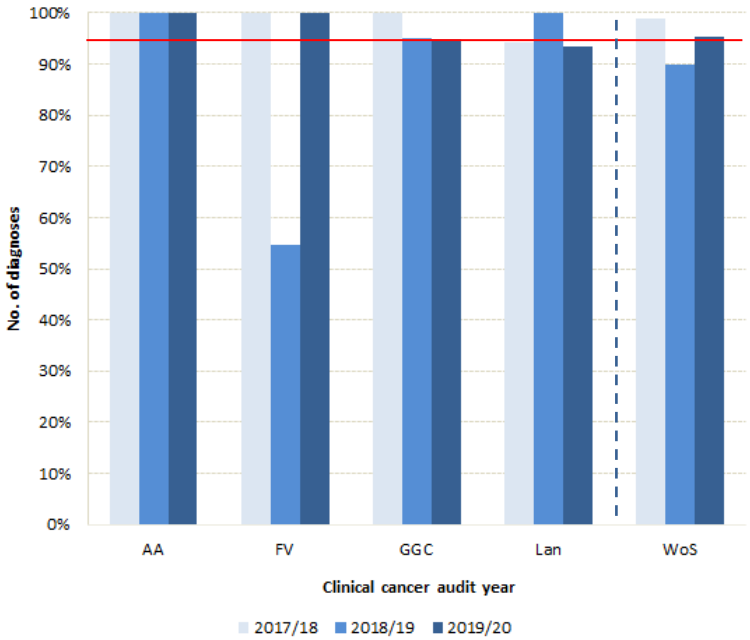
QPI 2: Pre-operative Assessment

Patients with testicular cancer should have pre-operative assessment of the testicle and Serum Tumour Markers (STMs). In most instances, the diagnosis of testicular tumours is established with a carefully performed physical examination and scrotal ultrasound[1]. When conducting preoperative assessments, evidence has demonstrated the importance of investigating STM concentrations and conducting a testicular ultrasound. Serum determination of tumour markers before and after orchidectomy allow for staging and prognosis to be determined[1].

Description:	Proportion of patients with testicular cancer who undergo preoperative assessment of the testicle which, at a minimum, includes: (i) STMs*, and (ii) testicular ultrasound.
Numerator:	Number of patients with testicular cancer undergoing orchidectomy, who undergo a preoperative assessment of the testicle which, at a minimum, includes: (i) STMs*, and (ii) testicular ultrasound.
Denominator:	All patients with testicular cancer undergoing orchidectomy.
Exclusions:	• Patients who refuse to undergo assessment. • Patients undergoing chemotherapy prior to orchidectomy.
Target:	95%

* AFP – Alpha-fetoprotein, HCG – Human chorionic gonadotropin, LDH – Lactate dehydrogenase

Fig 5: The proportion of patients with testicular cancer who underwent preoperative assessment of the testicle (STMs and testicular ultrasound), from 2017/18 – 2019/20.



		2017/18	2018/19	2019/20
AA	N	12	7	5
	D	12	7	5
	%	100.0%	100.0%	100.0%
FV	N	11	6	6
	D	11	11	6
	%	100.0%	54.5%	100.0%
GGC	N	44	38	36
	D	44	40	38
	%	100.0%	95.0%	94.7%
Lan	N	16	11	14
	D	17	11	15
	%	94.1%	100.0%	93.3%
WoS	N	83	62	61
	D	84	69	64
	%	98.8%	89.9%	95.3%

(-) Data is not shown; denominator less than 5.
(*) denotes a zero.

Overall in the WoS 95.3% of patients with testicular cancer underwent preoperative assessment of the testicle which meets the 95% target. NHS Ayrshire and Arran and NHS Forth Valley both achieved 100%.

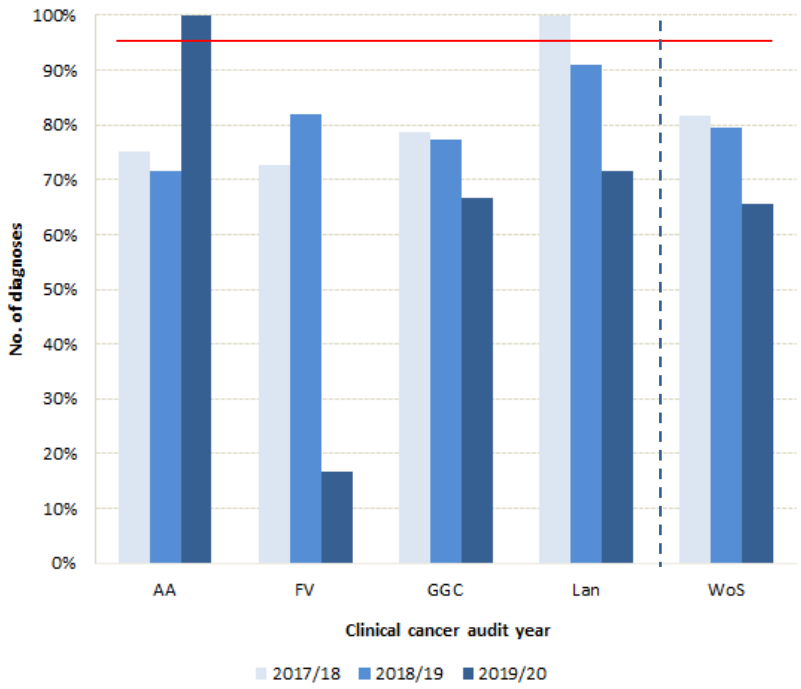
NHS Lanarkshire were just short of the target with 93.3%, which represented one patient not meeting. The Board reviewed the case not meeting the target and no specific improvements were noted. Patients will continue to be reviewed on a case by case basis.

QPI 3: Primary Orchidectomy

Orchidectomy is the primary therapeutic intervention for patients who have early-stage testicular cancer. The overall aim of primary orchidectomy is to remove the tumour and minimise local recurrence and abnormal lymphatic spread[1]. 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[1].

Description:	Proportion of patients with testicular cancer who undergo primary orchidectomy within 3 weeks of ultrasonographic diagnosis.
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%

Fig 6: The proportion of patients with testicular cancer who undergo primary orchidectomy within 3 weeks of ultrasonographic diagnosis.from 2017/18 – 2019/20.



		2017/18	2018/19	2019/20
AA	N	9	5	5
	D	12	7	5
	%	75.0%	71.4%	100.0%
FV	N	8	9	1
	D	11	11	6
	%	72.7%	81.8%	16.7%
GGC	N	37	34	26
	D	47	44	39
	%	78.7%	77.3%	66.7%
Lan	N	17	10	10
	D	17	11	14
	%	100.0%	90.9%	71.4%
WoS	N	71	58	42
	D	87	73	64
	%	81.6%	79.5%	65.6%

(-) Data is not shown; denominator less than 5.
(*) denotes a zero.

The 95% target for QPI 3 was not achieved. In the WoS 65.6% of patients with testicular cancer underwent primary orchidectomy within 3 weeks of ultrasonographic diagnosis. Only NHS Ayrshire & Arran met the target. It should be noted that the number of patients included within the denominator is low and can have a considerable effect on overall proportions; therefore comparisons between NHS Boards should be viewed with caution.

Boards reviewed cases not meeting the target. Reasons provided included a number of cases that were just outside the three week window and cases where it was the patients' choice to delay surgery. The routine practice of GPs referring for ultrasound in NHS Forth Valley resulted in delays in patients being seen in urology.

Action Required

- NHS FV to review current pathway to ensure cases are flagged to on call urology clinician at an earlier stage to minimise delays between ultrasound and urology referral. Additionally NHS FV to reiterate to primary care that cases where there is a clinical suspicion of testis cancer should be referred urgently without ultrasound.

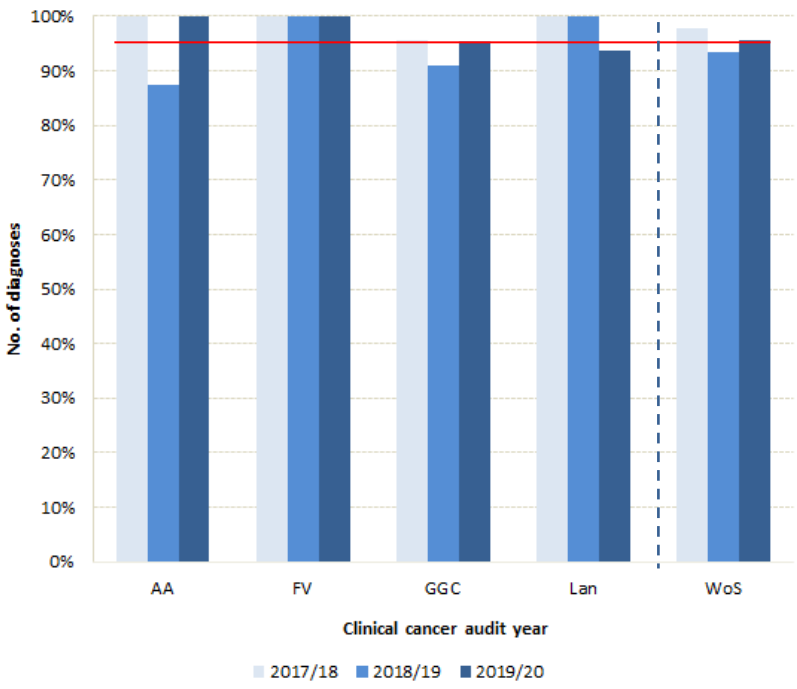
- NHS GGC to ensure the Clyde sector moves to having orchidectomies performed as emergency procedures by the on-call team, in line with the current process in Glasgow, to minimise surgical delays.

QPI 4: Multidisciplinary Team Meeting (MDT)

Patients with testicular cancer should be discussed by a multidisciplinary team to agree a definitive management plan post orchidectomy with staging and pathology. Orchidectomy can be used as a diagnostic tool as well as definitive treatment for patients with testicular cancer[1]. 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[1].

Description:	Proportion of patients with testicular cancer who are discussed at an MDT meeting to agree a definitive management plan post orchidectomy.
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:	None.
Target:	95%

Fig 7: The proportion of patients with testicular cancer who were discussed at an MDT meeting to agree a definitive management plan post orchidectomy, from 2016/17 – 2019/20.



		2017/18	2018/19	2019/20
AA	N	12	7	5
	D	12	8	5
	%	100.0%	87.5%	100.0%
FV	N	11	11	6
	D	11	11	6
	%	100.0%	100.0%	100.0%
GGC	N	44	40	40
	D	46	44	42
	%	95.7%	90.9%	95.2%
Lan	N	17	12	15
	D	17	12	16
	%	100.0%	100.0%	93.8%
WoS	N	84	70	66
	D	86	75	69
	%	97.7%	93.3%	95.7%

(-) Data is not shown; denominator less than 5.
(*) denotes a zero.

Of the 69 testicular cancer patient undergoing orchidectomy 66 were discussed at the MDT post orchidectomy and a definitive management plan agreed. This equates to 95.7% against the 95% QPI target with only NHS Lanarkshire just missing the target, however this represents one patient not meeting.

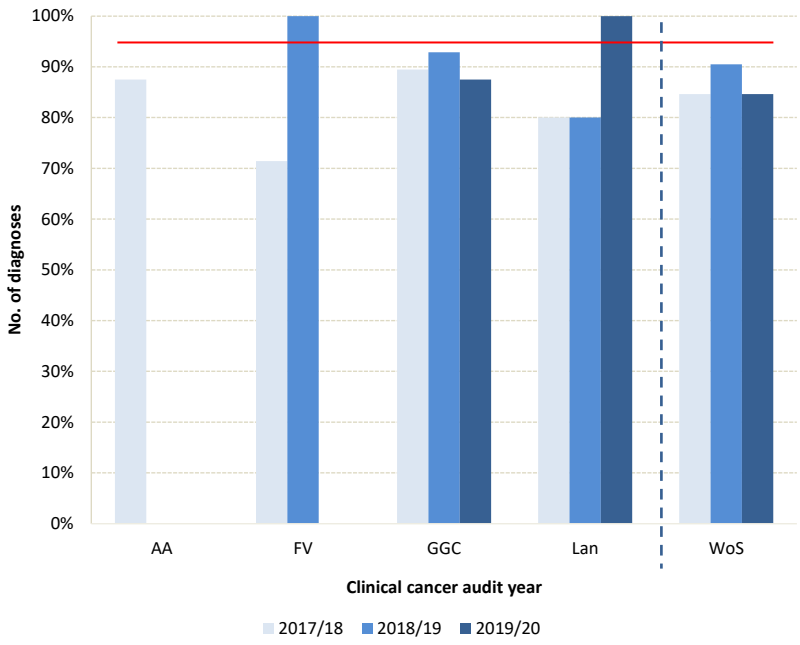
NHS Lanarkshire have reviewed the case not meeting the target and no specific improvements were noted. The Board noted that the patient was treated with appropriate management in view of presentation.

QPI 6: Adjuvant treatment of stage I seminoma with carboplatin

Patients with stage I seminoma receiving adjuvant single dose carboplatin should have an AUC (Area under the Curve) of 7mg/ml/min based on ethylene diamine tetra-acetic acid (EDTA) clearance[1]. Evidence has shown that the administration of carboplatin can prevent metastatic relapse and contralateral cancer in patients with testicular cancer[1].

Description:	Proportion of patients with stage I seminoma receiving adjuvant single dose carboplatin AUC of 7mg/ml/min (AUC7), based on EDTA clearance within 8 weeks of orchidectomy.
Numerator:	Number of patients with stage I seminoma receiving adjuvant single dose carboplatin AUC7, based on EDTA 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%

Fig 8: The proportion of patients with stage I seminoma receiving adjuvant single dose carboplatin AUC7 based on EDTA clearance, within 8 weeks of orchidectomy from 2017/18 – 2019/20.



		2017/18	2018/19	2019/20
AA	N	7	0	-
	D	8	0	-
	%	87.5%	na	-
FV	N	5	2	-
	D	7	2	-
	%	71.4%	100.0%	-
GGC	N	17	13	14
	D	19	14	16
	%	89.5%	92.9%	87.5%
Lan	N	4	4	5
	D	5	5	5
	%	80.0%	80.0%	100.0%
WoS	N	33	19	22
	D	39	21	26
	%	84.6%	90.5%	84.6%

(-) Data is not shown; denominator less than 5.
(*) denotes a zero.

(-) Indicates a denominator of less than five. **(*)** Indicates a denominator of zero.

It should be noted that the number of patients included within the denominator is low and can have a considerable effect on overall performance percentages; therefore comparisons between NHS Boards should be viewed with caution. Comparison across years should also be made with caution.

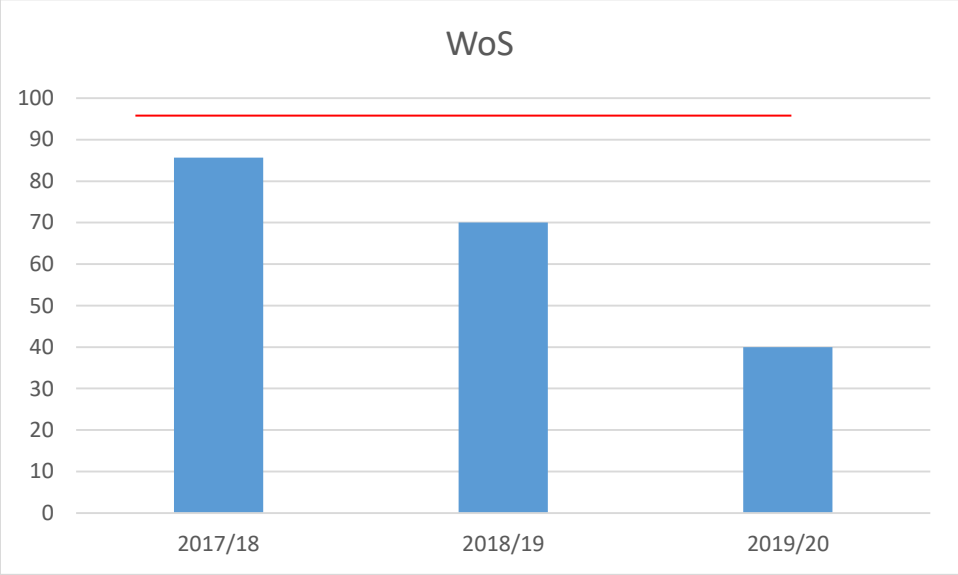
NHS Ayrshire and Arran and NHS Forth Valley performance is not shown due to small numbers. NHSGGC and NHS Forth Valley did not meet the QPI target. In both Boards, the QPI target was not met on account of 2 cases. Both Boards reviewed cases and detailed clinical reasons were provided.

QPI 8: Systemic Therapy

Patients with metastatic testicular cancer who are undergoing systemic therapy should receive Systemic Anti-Cancer Therapy (SACT) within 3 weeks of an MDT decision to treat with SACT. Evidence has demonstrated that delays in diagnosis and treatment can have a negative impact on the survival rates of patients[1]. In certain types of testicular cancer this can have a bigger impact on prognosis and survival[1].

Description:	Proportion of patients with metastatic testicular cancer who undergo SACT within 3 weeks of an MDT decision to treat with SACT.
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%

Fig 9: The proportion of patients with metastatic testicular cancer who undergo SACT within 3 weeks of an MDT decision to treat with SACT, from 2017/18 – 2019/20.



Due to the small numbers meeting the denominator criteria for QPI 8 individual Board results cannot be presented. West of Scotland performance against this QPI was 40% (8 out of 20 cases) of patients with metastatic testicular cancer undergoing SACT within 3 weeks of an MDT decision to treat with SACT. NHSGGC and NHS Lanarkshire did not meet the target. Both Boards reviewed cases not meeting the target and detailed feedback was provided. It was noted that many patients present with advanced disease and therefore need to commence chemotherapy before MDT. In respect of patients presenting with metastatic disease who require primary chemotherapy, there is no clinical benefit to MDT discussion whilst chemotherapy is ongoing.

Action Required

- MCN to propose change at Formal Review to exclude metastatic patients undergoing emergency primary chemotherapy from the measurement of this QPI.

QPI 9: Computed Tomography Scanning for Surveillance Patients

Patients with stage I testicular non-seminomatous (or mixed) germ cell tumour (NSGCT) under surveillance should undergo Computed Tomography (CT) scanning of the abdomen +/- chest and pelvis, as per clinical relevance. There are several ways to manage patients with stage I NSGCT: active surveillance is a standard approach to take[1]. Evidence has shown that the results from surveillance are as favourable as those who undertake adjuvant therapy[1].

Description:	Proportion of patients with stage I testicular NSGCT (or mixed) under surveillance who undergo at least three CT scans of the abdomen +/- chest and pelvis within 14 months of diagnosis.
Numerator:	Number of patients with stage I testicular NSGCT (or mixed) under surveillance who undergo at least three CT scans of the abdomen +/- chest and pelvis within 14 months of diagnosis.
Denominator:	All patients with stage I testicular non-seminomatous (or mixed) germ cell tumour.
Exclusions:	• Patients who have received adjuvant chemotherapy. • Patients who are treated within a clinical trial.
Target:	85%

In order to ensure that a full 14-month period had elapsed, enabling accurate measurement, this QPI is reported one year in arrears.

Only a very small number of patients were included within the measurement of this QPI and therefore individual Board results cannot be presented at this time. At regional level, data shows that 75% (6 out of 8) of patients with stage I testicular NSGCT (or mixed) under surveillance underwent at least three CT scans of the abdomen +/- chest and pelvis within 14 months of diagnosis.

QPI 10: 30-Day Mortality

Treatment-related mortality is a marker of the quality and safety of the whole service provided by the multidisciplinary team (MDT)[1]. Outcomes of treatment, including treatment-related morbidity and mortality, should be regularly assessed. Treatment should only be undertaken in individuals that may benefit from that treatment, that is, treatments should not be undertaken in futile situations[1]. This QPI is intended to ensure treatment is given appropriately, and the outcome reported on and reviewed.

Description:	Proportion of patients with testicular cancer who die within 30 days of treatment for testicular cancer.
Numerator:	Number of patients with testicular cancer who receive treatment who die within 30 days of treatment.
Denominator:	All patients with testicular cancer undergoing treatment: (i) Orchidectomy (ii) Chemotherapy (iii) Radiotherapy
Exclusions:	None.
Target:	<5%

There was no mortality within 30 days of treatment for testicular cancer in the WoS. All Boards have met the target for this QPI. Between 1st October 2019 and 30th September 2020, 69 patients underwent orchidectomy and 54 patients received chemotherapy as treatment for testicular cancer in the WoS.

QPI 11: Clinical Trial and Research Study Access

Clinical trials are necessary to demonstrate the efficacy of new therapies and other interventions. Evidence suggests improved patient outcomes from participation in clinical trials[1]. Clinicians are therefore encouraged to enter patients into well-designed trials and to collect longer-term follow-up data. High accrual activity into clinical trials is used as a goal of an exemplary clinical research site[1].

The clinical trials QPI is measured utilising Scottish Cancer Research Network (SCRN) data and ISD incidence data, as is the methodology currently utilised by the Chief Scientist Office (CSO) and the National Cancer Research Institute (NCRI). The principal benefit of this approach is that this data is already collected utilising a robust mechanism[1].

Description:	Proportion of patients with testicular cancer who are consented for a clinical trial/research study.
Numerator:	Number of patients with testicular cancer consented for inclusion in a clinical trial/research study.
Denominator:	All patients with testicular cancer.
Exclusions:	None.
Target:	15%

Table 1: The proportion of patients consented for clinical trials with testicular cancer, by NHS Board of residence in 2019.

NHS Board of Residence	Consented - QPI Target 15%								
	2017			2018			2019		
	N	D	%	N	D	%	N	D	%
Ayrshire & Arran	0	16	0.0%	0	16	0.0%	-	15	0.0%
Forth Valley	1	10	10.0%	0	10	0.0%	-	11	0.0%
GGC	2	51	3.9%	2	46	4.3%	-	49	0.0%
Lanarkshire	3	18	16.7%	0	18	0.0%	1	17	5.8%
WoS	6	95	6.3%	2	90	2.2%	1	92	1.1%

The denominator represents the 5 year average of ISD incidence data for testicular cancer between 2013 and 2017.

No Boards met the 15% target in 2019. The overall performance for the WoS was 1.1%.

The only active testicular cancer clinical trial in 2019 was the UK P3BEP Trial

5. Next Steps

The MCN will actively take forward regional actions identified and NHS Boards are asked to develop local Action/Improvement Plans in response to the findings presented in the report. A summary of actions for each NHS Board has been included within the Action Plan templates in Appendix I.

Acknowledgements

This report has been prepared using clinical audit data provided by the following NHS Boards in the WoSCAN area:

NHS Ayrshire & Arran
NHS Forth Valley
NHS Greater Glasgow and Clyde
NHS Lanarkshire

We would like to thank all members and active participants in the cancer network for their continued support of the MCN, and the many hospitals that are committed to making the audit succeed. We also acknowledge the efforts of the clinical effectiveness staff, nurses, and other service users for their work in ensuring the data are available to enable analysis to take place each year. Without their considerable efforts this level of progress would not be possible.

Abbreviations

AA	NHS Ayrshire & Arran
ACaDMe	Acute Cancer Deaths and Mental Health
AFP	Alpha-fetoprotein
AUC	Area Under the Curve
CNS	Clinical Nurse Specialist
CT	Computed tomography
eCASE	Electronic Cancer Audit Support Environment
EDTA	Ethylene diamine tetra-acetic acid
FV	NHS Forth Valley
GGC	NHS Greater Glasgow and Clyde
HCG	Human chorionic gonadotropin
HIS	Healthcare Improvement Scotland
ISD	Information Services Division
LAN	NHS Lanarkshire
LDH	Lactate dehydrogenase
MCN	Managed Clinical Network
MDT(s)	Multidisciplinary Team(s)
NCQSG	National Cancer Quality Steering Group
NHSGGC	NHS Greater Glasgow and Clyde
NSGCT	Non-seminomatous germ cell tumour
QPI(s)	Quality Performance Indicator(s)
RCAG	Regional Cancer Advisory Group
SACT	Systemic Anti-Cancer Therapy
STM(s)	Serum Tumour Marker(s)
TNM	Tumour, Nodes, Metastases (staging system)
WoS	West of Scotland
WoSCAN	West of Scotland Cancer Network

References

1. Healthcare Improvement Scotland. Testicular Cancer Quality Performance Indicators, v3.0; October 2014 (updated September 2018). [Accessed on: 1st June 2021]. Available at: http://www.healthcareimprovementscotland.org/our_work/cancer_care_improvement/programme_resources/cancer_qpis.aspx

2. Information Services Division. National Data Definitions for the Minimum Core Data Set for Testicular Cancer v3.3; September 2019. [Accessed on: 1st June 2021]. Available at: https://www.isdscotland.org/Health-Topics/Cancer/Cancer-Audit/docs/Testicular/Testicular-Cancer-QPI-Dataset-v3-1-FINAL.pdf

3. Information Services Division, Cancer Statistics, Summary Statistics for Male Genital Organ Cancers. [Accessed on: 1st June 2021]. Available at: http://www.isdscotland.org/Health-Topics/Cancer/Cancer-Statistics/Male-Genital-Organs/

4. Information Services Division, NHS National Services Scotland. Cancer in Scotland - Trends in Cancer Survival in Scotland, 1983-2007; June 2004 (updated April 2019). [Accessed on: 1st June 2021]. Available at: http://www.isdscotland.org/Health-Topics/Cancer/Cancer-Statistics/

5. ScotPHO, Public Health Information for Scotland. Mid 2018 Population Estimates Scotland. [Accessed on: 1st June 2021]. Available at: https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/population/population-estimates/mid-year-population-estimates/mid-2018

6. The American Cancer Society. Testicular Cancer. How is Testicular Cancer Treated? January 2018. [Accessed on: 1st June 2021]. Available at: http://www.cancer.org/cancer/testicularcancer/detailedguide/testicular-cancer-treating-general-treatment-info

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Appendix 1: Meta Data

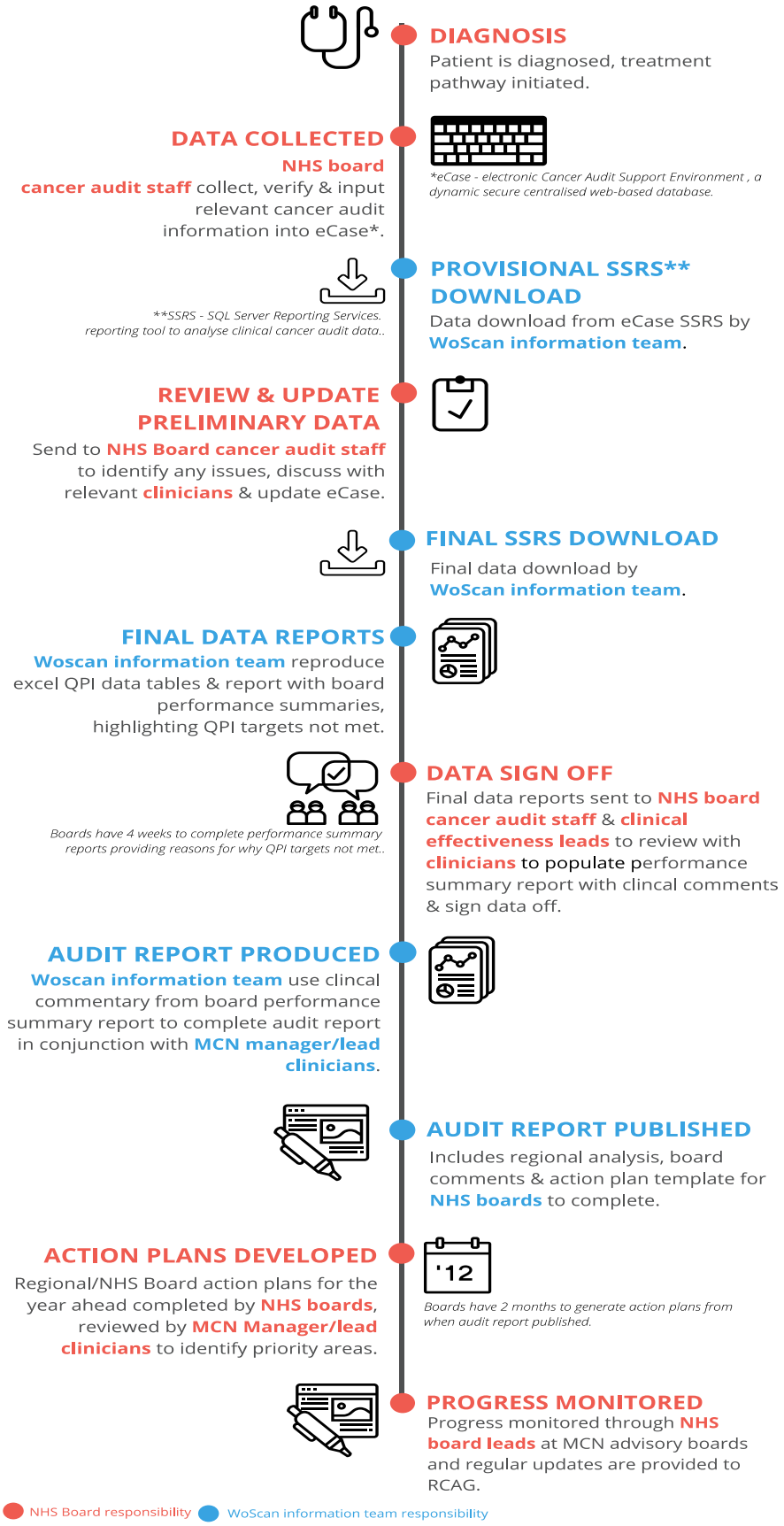
<table>
<tr><td>Report Title</td><td>Cancer Audit Report: Testicular Cancer Quality Performance Indicators</td></tr>
<tr><td>Time Period</td><td>Patients diagnosed between 01 October 2019 to 30 September 2020</td></tr>
<tr><td>Data Source</td><td>Cancer Audit Support Environment (eCASE). A secure centralised web-based database which holds cancer audit information in Scotland.</td></tr>
<tr><td>Data extraction date</td><td>2200 hrs on 14 April 2021</td></tr>
<tr><td>Methodology</td><td>Analysis was performed centrally for the region by the WoSCAN Information Team. The timescales agreed took into account the patient pathway to ensure that a complete treatment record was available for the majority of patients.

Initial results were provided to Boards to check for inaccuracies, inconsistencies or obvious gaps and a subsequent download taken upon which final analysis was carried out.

The final data analysis was disseminated for NHS Board verification in line with the regional audit governance process to ensure that the data was an accurate representation of service in each area. Please see info graphic in appendix 2 for a more detailed look at the reporting process.</td></tr>
<tr><td>Data Quality</td><td>Audit data completeness can be assessed by estimating the proportion of expected patients that have been identified through audit compared to the number reported by the National Cancer registry (provided by ISD, National Services Division), this is known as case ascertainment. Figures should only be used as a guide as it is not possible to compare the same exact cohort from each data source. Note that a 5 year average is taken for cancer registry cases to take account of annual fluctuations in incidence within NHS Boards.

<table>
<tr><th></th><th>Ayrshire & Arran</th><th>Forth Valley</th><th>GGC</th><th>Lanarkshire</th><th>WoS</th></tr>
<tr><td>Cases from audit</td><td>5</td><td>6</td><td>44</td><td>16</td><td>71</td></tr>
<tr><td>Cases from ISD (2014-2018)*</td><td>15</td><td>11</td><td>49</td><td>17</td><td>92</td></tr>
<tr><td>Case ascertainment</td><td>34.2%</td><td>53.6%</td><td>90.5%</td><td>93.0%</td><td>77.5%</td></tr>
</table>
</td></tr>
</table>

Appendix 2: Cancer Audit Timeline



Appendix 3: NHS Board Action Plans

A summary of actions for each NHS Board has been included within the following Action Plan templates. Completed Action Plans should be returned to WoSCAN within two months of publication of this report.

Testicular Cancer QPI Action / Improvement Plan

Area:	MCN
Action Plan Lead:	
Date:	

KEY (Status)	
1	**Action fully implemented**
2	**Action agreed but not yet implemented**
3	**No action taken (please state reason)**

QPI No.	Action Required	Health Board Action Taken	Timescales		Lead	Progress/Action Status	Status (see Key)
			Start	End			
	Ensure actions mirror those detailed in Audit Report.	*Detail specific actions that will be taken by the NHS Board.*	*Insert date*	*Insert date*	*Insert name of responsible lead for each specific action.*	*Provide detail of action in progress, change in practices, problems encountered or reasons why no action taken.*	*Insert No. from key above*.
	QPI 8 – Systemic Therapy MCN to propose change at Formal Review to exclude metastatic patients undergoing emergency primary chemotherapy from the measurement of this QPI.						

Testicular Cancer QPI Action / Improvement Plan

Area:	NHS Forth Valley
Action Plan Lead:	
Date:	

KEY (Status)	
1	**Action fully implemented**
2	**Action agreed but not yet implemented**
3	**No action taken (please state reason)**

QPI No.	Action Required	Health Board Action Taken	Timescales		Lead	Progress/Action Status	Status (see Key)
			Start	End			
	Ensure actions mirror those detailed in Audit Report.	*Detail specific actions that will be taken by the NHS Board.*	*Insert date*	*Insert date*	*Insert name of responsible lead for each specific action.*	*Provide detail of action in progress, change in practices, problems encountered or reasons why no action taken.*	*Insert No. from key above*.
	QPI 3 – Primary Orchidectomy NHS FV to review current pathway to ensure cases are flagged to on call urology clinician at an earlier stage to minimise delays between ultrasound and urology referral. Additionally NHS FV to reiterate to primary care that cases where there is a clinical suspicion of testis cancer should be referred urgently without ultrasound.						

Testicular Cancer QPI Action / Improvement Plan

Area:	NHS Greater Glasgow and Clyde
Action Plan Lead:	
Date:	

KEY (Status)	
1	**Action fully implemented**
2	**Action agreed but not yet implemented**
3	**No action taken (please state reason)**

QPI No.	Action Required	Health Board Action Taken	Timescales		Lead	Progress/Action Status	Status (see Key)
			Start	End			
	Ensure actions mirror those detailed in Audit Report.	*Detail specific actions that will be taken by the NHS Board.*	*Insert date*	*Insert date*	*Insert name of responsible lead for each specific action.*	*Provide detail of action in progress, change in practices, problems encountered or reasons why no action taken.*	*Insert No. from key above*.
	QPI 3 – Primary Orchidectomy NHS GGC to ensure the Clyde sector moves to having orchidectomies performed as emergency procedures by the on-call team, in line with the current process in Glasgow, to minimise surgical delays.						