West of Scotland Cancer Network

Breast Cancer
Managed Clinical Network

Audit Report

Breast Cancer Quality Performance Indicators

Clinical Audit Data:
01 January 2021 to 31 December 2021

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Breast Cancer Quality Performance Indicators

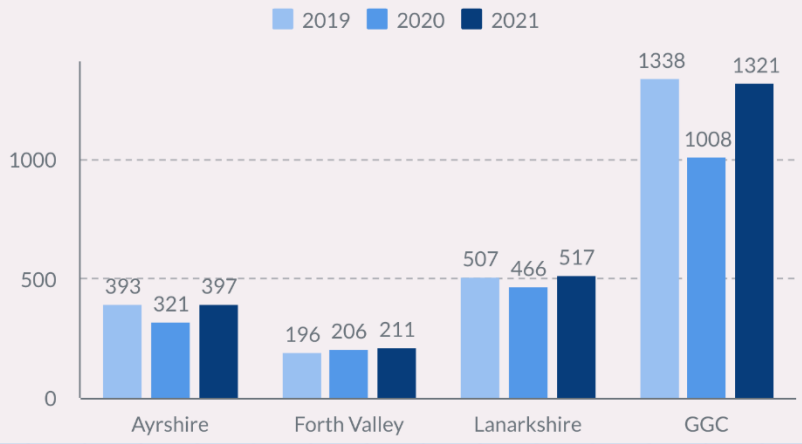
Patients Diagnosed: January 2021 - December 2021

Number Diagnosed 2021: 2446

Case Ascertainment: 100%

Median Age at Diagnosis: 63

Number Of Cases Diagnosed by NHS Board



QPI Performance

	QPI Target	WoS Result	Met/Not Met
6(i)-Immediate Reconstruction Rate	20%	14.5%	✗
10-RT For Breast Conservation	<40%	51.4%	✗
14(ii)-Genetics Referral(Triple Neg >50)	90%	100%	✓
6(ii)-Immediate Reconstruction Rate within 6 weeks	90%	80.0%	✗
11(i)-Adjuvant Chemo (hormone receptor positive HER2 negative)	80%	76.2%	✗
17-Genomic Testing	60%	35.0%	✗
8(i)-Minimising Hospital Stay - Day Case	60%	79.5%	✓
11(ii)-Adjuvant Chemotherapy (triple negative/ HER2 positive)	80%	78.9%	✗
18(i)-Neo-Adjuvant Chemotherapy	80%	78.6%	✗
8(ii)-Minimising Hospital Stay - 23 hour surgery	60%	86.0%	✓
13-Re-excision Rates	<20%	16.3%	✓
18(ii)-Neo-Adjuvant Chemotherapy (pathological complete response)	30%	37.8%	✓
9-HER2 Status for Decision Making	90%	78.5%	✗
14(i)-Genetics Referral (aged <30)	90%	100%	✓
19-DIBH Radiotherapy	80%	80.2%	✓

Key Achievements

7 of the 15 breast cancer QPI targets were met regionally in 2021. Particular areas of note include -

- Reduction in unnecessary hospital stay for patients undergoing breast surgery.
- Overall reduction in requirement for re-excision reducing the treatment burden for patients with breast cancer.
- Continued appropriate referral to the regional genetic service.
- Improvement in the use of neo-adjuvant chemotherapy where appropriate.
- Use of DIBH

Key recommendations:

- Discussions to be held with Molecular Pathology department to try and develop a strategy to improve the turnaround time HER2 FISH testing.
- Improve the recording of estimated benefit of chemotherapy using the online NHS Predict tool to ensure appropriate data collection to inform QPI 11 and 17.
- All teams should ensure patients selected for neo-adjuvant chemotherapy where appropriate.

Executive Summary

Introduction

This report contains an assessment of the performance of West of Scotland (WoS) breast cancer services using clinical audit data relating to patients diagnosed with breast cancer in the twelve months between 1st January 2021 and 31st December 2021.

Twelve months of data were measured against v4.0 of the Breast Cancer Quality Performance Indicators (QPIs) which were implemented for patients diagnosed on or after 01 January 2018. This was the tenth consecutive year of analysis following the initial Healthcare Improvement Scotland (HIS) publication of Breast Cancer QPIs in 2012[1]. Data definitions and measurability criteria to accompany the Breast Cancer QPIs are available from the PHS website[2].

Results

A summary of the Breast Cancer Quality Performance Indicators for the patients diagnosed in 2021 is presented below. Data are analysed by location of diagnosis and illustrate Board performance against each target and overall regional performance for each performance indicator.

Breast Cancer QPI Performance Summary Report

Key	
	Above Target Result
	Below Target Result
-	Denominator Below 5

QPI	Target	Year	AA	FV	Lan	NG	SG	Clyde	WG	WoS
QPI 6(i): Proportion of patients who undergo immediate breast reconstruction at the time of mastectomy for breast cancer.	**20%**	2021	11% (14/128)	8% (4/51)	17% (19/110)	15% (10/67)	18% (23/128)	15% (9/60)	-	15% (79/544)
		2020	14%	6%	12%	13%	9%	4%	-	10%
		2019	22%	22%	31%	15%	20%	26%	28%	25%
QPI 6(ii): Proportion of patients who undergo immediate breast reconstruction at the time of mastectomy for breast cancer within 6 weeks of treatment decision.	**90%**	2021	70% (7/10)	-	81% (13/16)	78% (7/9)	94% (15/16)	83% (5/6)	-	80% (48/60)
		2020	100%	-	62%	-	75%	-	-	81%
		2019	0 %	70%	87%	57%	80%	74%	81%	75%
QPI 8(i): Proportion of patients undergoing wide excision and/or an axillary sampling procedure for breast cancer as day case surgery	**60%**	2021	90% (120/133)	71% (37/52)	89% (178/201)	81% (122/151)	75% (208/278)	73% (198/270)	-	80% (863/1085)
		2020	79%	57%	88%	76%	69%	68%	-	73%
		2019	72%	64%	89%	85%	88%	67%	72%	76%
QPI 8(ii): Proportion of patients with breast cancer undergoing mastectomy (without reconstruction) with a maximum hospital stay of 1 night following their procedure.	**60%**	2021	84% (59/70)	97% (28/29)	95% (69/73)	87% (45/52)	79% (110/139)	88% (45/51)	-	86% (356/414)
		2020	90%	89%	88%	75%	86%	81%	-	85 %
		2019	66%	82%	77%	45%	33%	27%	72%	60%

QPI	Target	Year	AA	FV	Lan	NG	SG	Clyde	WG	WoS
QPI 9: Proportion of patients with invasive breast cancer for whom the HER2 status, as defined by ImmunoHistoChemistry (IHC) and/or FISH, is reported within 2 weeks of core biopsy.	**90%**	2021	50% (161/321)	77% (149/194)	81% (356/441)	83% (249/300)	85% (410/484)	89% (352/397)	-	79% (1677/2137)
		2020	62%	78%	80%	87%	86 %	84 %	-	80%
		2019	88%	94%	80%	79%	80%	75%	80%	81%
QPI 10: Proportion of patients ≥ 70 years of age with T1 N0, ER-positive, HER2-negative, LVI negative, Grade I to II breast cancers undergoing conservation surgery (completely excised with margin ≥1mm) with hormone therapy who receive radiotherapy.	**<40%**	2021	40% (4/10)	100% (6/6)	33% (5/15)	55% (6/11)	72% (13/18)	29% (4/14)	-	51% (38/74)
		2020	25%	80%	53%	0%	71%	9%	-	42%
		2019	n/a	-	17%	-	-	-	-	22%
QPI 11(i): Proportion of patients with hormone receptor positive, HER2 negative breast cancer who have a >5% overall survival benefit of chemotherapy treatment predicted at 10 years and/or high risk genomic assay score that undergo adjuvant chemotherapy	**80%**	2021	83% (15/18)	91% (20/22)	48% (31/64)	93% (25/27)	97% (29/30)	86% (24/28)	-	76% (144/189)
		2020	73%	81%	43%	89%	86%	94%	-	42%
		2019	0%	25%	43%	89%	90%	86%	86%	72%
QPI 11(ii): Proportion of patients with triple negative or HER2 positive breast cancer who have a >5% overall survival benefit of chemotherapy treatment predicted at 10 years that undergo adjuvant chemotherapy.	**80%**	2021	75% (6/8)	67% (12/18)	52% (16/31)	95% (35/37)	79% (22/28)	97% (29/30)	-	79% (120/152)
		2020	100%	96%	57%	91%	84%	86%	-	83%
		2019	57%	22%	65%	83%	89%	100%	90%	82%
QPI 13: Proportion of surgically treated patients with breast cancer (invasive or in-situ) who undergo re-excision or mastectomy following their initial breast surgery.	**<20%**	2021	18% (43/238)	22% (29/130)	20% (68/341)	19% (40/210)	10% (35/344)	13% (44/329)	-	16% (259/1592)
		2020	12%	20%	24%	24%	16%	13%	-	18%
		2019	6%	23%	21%	25%	14%	16%	14%	17%

QPI	Target	Year	AA	FV	Lan	NG	SG	Clyde	WG	WoS
QPI 14(i): Proportion of patients with breast cancer who are under 30 years of age referred to a specialist genetics clinic.	**90%**	2021	-	-	-	-	-	-	-	100% (9/9)
		2020	n/a	-	-	-	-	-	-	90%
		2019	-	-	-	-	n/a	-	-	100%
QPI 14(ii): Proportion of patients with triple negative breast cancer under 50 years of age referred to a specialist genetics clinic.	**90%**	2021	100% (5/5)	-	100% (10/10)	-	100% (9/9)	100% (10/10)	-	100% (40/40)
		2020	83%	100%	80%	100%	100%	100%	-	93%
		2019	75%	-	94%	60%	80%	67%	100%	80%
QPI 17: Proportion of patients with ER positive, HER2 negative, node negative breast cancer who have a 3-5% overall survival benefit of chemotherapy predicted at 10 years that undergo genomic testing.	**60%**	2021	-	67% (8/12)	24% (9/38)	-	-	-	-	35% (21/60)
		2020	-	89%	15%	-	-	100%	-	54%
		2019	-	50%	50%	-	-	86%	-	56%
QPI 18(i) Proportion of patients with triple negative or HER2 positive, Stage II or III ductal breast cancer who receive chemotherapy that undergo neo-adjuvant chemotherapy	**80%**	2021	54% (13/24)	100% (18/18)	80% (44/55)	61% (23/38)	89% (63/71)	80% (48/60)	-	79% (209/266)
		2020	31%	46%	78%	43%	63%	59%	-	57%
		2019	62%	54%	78%	57%	74%	70%	53%	67%
QPI 18(ii) Proportion of patients with triple negative or HER2 positive, Stage II or III ductal breast cancer who undergo neo-adjuvant chemotherapy who achieve a pathological complete response.	**30%**	2021	23% (3/13)	44% (8/18)	34% (15/44)	22% (5/23)	44% (28/63)	42% (20/48)	-	38% (79/209)
		2020	38%	36%	26%	39%	38%	38%	-	34%
		2019	-	29%	38%	44%	40%	38%	47%	40%
QPI 19: Proportion of patients with left sided breast cancer or DCIS receiving adjuvant radiotherapy treatment who use a DIBH radiotherapy technique.	**80%**	2021	78% (97/124)	80% (62/78)	80% (142/179)	83% (95/114)	82% (160/196)	79% (136/173)	-	80% (693/864)
		2020	73%	85%	77%	72%	81%	76%	-	78%
		2019	42%	63%	67%	63%	74%	70%	59%	65%

Conclusions and Action Required

Analysis of 2021 audit data and comparison with previous years data demonstrates a continual commitment to provide an equitable and consistent standard of care for breast cancer patients in the west of Scotland. The ongoing improvement in data quality over several years has enabled robust analysis of performance against QPIs for the tenth year.

The results presented within this report illustrate that some of the QPI targets set have been challenging for NHS Boards to achieve and there remains room for further service improvement. Where QPI targets were not met, NHS Boards have provided detailed commentary. In the main these indicate valid clinical reasons or that, in some cases, patient choice or co-morbidities have influenced patient management. Additionally, NHS Boards have indicated where positive action has already been taken at a local level to address any issues highlighted through the QPI data analysis. It is anticipated that these positive changes will result in improved performance in subsequent reporting periods.

NHS Boards are encouraged to continue with this proactive approach of reviewing data and addressing issues as necessary, in order to work towards increasingly advanced performance against targets, and demonstration of overall improvement in quality of the care and service provided to patients.

Actions identified within this report to improve provision of Breast cancer services across the WoS are collated below.

Actions required:

QPI 9: HER2 Status for Decision Making

- MCN Clinical Lead to liaise with Molecular Pathology regarding possible strategy to improve FISH reporting time.

QPI 10: Radiotherapy for Breast Conservation in Older Adults

- To reflect the change in evidence and practice this QPI will be archived as part of the formal QPI review process.

QPI 11: Adjuvant Chemotherapy

- The definition of this QPI will be revised to exclude patients with a low genomic score.
- All NHS Boards are encouraged to clearly record the estimated benefit of adjuvant chemotherapy using the NHS Predict online tool to ensure all relevant cases are identified.

QPI 17: Genomic Testing

- The definition of this QPI will be revised to exclude patients with a low genomic score.
- All NHS Boards are encouraged to clearly record the estimated benefit of adjuvant chemotherapy using the NHS Predict online tool to ensure all relevant cases are identified.
- NHSL to present the findings of the proposed clinical review to the MCN.

QPI 18: Neo-adjuvant Chemotherapy (i)

- NHS AA to expand on the reasons for the 11 patients not receiving neoadjuvant chemotherapy.
- NHSGGC to ensure the option of neoadjuvant chemotherapy is recorded at MDT where appropriate.
- NHSL to report to MCN with the outcome of the further clinical review of those patients seen at clinic prior to HER2 status being reported.

QPI 18: Neo-adjuvant Chemotherapy (ii)

- NHS GGC North sector and NHSAA to confirm treatment regimes and proportion of patients completing treatment. Audit team to ensure the same definition of pathological complete response being applied.

QPI 19: Deep Inspiratory Breath Hold (DIBH) Radiotherapy

- NHSAA to review cases further with oncology lead to establish reasons for DIBH not being used.

Completed Action Plans should be returned to WoSCAN in a timely manner to allow the plans to be reviewed at the Regional Cancer Oversight Group.

Progress against the 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.

1. Introduction

This report presents an assessment of performance of West of Scotland (WoS) Breast Cancer Services relating to patients diagnosed between 01 January 2021 and 31 December 2021. 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 v4.0 of the Breast Cancer Quality Performance Indicators (QPIs) which were implemented for patients diagnosed on or after 01 January 2018. This was the tenth consecutive year of analysis following the initial Healthcare Improvement Scotland (HIS) publication of Breast Cancer QPIs in 2012[1].

2. Background

The Breast Cancer Managed Clinical Network (MCN) was established in 2002 as a means of delivering equitable high quality clinical care to all breast cancer patients across four NHS Boards: Ayrshire & Arran, Forth Valley, Greater Glasgow and Clyde and Lanarkshire, covering a population of 2.5 million.

The Breast Cancer MCN continues to support and develop the clinical service for approximately 2400 breast cancer patients per annum. The effective management of these patients throughout the region relies on coordinated delivery of treatment and care that requires close collaboration of professionals from a range of specialties. WoS breast cancer services are organised around six Multidisciplinary Teams (MDTs). The configuration of the MDTs in the region is set out below.

Table 1: WoS MDT Configuration

MDT	Constituent Hospital
Ayrshire	Crosshouse Hospital & Ayr Hospital
Forth Valley	Forth Valley Royal Hospital
Lanarkshire	Monklands District General, Wishaw General Hospital, Hairmyres
Greater Glasgow North	Stobhill Hospital
Greater Glasgow South	Gartnavel General
Greater Glasgow Clyde	Royal Alexandra Hospital, Inverclyde Royal Hospital, Vale of Leven

2.1 National Context

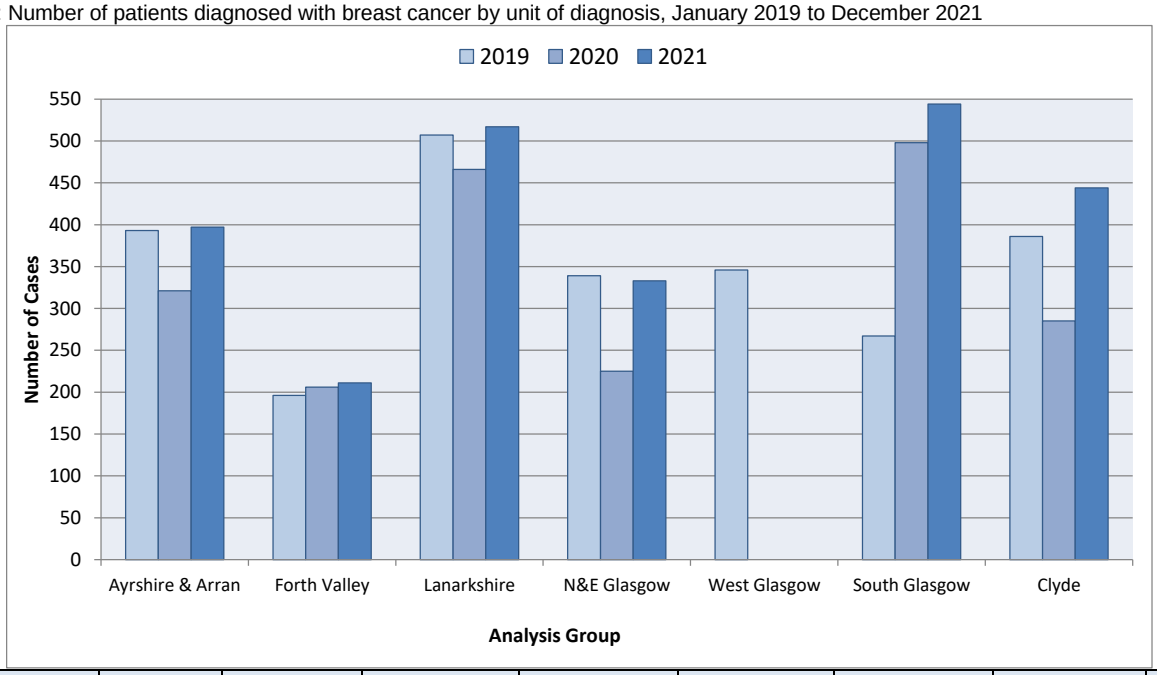
Breast cancer is the most common cancer in women in Scotland with approximately 4300 new cases diagnosed annually. The incidence rate of breast cancer has decreased by 6.1% over the last decade. Breast cancer in men is very rare, accounting for less than 1% of all cancers in Scotland [3].

Mortality rates from breast cancer have decreased by 16.2% over the last 10 years [3]. Significant improvements have been achieved in long term survival with around 86% of women surviving 5 years based upon current Public Health Scotland (PHS) data[3]. Early detection of breast cancer through a national screening programme, improvements in diagnosis and staging of breast cancer and improved treatment interventions are all associated with improvement in survival.

2.2 West of Scotland Context

A total of 2446 cases of breast cancer were recorded through audit as diagnosed in the WoS between 01 January 2021 and 31 December 2021. The number of patients diagnosed within each unit is presented in Figure 1. As the largest WoS Board, 54% of all new cases of breast cancer were diagnosed in NHS Greater Glasgow and Clyde (NHSGGC) which is in line with population estimates for this board.

Figure 1: Number of patients diagnosed with breast cancer by unit of diagnosis, January 2019 to December 2021



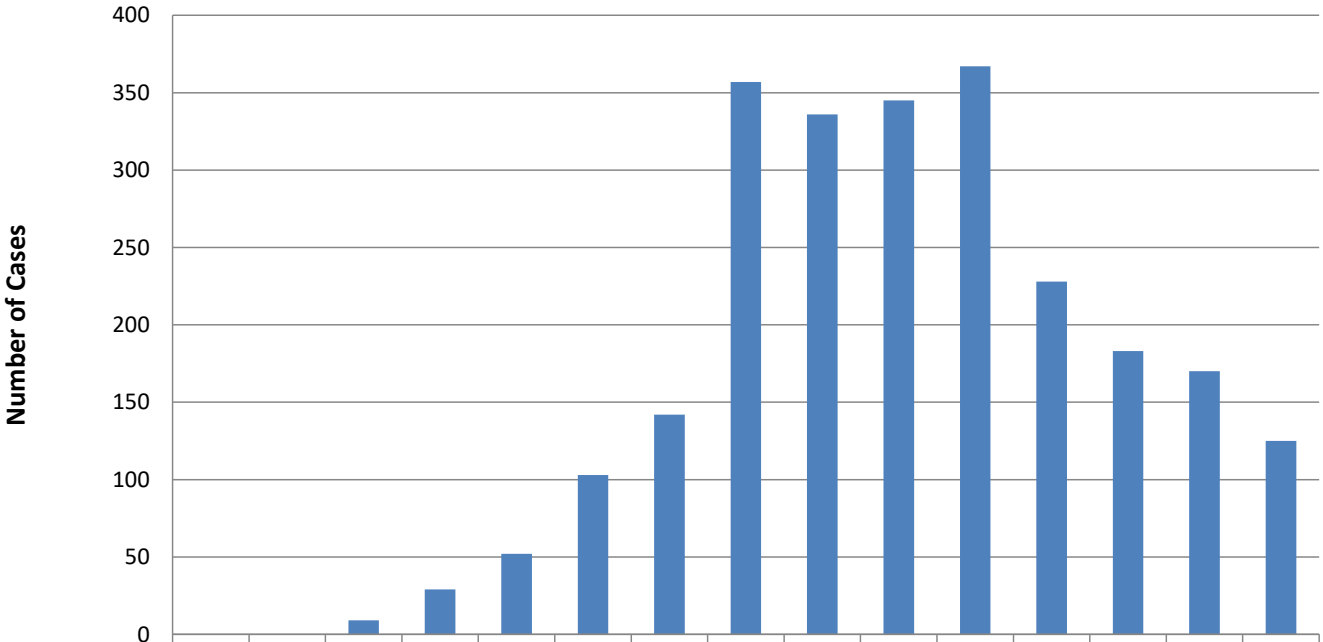
	AA	FV	Lan	N&E G	WG	SG	Clyde	WoS
2019	393	196	507	339	346	267	386	2434
2020	321	206	466	225	*	498	285	2001
2021	397	211	517	333	*	544	444	2446

*****During 2020 West Glasgow MDT and South Glasgow MDT merged. QPI results are now reported as per the three NHSGGC sectors rather than 4 MDTs. QPI results for South Glasgow now incorporate West Glasgow results.

Age

Figure 2 shows the age distribution of patients diagnosed with breast cancer in the West of Scotland in 2021, with numbers of patients diagnosed highest in the 65-69 year age bracket.

Figure 2: Age range of patients diagnosed with breast cancer, January 2021 to December 2021

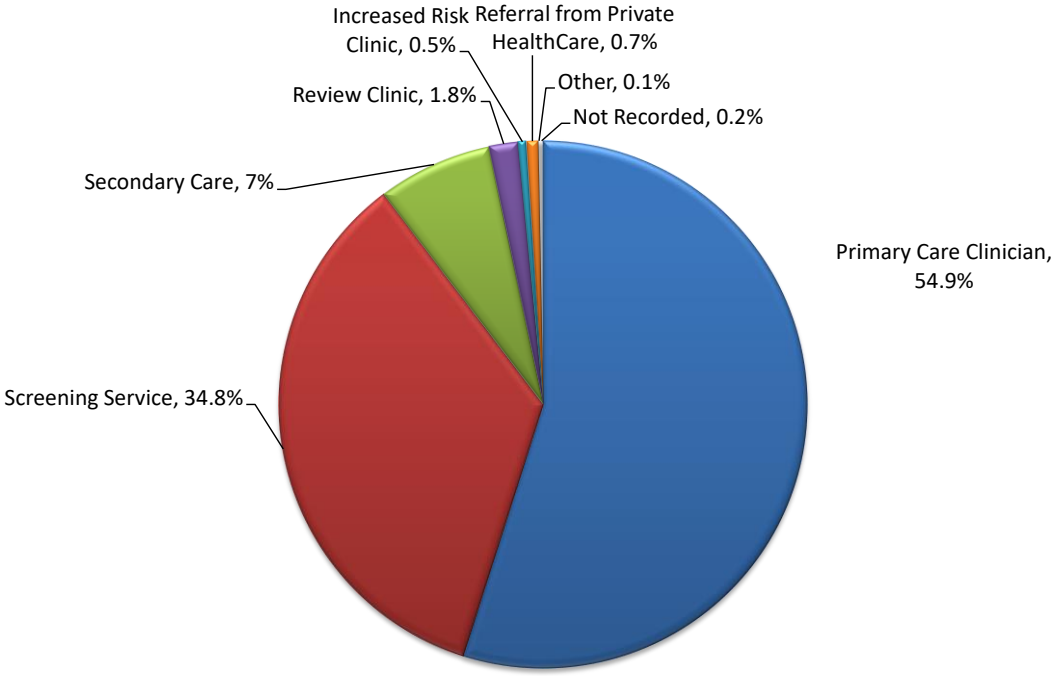


	<20	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	>85
No.Of Cases	0	0	9	29	52	103	142	357	336	345	367	228	183	170	125

Source of Referral

Figure 3 illustrates that the majority of patients diagnosed with breast cancer in the WoS were referred from a Primary Care Clinician (54.9%) or from the screening service (34.8%).

Figure 3: Source of referral of patients diagnosed with breast cancer, January 2021 to December 2021.



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

4.1 Performance against Quality Performance Indicators (QPIs)

The following section includes a detailed summary of each of the breast cancer QPIs outlining the variation at individual unit level. Graphs and charts have been provided where this aids interpretation and, where appropriate, numbers have also been included to provide context. Where possible, and with consideration given to any changes after formal review, results for patients diagnosed in 2021 have been presented alongside the previous years' results to illustrate trends.

Data (both graphically and in tabular format) are presented by location of diagnosis with some indicators given as an overall West of Scotland representation. Boards have already reviewed cases where targets have not been met, and the detailed clinical commentary provided by Boards is noted beside each measure along with details of any specific improvement actions that have already been implemented to address issues highlighted through the analysis.

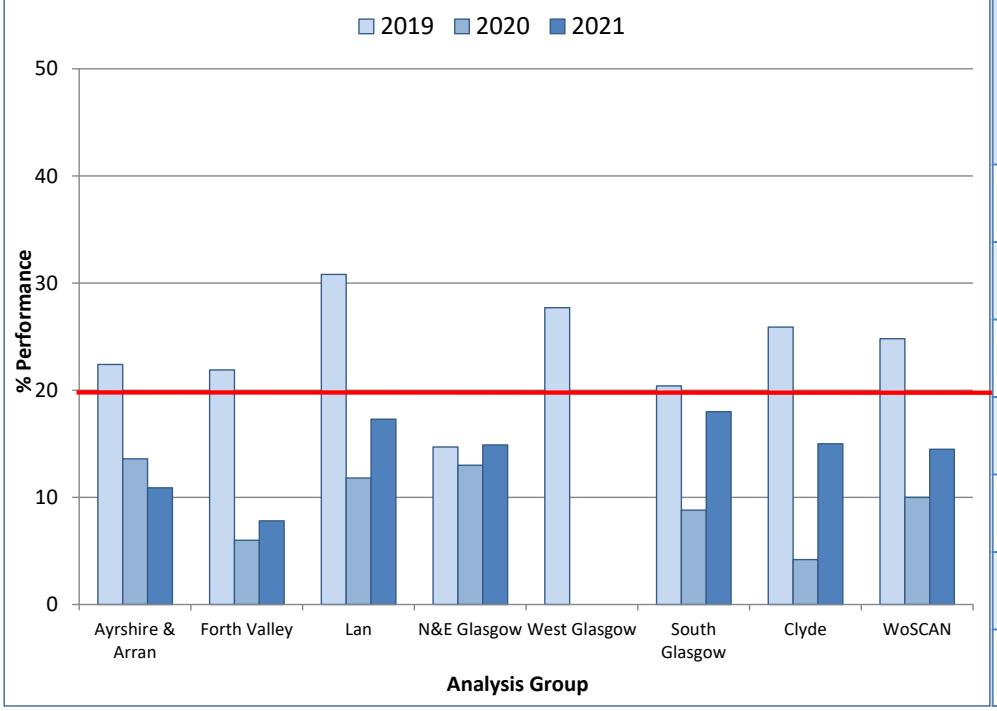
Where the number of cases meeting the denominator criteria for any indicator is between one and four, the percentage calculation has not been shown on any associated charts or tables. This is to avoid any unwarranted variation associated with small numbers and to minimise the risk of disclosure. Any charts or tables impacted by this are denoted with a dash (-). Any commentary provided by NHS Boards relating to the impacted indicators will however be included as a record of continuous improvement.

QPI 6: Immediate Reconstruction Rate

Evidence suggests that breast reconstruction is not associated with an increase in the rate of local recurrence, nor does it affect the ability to detect recurrence and it can yield psychological benefit[1]. Access to immediate breast reconstruction is difficult to measure accurately therefore uptake is used as a proxy. Although it will not provide an absolute measure of patient access to this procedure it will give an indication of access across NHS Boards and highlight any areas of variance which can then be further examined[1]. The tolerance within this target accounts for patients' choice and fitness for treatment. Patient choice is a key factor in the number of patients who undergo immediate breast reconstruction at the time of mastectomy.

QPI Title:	Patients undergoing mastectomy for breast cancer should have access to timely immediate breast reconstruction.
Numerator:	Number of patients with breast cancer undergoing immediate breast reconstruction at the time of mastectomy.
Denominator:	All patients with breast cancer undergoing mastectomy.
Exclusions:	All patients with M1 disease and all male patients.
Target:	20% or above

Figure 4: The proportion of patients with breast cancer undergoing immediate breast reconstruction at the time of mastectomy.



2021	Performance (%)	Numerator	Denominator
AA	10.9%	14	128
FV	7.8%	4	51
Lan	17.3%	19	110
N&E	14.9%	10	67
SG	18.0%	23	128
Clyde	15.0%	9	60
WoS	14.5%	79	544

*South Glasgow data for 2020 & 2021 includes cases diagnosed in West Glasgow due to MDTs merging

Of the 544 breast cancer patients who underwent mastectomy, 79 underwent immediate reconstruction at the time of mastectomy. This equates to 14.5% against the 20% QPI target with no units meeting the target.

NHSFV commented that following the COVID-19 pandemic and its recovery with capacity issues, immediate reconstruction has been difficult. As recovery of services continues to improve, all suitable patients are being offered reconstructive options.

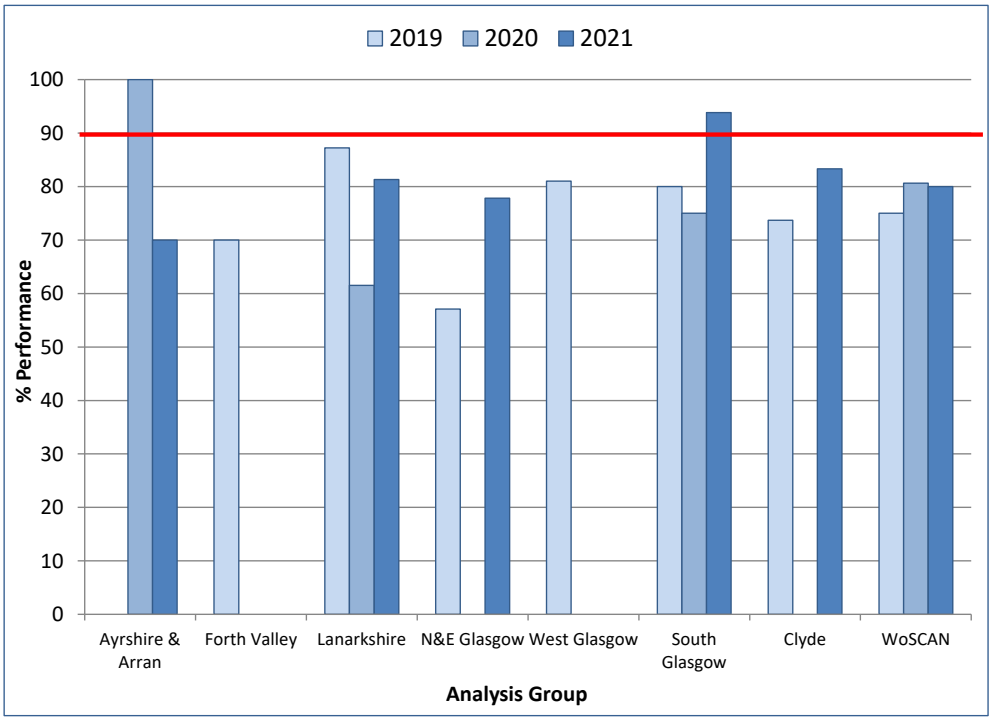
NHSL commented that the result of this QPI shows an improvement on last year's result (11.8%). The Board added that capacity within the regional plastic surgery service at GRI is continuing to improve, which can be seen in the results of NHSLS Q1 2022 local data report which shows performance is above target.

NHSGGC commented that there is very limited access to flap based (mainly DIEP) reconstruction with the regional plastic surgery service. During 2021 there was limited access to theatre time and staff due to ongoing COVID service disruption. Access to flap based reconstruction has now improved and it is anticipated that numbers will increase in next years patient cohort.

QPI 6(ii) Immediate Reconstruction Rate

The second part of the specification looks at the proportion of patients with breast cancer undergoing immediate breast reconstruction at the time of mastectomy and within 6 weeks of treatment decision.

Figure 5: The proportion of patients with breast cancer undergoing immediate breast reconstruction at the time of mastectomy and within 6 weeks of treatment decision.



2021	Performance (%)	Numerator	Denominator
AA	70.0%	7	10
FV	-	-	-
Lan	81.3%	13	16
N&E	77.8%	7	9
SG	93.8%	15	16
Clyde	83.3%	5	6
WoS	80.0%	48	60

(-) dash denotes a denominator of less than 5. Figures have been removed to ensure confidentiality.

Data has been restricted for NHS Forth Valley due to small numbers.

The 90% target for QPI 6(ii) was not achieved. In the WoS 80% of breast cancer patients underwent immediate breast reconstruction at the time of mastectomy within 6 weeks of treatment decision. Only NHSGGC South sector 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.

NHSAA and NHSFV commented that those cases failing to achieve the 6 week target only narrowly missed the target by a few days in most cases.

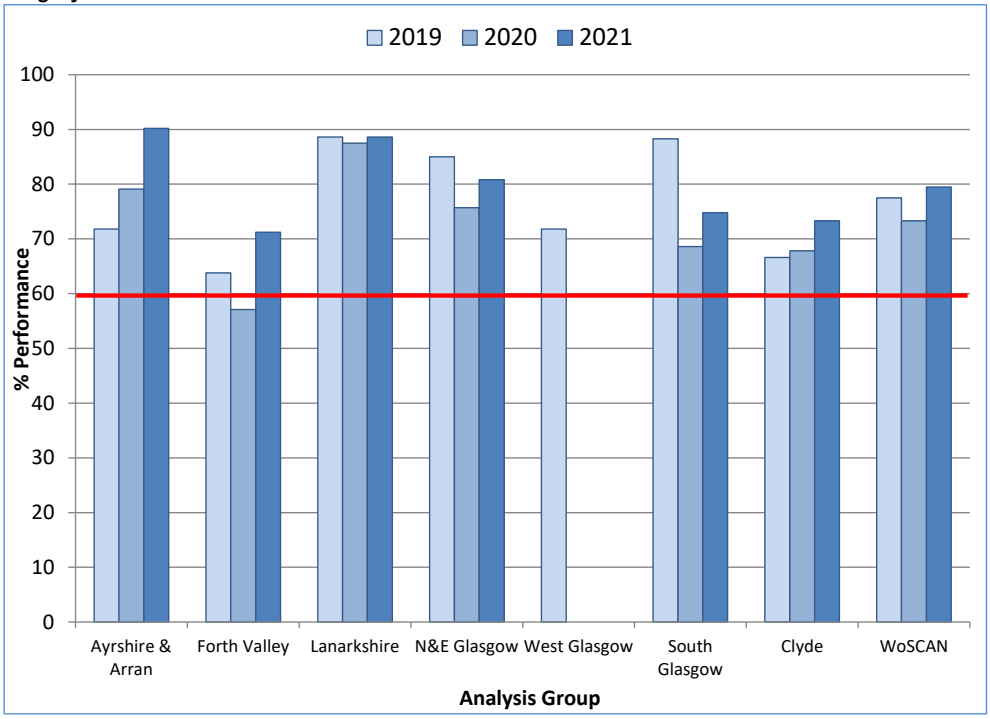
NHSLS commented that the three patients having an immediate breast reconstruction more than 42 days from the treatment decision date have been reviewed. Patients were treated within 44 – 56 days of treatment decision. Two of the patients had a DIEP reconstruction at GRI and both required a magnetic resonance angiography (MRA) and Psychology review before surgery. The third patient had implant based bilateral reconstruction within Lanarkshire. The Board added that theatre capacity remains a local clinical and management priority and that this QPI will continue to be monitored through local quarterly QPI reporting processes.

QPI 8: Minimising Hospital Stay

It has been shown that major breast surgery can be delivered safely as day case or one night stay in the majority of patients without compromising clinical quality, surgical outcomes and patient experience.[1] Benefits of short stay include reduction in readmissions, reduction in complications, improved patient mobility and enhanced recovery. However, it is not always appropriate for all patients due to social circumstances, co-morbidities and/or geographical residence[1].

QPI Title:	(i) Patients should have the opportunity for day case surgery wherever appropriate.
Numerator:	Number of patients with breast cancer undergoing wide excision and/or axillary sampling procedure (sentinel node biopsy or four node sample) as day case surgery.
Denominator:	All patients with breast cancer undergoing wide excision and/or axillary sampling procedure (sentinel node biopsy or node sample (≥4 nodes)).
Exclusions:	All patients with breast cancer undergoing partial breast reconstruction.
Target:	60% or above

Figure 6: The proportion of patients with breast cancer undergoing wide excision and/or axillary sampling procedure as day case surgery.

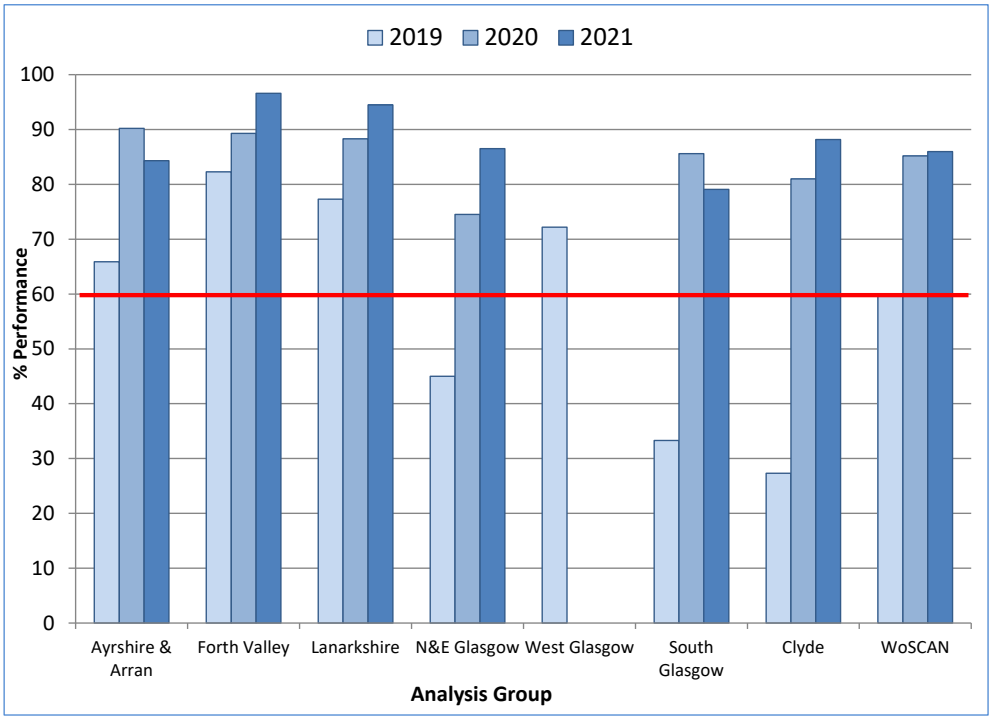


2021	Performance (%)	Numerator	Denominator
AA	90.2%	120	133
FV	71.2%	37	52
Lan	88.6%	178	201
N&E	80.8%	122	151
SG	74.8%	208	278
Clyde	73.3%	198	270
WoS	79.5%	863	1085

PHS has provided information from The General/Acute Inpatient and Day Case dataset (SMR01) to calculate the number of day case surgeries being carried out by each NHS Board. Across the WoS, 79.5% of patients with breast cancer undergoing wide excision and/or axillary sampling were day case surgeries. All units met the 60% target.

QPI Title:	(ii) Patients should have the opportunity for day case surgery wherever appropriate.
Numerator:	Number of patients with breast cancer undergoing mastectomy (without reconstruction) with a maximum hospital stay of 1 night following their procedure.
Denominator:	All patients with breast cancer undergoing mastectomy (without reconstruction)
Exclusions:	No exclusions.
Target:	60% or above

Figure 7: The proportion of patients with breast cancer undergoing mastectomy (without reconstruction) with a maximum stay of 1 night following their procedure.



2021	Performance (%)	Numerator	Denominator
AA	84.3%	59	70
FV	96.6%	28	29
LAN	94.5%	69	73
N&E	86.5%	45	52
SG	79.1%	110	139
Clyde	88.2%	45	51
WoS	86.0%	356	414

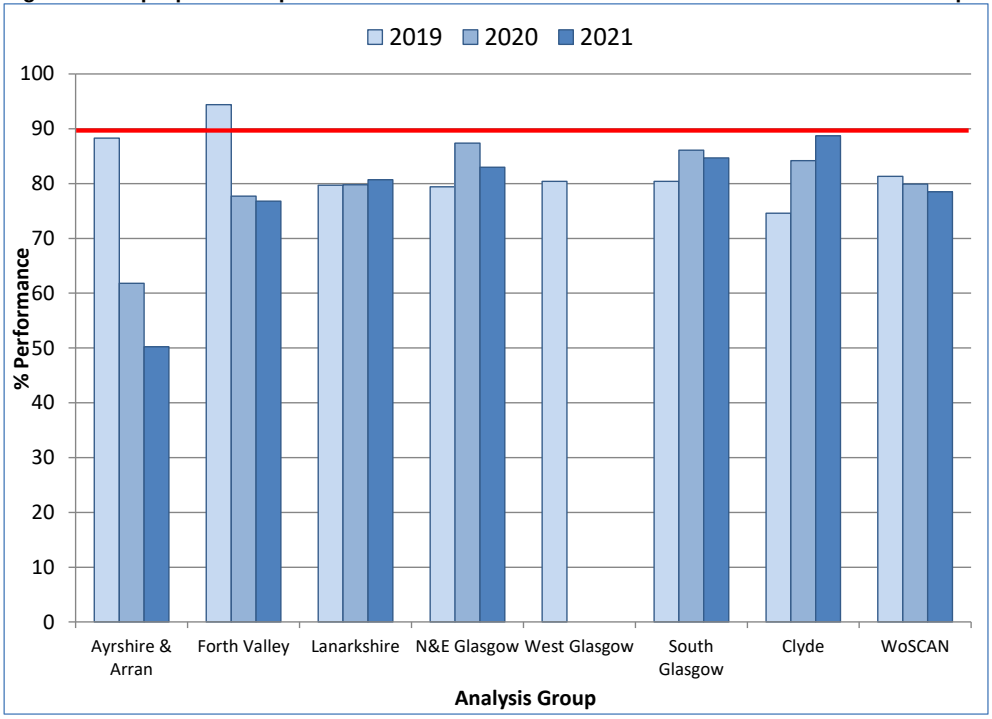
Overall, 356 of the 414 patients undergoing mastectomy (without reconstruction) in the WoS had a maximum of a one night hospital stay following their procedure, resulting in a performance of 86% which meets the QPI target: all Boards met this target. The majority of units also showed improvement on the previous year's results.

QPI 9: HER2 Status for Decision Making

HER2 status has a significant impact on survival and therefore has a significant influence on decisions regarding neo-adjuvant and adjuvant treatment[1]. The target for this QPI is set at 90% with the tolerance designed to account for situations where insufficient disease is present on core biopsy

QPI Title:	HER2 status should be available to inform treatment decision making.
Numerator:	Number of patients with invasive breast cancer for whom the HER2 status (as defined by IHC and/or FISH analysis) is reported within 2 weeks of core biopsy.
Denominator:	All patients with invasive breast cancer.
Exclusions:	No exclusions.
Target:	90% or above

Figure 8: The proportion of patients with invasive breast cancer for whom the HER2 status is reported within 2 weeks of core biopsy.



	Performance (%)	Numerator	Denominator
AA	50.2%	161	321
FV	76.8%	149	194
LAN	80.7%	356	441
N&E	83.0%	249	300
SG	84.7%	410	484
Clyde	88.7%	352	397
WoS	79.9%	1677	2137

Of the 2137 patients with invasive breast cancer in 2021, 1677 had HER2 status reported within 2 weeks of core biopsy, thereby achieving 79.9% against the 90% target. No unit met the target with performance ranging from 50.2% in NHSAA to 88.7% in NHSGGC Clyde sector.

As with previous years the majority of cases not meeting the target required FISH testing to establish HER2 status. The FISH service is centrally funded and the current standard for Molecular Pathologists is to report FISH results within 14 days of receipt, which is not aligned with the requirements of this QPI. Achieving this QPI will require additional staffing or the introduction of new technology which continues to be evaluated.

Action Required:

- MCN Clinical Lead to liaise with Molecular Pathology regarding possible strategy to improve FISH reporting time.

QPI 10: Radiotherapy for Breast Conservation in Older Adults

Following formal review QPI 10 was changed to focus on minimising radiotherapy treatment in patients' ≥70 years of age with early stage breast cancer and a low risk of recurrence (T1 N0, ER-positive, HER2-negative, LVI negative, Grade I to II breast cancers undergoing conservation surgery with hormone therapy).

QPI Title:	Radiotherapy use should be reduced in patient's ≥ 70 years of age with early stage breast cancer and a low risk of recurrence.
Numerator:	Number of patients ≥ 70 years with T1 N0, ER-positive, HER2-negative, LVI negative, Grade I to II breast cancers undergoing conservation surgery (completely excised with margin ≥1mm) with hormone therapy who receive radiotherapy.
Denominator:	All patients ≥ 70 years with T1 N0, ER-positive, HER2-negative, LVI negative, Grade I to II breast cancers undergoing conservation surgery (completely excised with margin ≥1mm) with hormone therapy.
Exclusions:	All patients with breast cancer taking part in clinical trials of radiotherapy treatment.
Target:	<40%

Due to the small numbers meeting the denominator criteria for QPI 10 individual unit results cannot be presented. WoS performance against this QPI was 51.4% (38 out of 74 cases) of patients ≥ 70 years with T1 N0, ER-positive, HER2-negative, LVI negative, Grade I to II breast cancers undergoing conservation surgery (completely excised with margin ≥1mm) with hormone therapy receiving radiotherapy.

NHSFV and NHSGGC commented that the radiotherapy dose and fractionation changed in April 2019, this has resulted in reducing the number of visits from 15 days to 5 days which has encouraged patients to opt for taking treatment as it became more convenient. In addition the option of partial breast radiotherapy has been shown to reduce the adverse effects of radiotherapy.

Action Required:

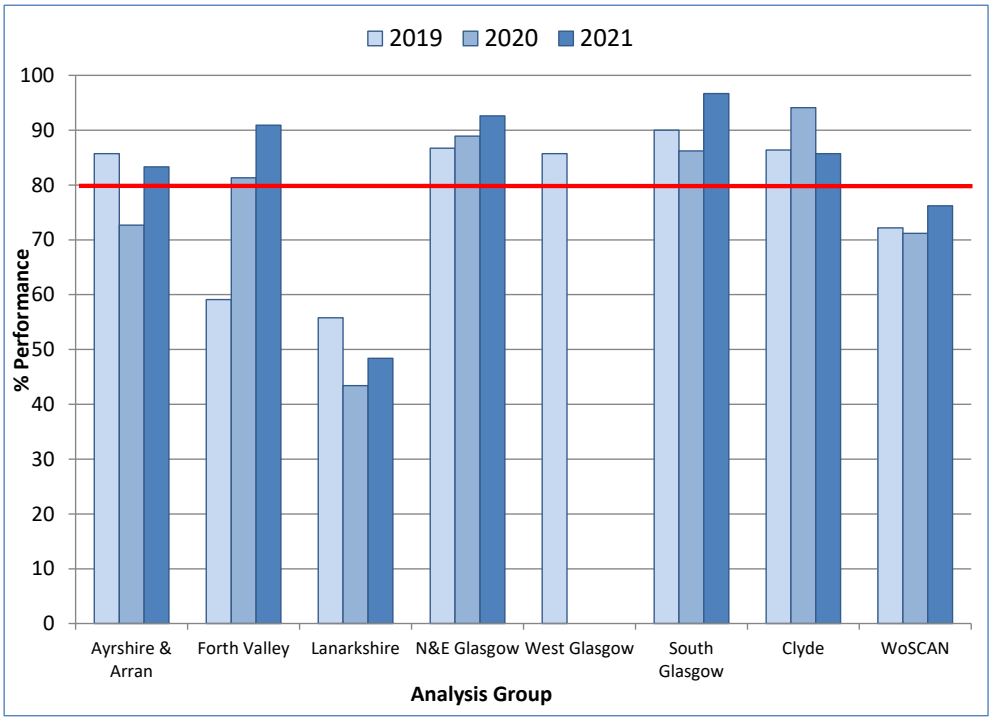
- To reflect the change in evidence and practice this QPI will be archived as part of the formal QPI review process.

QPI 11: Adjuvant Chemotherapy

Large randomised trials have confirmed that adjuvant systemic therapy improves relapse-free survival and overall survival. Success of treatment is based on a number of different factors including tumour size, grade and involvement of lymph nodes. Prognostic tools such as PREDICT assist clinicians and patients to make informed decisions on appropriate treatment by predicting survival and determining those patients likely to benefit from adjuvant treatment[1]. The target for this QPI is set at 80% with the tolerance designed to account for factors of patient choice, co-morbidities and fitness for treatment.

QPI Title:	(i) Patients with breast cancer should receive chemotherapy post operatively where it will provide a survival benefit for patients.
Numerator:	Number of patients with hormone receptor positive HER2 negative breast cancer who have a >=5% overall survival benefit of chemotherapy treatment predicted at 10 years and/or high risk genomic assay score that undergo adjuvant chemotherapy.
Denominator:	Number of patients with hormone receptor positive HER2 negative breast cancer who have a >=5% overall survival benefit of chemotherapy treatment predicted at 10 years and/or high risk genomic assay score.
Exclusions:	All patients with breast cancer taking part in clinical trials of chemotherapy treatment, all patients who have had neo-adjuvant chemotherapy and all patients with M1 disease.
Target:	80%

Figure 9: Number of patients with hormone receptor positive HER2 negative breast cancer who have a >=5% overall survival benefit of chemotherapy treatment predicted at 10 years and/or high risk genomic assay score that undergo adjuvant chemotherapy.



	Performance (%)	Numerator	Denominator
AA	83.3%	15	18
FV	90.9%	20	22
LAN	48.4%	31	64
N&E	92.6%	25	27
SG	96.7%	29	30
Clyde	85.7%	24	28
WoS	**76.2%**	144	189

Performance across WoS was 76.2% against the 80% target with 144 of 189 patients with hormone receptor positive HER2 negative breast cancer who had a >=5% overall survival benefit of chemotherapy treatment predicted at 10 years and/or high risk genomic assay score undergoing adjuvant chemotherapy. Five of the six units met the target with performance ranging from 48.4% in NHSLS to 96.7% in NHSGGC South sector. It should however be noted that numbers of patients included within this QPI are low and therefore comparisons should be made with caution.

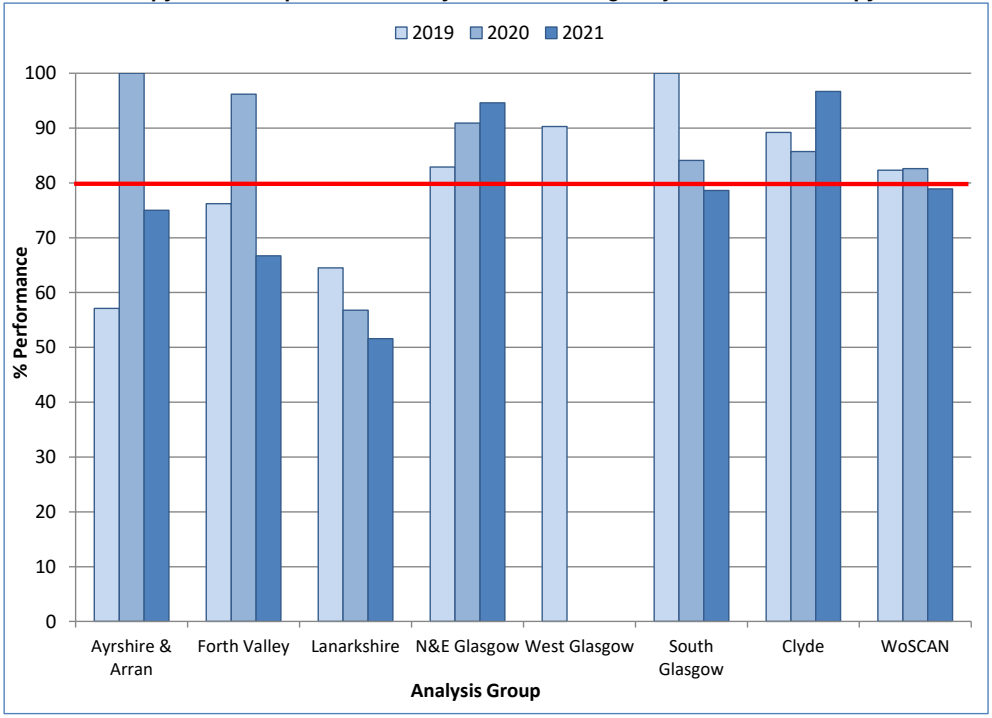
NHSLS reviewed the 33 cases not meeting this QPI noting the following reasons for patients not meeting the target; patients who refused chemotherapy/oncotype testing, patients that had an oncotype test done, but the score was 21 or less and therefore chemotherapy was not given, patients that were recommended to have chemotherapy following MDT discussion but when seen by an Oncologist chemotherapy/oncotype testing was not given for clinical reasons and patients that were discussed at the post op MDT and chemotherapy was not recommended for valid clinical reasons. The Board added that following feedback from Oncology, the Board suggests that the denominator for this QPI should be reviewed as a low genomic risk score makes the Predict score of > 5% irrelevant. The denominator is inaccurate for a number of boards because of the recording of the estimated benefit of chemotherapy using the NHS Predict online tool.

Action Required:

- The definition of this QPI will be revised to exclude patients with a low genomic score.
- All NHS boards are encouraged to clearly record the estimated benefit of adjuvant chemotherapy using the NHS Predict online tool to ensure all relevant cases are identified.

QPI Title:	(ii) Patients with breast cancer should receive chemotherapy post operatively where it will provide a survival benefit for patients.
Numerator:	Number of patients with triple negative or HER2 positive breast cancer who have a >=5% overall survival benefit of chemotherapy treatment predicted at 10 years that undergo adjuvant chemotherapy.
Denominator:	Number of patients with triple negative or HER2 positive breast cancer who have a >=5% overall survival benefit of chemotherapy treatment predicted at 10 years.
Exclusions:	All patients with breast cancer taking part in clinical trials of chemotherapy treatment, all patients who have had neo-adjuvant chemotherapy and all patients with M1 disease.
Target:	80%

Figure 10: The proportion of patients with triple negative or HER2 positive breast cancer who have a >=5% overall survival benefit of chemotherapy treatment predicted at 10 years that undergo adjuvant chemotherapy.



	Performance (%)	Numerator	Denominator
AA	75.0%	6	8
FV	66.7%	12	18
LAN	51.6%	16	31
N&E	94.6%	35	37
SG	78.6%	22	28
Clyde	96.7%	29	30
WoS	78.9%	120	152

Specification two considers the proportion of patients that have triple negative or HER2 positive breast cancer who have a >=5% overall survival benefit of chemotherapy treatment predicted at 10 years that undergo adjuvant chemotherapy. WoS performance was 78.9% which is marginally below the QPI target of 80%. Two of the six units met this target with some variance noted between the units. Performance ranged between 51.6% in NHSLS to 96.7% in NHSGGC South sector.

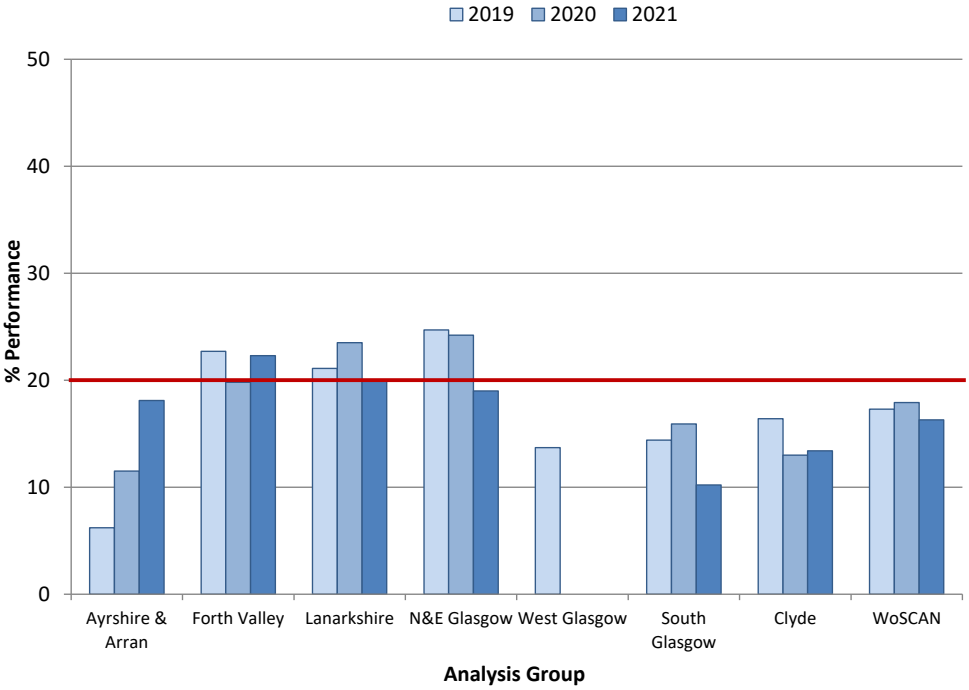
All Boards reviewed cases and provided reasons for patients not meeting the QPI which included patients with co-morbidities that prevented adjuvant chemotherapy being given and patients that declined adjuvant chemotherapy.

QPI 13: Re-excision Rates

It is important to minimise treatment related morbidity. Patients undergoing additional surgical procedures can be subject to unnecessary stress, as well as potential complications and delays in recovery. Re-operation is also a factor related to poorer cosmetic outcomes for patients[1].

QPI Title:	Patients undergoing surgery for breast cancer should only undergo one definitive operation where possible.
Numerator:	Number of patients with breast cancer (invasive or in-situ) having breast conversation surgery who undergo re-excision or mastectomy following initial breast surgery.
Denominator:	All patients with breast cancer (invasive or in-situ) having breast conversation surgery as their initial or only breast surgery.
Exclusions:	All patients with lobular carcinoma in situ (LCIS).
Target:	<20%

Figure 11: The proportion of patients with breast cancer (invasive or in-situ) having breast conversation surgery who undergo re-excision or mastectomy following initial breast surgery.



	Performance (%)	Numerator	Denominator
AA	18.1%	43	238
FV	22.3%	29	130
LAN	19.9%	68	341
N&E	19.0%	40	210
SG	10.2%	35	344
Clyde	13.4%	44	329
WoS	**16.3%**	259	1592

Performance across the WoS was 16.3% against the <20% QPI target with 259 of 1592 patients with breast cancer (invasive or in-situ) having breast conversation surgery undergoing re-excision or mastectomy following initial breast surgery. Five of the six units met the target with performance ranging from 10.2% in NHSGGC South sector to 22.3% in NHSFV.

NHSFV commented that 10 patients required further surgery due to DCIS, 17 cases were due to invasive malignancy, and a further 2 cases had positive or close margins requiring further surgery.

QPI 14: Referral for Genetics Testing

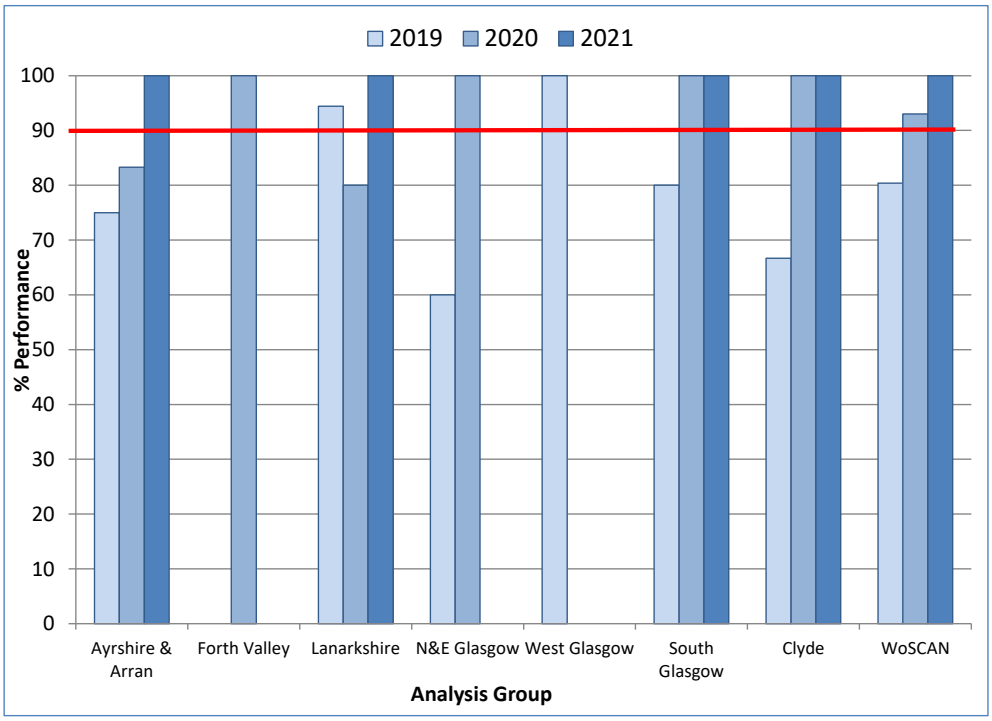
Where patients have breast cancer, genetic testing should be offered if their combined BRCA1 and BRCA2 mutation carrier probability is ≥10%[1].

QPI Title:	Patients with breast cancer should be offered referral to a specialist genetics clinic where appropriate.
Numerator:	Number of patients referred to a specialist genetic clinic for testing who; (i) Are under 30 years of age (ii) With triple negative breast cancer who are under 50 years of age.
Denominator:	All patients with breast cancer who; (i) Are under 30 years of age (ii) With triple negative breast cancer who are under 50 years of age.
Exclusions:	No exclusions.
Target:	90%

Due to the small numbers meeting the denominator criteria for QPI 14(i) individual unit results cannot be presented. West of Scotland performance against this QPI was 100% (9 out of 9 cases) of patients under 30 years of age being referred to a specialist genetic clinic for testing.

Part (ii) of the QPI looked at patients with triple negative breast cancer under the age of 50 who were referred to a specialist genetic clinic for testing.

Figure 12: Proportion of patients with triple negative breast cancer who are under 50 and meet the criteria for gene testing and are referred to a specialist genetics clinic.



	Performance (%)	Numerator	Denominator
AA	100%	5	5
FV	-	-	-
LAN	100%	10	10
N&E	-	-	-
SG	100%	9	9
Clyde	100%	10	10
WoS	**100%**	40	40

Data has been restricted for NHSFV and NHSGGC North sector due to small numbers. Performance across the West of Scotland was 100% against the 90% QPI target with all 40 patients aged under 50, diagnosed with triple negative breast cancer being referred to a specialist genetics clinic.

QPI 15: 30 Day Mortality following Systemic Anti-Cancer Therapy

With regards to mortality following SACT, a decision has been taken nationally to move to a new generic QPI (30-day mortality for SACT) applicable across all tumour types. This new QPI will use CEPAS (Chemotherapy ePrescribing and Administration System) data to measure SACT mortality to ensure that the QPI focuses on the prevalent population rather than the incident population. The measurability for this QPI is still under development to ensure consistency across the country and it is anticipated that performance against this measure will be reported in the next audit cycle. In the meantime all deaths within 30 days of SACT will continue to be reviewed at NHS Board level.

QPI 17: Genomic Testing

Gene expression profiling tests can provide an indication of how the disease may progress and therefore assist in treatment planning in relation to chemotherapy[1]. The tolerance within this target accounts for factors of patient choice and fitness for treatment.

QPI Title:	Patients with breast cancer should undergo genomic testing where appropriate.
Numerator:	Number of patients with ER positive, HER2 negative, node negative breast cancer who have a 3-5% overall survival benefit of chemotherapy treatment predicted at 10years that undergo genomic testing.
Denominator:	All patients with ER positive, HER2 negative, node negative breast cancer who have a 3-5% overall survival benefit of chemotherapy treatment predicted at 10years.
Exclusions:	All patients with breast cancer taking part in clinical trials of chemotherapy treatment and patients who have had neo-adjuvant therapy.
Target:	60%

Due to the small numbers meeting the denominator criteria for QPI 17 individual unit results cannot be presented. WoS performance against this QPI was 35% (21 out of 60 cases) of patients with ER positive, HER2 negative, node negative breast cancer who have a 3-5% overall survival benefit of chemotherapy treatment predicted at 10 years that underwent genomic testing.

Boards reviewed cases and reasons for not meeting the QPI include; patients that were discussed at MDT where the decision was made that chemotherapy was not in the patient's best interest clinically, patients who declined, patients who were not fit for chemotherapy, patients who refused Oncotype and proceeded to have chemotherapy and patients that were discussed at MDT and were recommended for chemotherapy/genomic testing however, oncology assessment concluded that genomic testing would not alter treatment plan.

NHSL added that further clinical review is underway examining the 15 patients who did not have genomic testing/ chemotherapy following MDT discussion.

The denominator is inaccurate for a number of Boards because of the recording of the estimated benefit of chemotherapy using the NHS Predict online tool.

Action Required:

- The definition of this QPI will be revised to exclude patients with a low genomic score.
- All NHS boards are encouraged to clearly record the estimated benefit of adjuvant chemotherapy using the NHS Predict online tool to ensure all relevant cases are identified.
- NHSL to present the findings of the proposed clinical review to the MCN.

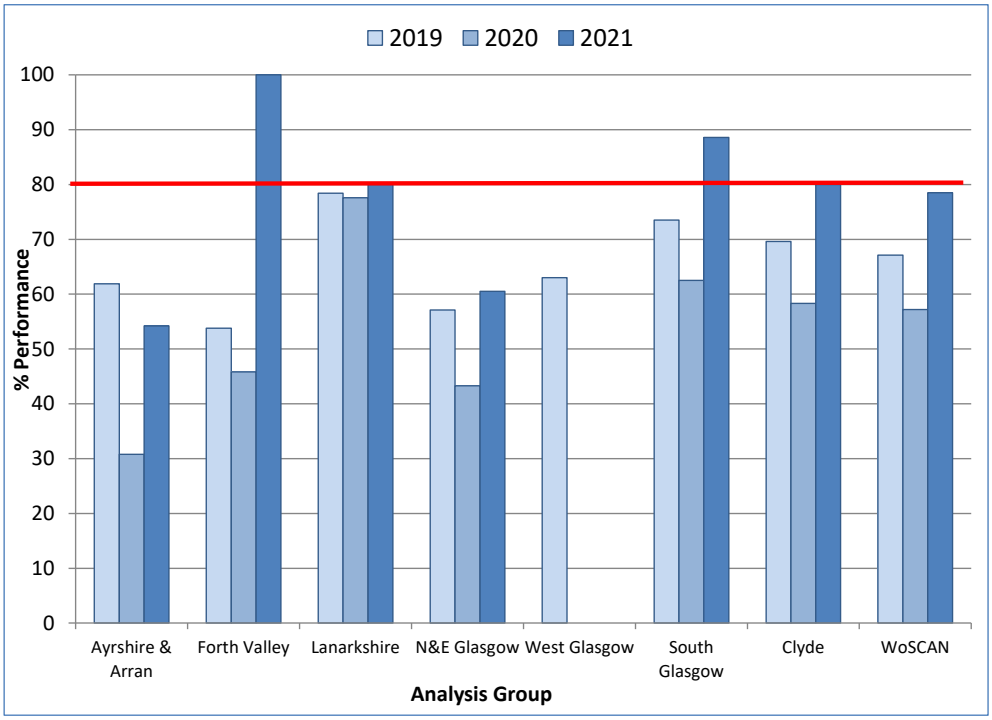
QPI 18: Neo-adjuvant Chemotherapy

Pathological complete response is used as an endpoint to predict clinical benefit and survival. Those patients who achieve pathological complete response (defined as ypT0 ypN0) demonstrate improved survival with the greatest benefit shown in aggressive tumour subtypes.

Evidence has shown that pathologic response to neo-adjuvant chemo is prognostic in HER2 positive and triple negative breast cancers[1].

QPI Title:	(i) Patients with breast cancer who receive chemotherapy should be offered neo-adjuvant chemotherapy with the aim of achieving pathological complete response where appropriate.
Numerator:	Number of patients with triple negative or HER2 positive, Stage II or III ductal breast cancer who receive chemotherapy that undergo neo-adjuvant chemotherapy.
Denominator:	All patients with triple negative or HER2 positive, Stage II or III ductal breast cancer who receive chemotherapy.
Exclusions:	All patients that undergo palliative chemotherapy.
Target:	80%

Figure 13: The proportion of patients with triple negative or HER2 positive, Stage II or III ductal breast cancer who receive chemotherapy that undergo neo-adjuvant chemotherapy



	Performance (%)	Numerator	Denominator
AA	54.2%	13	24
FV	100%	18	18
LAN	80.0%	44	55
N&E	60.5%	23	38
SG	88.6%	62	70
Clyde	80.0%	48	60
WoS	**78.5%**	208	265

Of the 265 patients with triple negative or HER2 positive, Stage II or III ductal breast cancer who received chemotherapy, 78.5% underwent neo-adjuvant chemotherapy, which is slightly below the QPI target of 80%. Three of the six units met the target with the majority showing improvement on the previous year's result.

NHSAA commented that 11 patients not meeting the QPI criteria received primary surgery.

NHSGGC reviewed cases in the North sector, concluding that the lower number can be explained by comorbidities, elderly patients who are not considered fit enough for full dose neoadjuvant chemotherapy and also patients who declined neoadjuvant chemotherapy when offered. Case review did not identify patients where neo-adjuvant chemotherapy was not considered. The Board intends to

record that neo-adjuvant chemotherapy was considered but not thought clinically appropriate in the final MDT outcome for more clarity going forward.

NHSL commented that reasons for patients not meeting the QPI criteria include; patients who were discussed at MDT and seen at clinic before HER2 status was reported, patients who were offered neo-adjuvant chemotherapy or surgery and opted for surgery and patients who went straight to surgery. The Board added that further clinical review is underway examining the patients who were discussed at MDT and seen at clinic before HER2 status was reported. The Q1 2022 local data report shows the results for this QPI to be 94.4%.

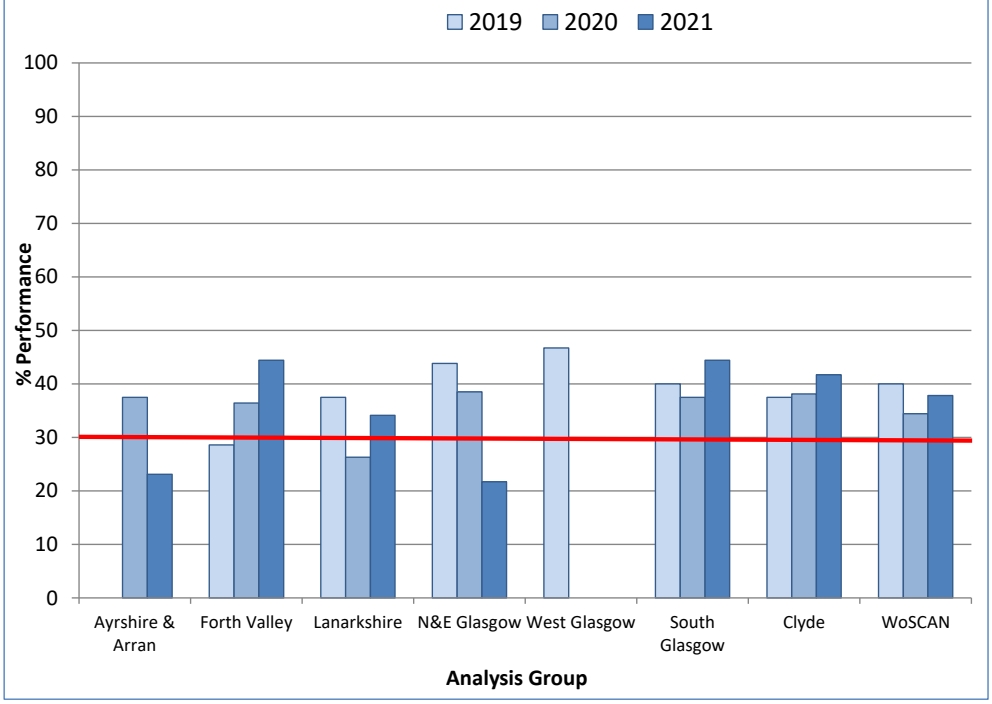
Action Required:

- NHSAA to expand on the reasons for the 11 patients not receiving neoadjuvant chemotherapy.
- NHSGGC to ensure the option of neoadjuvant chemotherapy is recorded at MDT where appropriate.
- NHSL to report to MCN with the outcome of the further clinical review of those patients seen at clinic prior to HER2 status being reported.

Part two of the QPI looks at patients with triple negative or HER2 positive, Stage II or III ductal breast cancer who undergo neo-adjuvant chemotherapy who achieve a pathological complete response. The target for this QPI is set at 30% with the tolerance designed to account for the fact that due to tumour variations, not all patients will achieve a pathological complete response.

QPI Title:	(ii) Patients with triple negative or HER2 positive, Stage II or III ductal breast cancer who undergo neo-adjuvant chemotherapy who achieve a pathological complete response.
Numerator:	Number of patients with triple negative or HER2 positive, Stage II or III ductal breast cancer who undergo neo-adjuvant chemotherapy who achieve a pathological complete response.
Denominator:	All patients with triple negative or HER2 positive, Stage II or III ductal breast cancer who undergo neo-adjuvant chemotherapy.
Exclusions:	No exclusions.
Target:	30%

Figure 14: The proportion of patients with triple negative or HER2 positive, Stage II or III ductal breast cancer who undergo neo-adjuvant chemotherapy who achieve a pathological complete response.



	Performance (%)	Numerator	Denominator
AA	23.1%	3	13
FV	44.4%	8	18
LAN	34.1%	15	44
N&E	21.7%	5	23
SG	44.4%	28	63
Clyde	41.7%	20	48
WoS	**37.8%**	79	209

Overall in the WoS, 37.8% of patients with triple negative or HER2 positive, Stage II or III ductal breast cancer who underwent neo-adjuvant chemotherapy achieved a pathological complete response, which meets the 30% QPI target. Four of the six units met the target with NHSAA and NHSGGC North sector below the 30% target with a performance of 23.1% and 21.7% respectively.

NHSAA reported that ten patients either had no response or a partial response to adjuvant chemotherapy.

NHSGGC noted that cases in NHSGGC North sector were reviewed and no specific reasons for lower performance were found. The same chemotherapy regimes/doses were used. Several patients had <1% tumour remaining therefore still had very good response to chemotherapy.

Action Required:

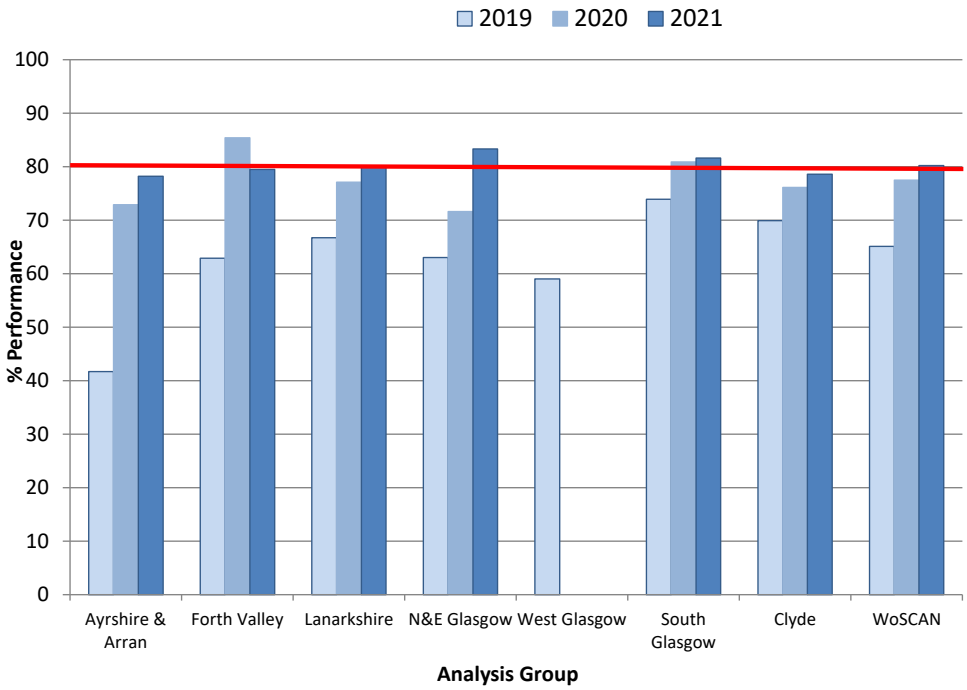
- NHS GGC North sector and NHSAA to confirm treatment regimes and proportion of patients completing treatment. Audit team to ensure the same definition of pathological complete response is being applied.

QPI 19: Deep Inspiratory Breath Hold (DIBH) Radiotherapy

Evidence has shown that the use of deep inspiratory breath-hold (DIBH) technique during breast radiotherapy leads to a significant reduction in cardiac side effects without compromising the target coverage. This has been shown to lead to a reduction in future cardiovascular morbidity and mortality.

QPI Title:	Proportion of patients with left sided breast cancer or DCIS receiving adjuvant radiotherapy treatment who use a DIBH radiotherapy technique.
Numerator:	Number of patients with left sided breast cancer or DCIS receiving adjuvant radiotherapy treatment who use a DIBH radiotherapy technique.
Denominator:	All patients with left sided breast cancer or DCIS receiving adjuvant radiotherapy treatment.
Exclusions:	No exclusions
Target:	80%

Figure 15: The proportion of patients with left sided breast cancer or DCIS receiving adjuvant radiotherapy treatment who use a DIBH radiotherapy technique.



	Performance (%)	Numerator	Denominator
AA	78.2%	97	124
FV	79.5%	62	78
LAN	79.9%	143	179
N&E	83.3%	95	114
SG	81.6%	160	196
Clyde	78.6%	136	173
WoS	**80.2%**	693	864

Overall in the WoS 80.2% of patients with left sided breast cancer or DCIS receiving adjuvant radiotherapy treatment used a DIBH radiotherapy technique, which meets the 80% QPI target. NHSAA and NHSGGC Clyde sector narrowly missed the target with performance of 78.2% and 78.6% respectively.

NHSAA commented that DIBH technique was not documented on the radiotherapy spreadsheet or any correspondence for the patients not meeting the QPI criteria.

NHSGGC reported that the Board has no concerns about performance in this area, and acknowledges that many patients cannot tolerate DIBH.

NHSL commented that since the final submission of data was sent to the WoSCAN MCN for analysis, 3 patient's radiotherapy data has been updated. All 3 patients were treated with DIBH radiotherapy resulting in an updated NHS Lanarkshire result of81.6% with 146 cases meeting the QPI target. In addition to this, there are 2 patients within the denominator of this QPI who were diagnosed with bilateral cancer but who did not receive radiotherapy to the left breast and should therefore be excluded from analysis. This has been highlighted to PHS as a potential measurability issue and will be discussed during the formal review.

Action Required:

- NHSAA to review cases further with oncology lead to establish reasons for DIBH not being used.

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 III.

Acknowledgement

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

BWoSCC	Beatson West of Scotland Cancer Centre
DCIS	Ductal Carcinoma InSitu
DIBH	Deep Inspiratory Breath Hold
e-CASE	Electronic Cancer Audit Support Environment
HER2	Human Epidermal growth factor Receptor
HIS	Healthcare Improvement Scotland
IHC	ImmunoHistoChemistry
MCN	Managed Clinical Network
MDT	Multidisciplinary Team
MRA	Magnetic Resonance Angiography
NHSGGC	NHS Greater Glasgow and Clyde
NCQSG	National Cancer Quality Steering Group
PHS	Public Health Scotland
QPI(s)	Quality Performance Indicator(s)
RCOG	Regional Clinical Oversight Group
SACT	Systemic Anti-Cancer Therapy
SCRN	Scottish Cancer Research Network
WLE	Wide Local Excision
WoS	West of Scotland
WoSCAN	West of Scotland Cancer Network

References

1. Healthcare Improvement Scotland [Accessed on 25.10.2022] http://www.healthcareimprovementscotland.org

2. Information Services Division Cancer Audit (ISD) [Accessed on 25.10.2022] http://www.isdscotland.org/Health-Topics/Cancer/Cancer-Audit/

3. Information Services Division Cancer Statistics [Accessed on 25.10.2022] http://www.isdscotland.org/Health-Topics/Cancer/Cancer-Statistics/Breast/

4. Cancer in Scotland (July 2020): Information Services Division, NHS National Services Scotland Cancer in Scotland (isdscotland.org) [Accessed on 25.10.2022]

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Appendix 1: Meta Data

<table>
<tr><td>Report Title</td><td>Cancer Audit Report: Breast Cancer Quality Performance Indicators</td></tr>
<tr><td>Time Period</td><td>Patients diagnosed between 01 January 2021 and 31 December 2021</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 28th September 2022.</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.

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 PHS Public Health Scotland); 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.

Breast Cancer
<table>
<tr><th>Health Board of diagnosis</th><th>2021 Audit</th><th>Cancer Reg 2016-20*</th><th>Case Ascertainment</th></tr>
<tr><td>Ayrshire & Arran</td><td>397</td><td>422</td><td>94.1%</td></tr>
<tr><td>GGC</td><td>1321</td><td>1455</td><td>90.8%</td></tr>
<tr><td>Forth Valley</td><td>211</td><td>188</td><td>112.2%</td></tr>
<tr><td>Lanarkshire</td><td>517</td><td>360</td><td>143.6%</td></tr>
<tr><td>WoSCAN Total</td><td>2446</td><td>2425</td><td>100.9%</td></tr>
</table></td></tr>
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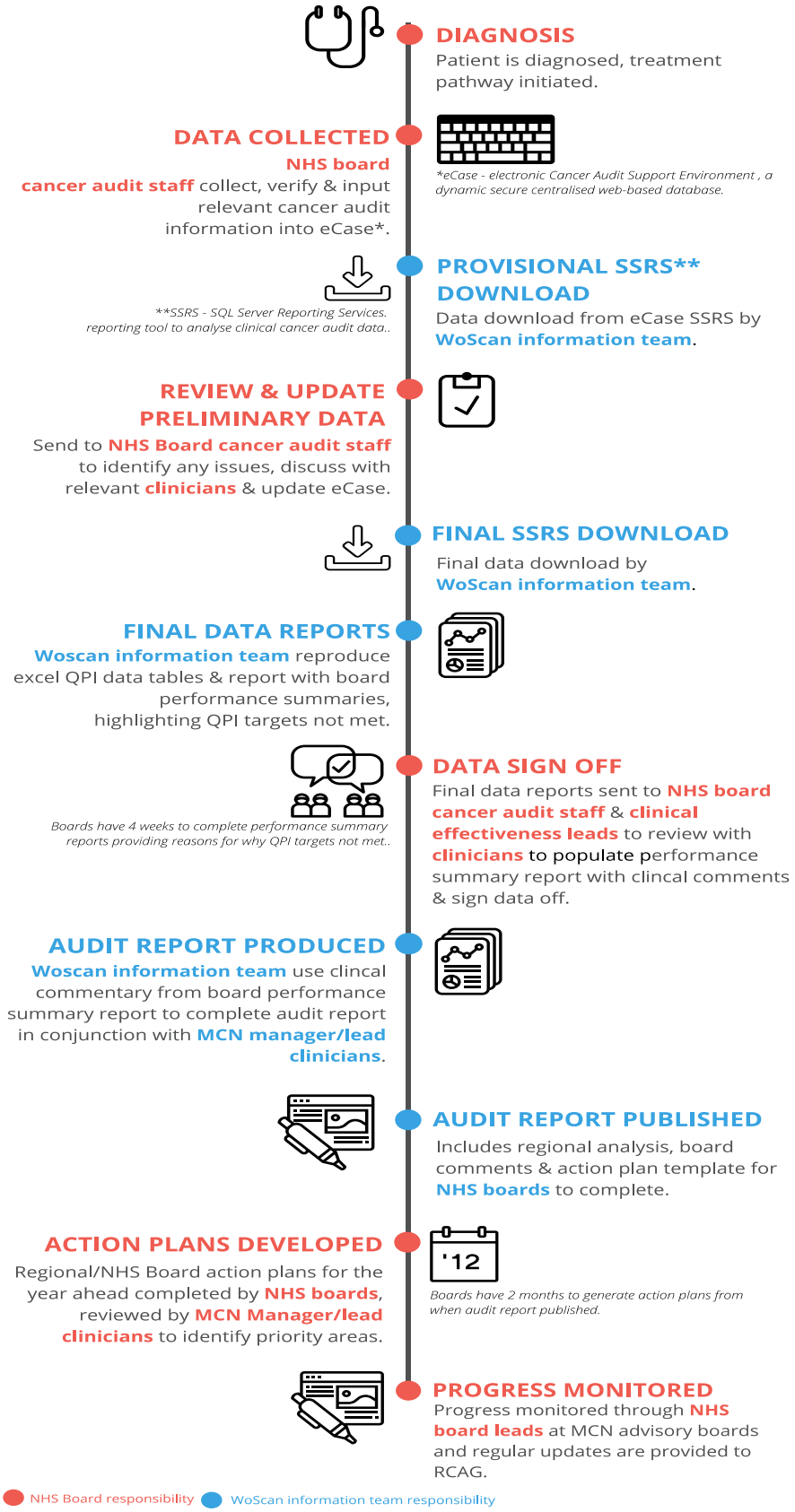
Appendix 2: Cancer Audit Timeline



Appendix 3: Action / Improvement Plan

Breast Cancer QPI Action / Improvement Plan 01 Jan - 31 Dec 2021

Health Board:	WoSCAN
Action Plan Lead:	
Date:	

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

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*
1.	**QPI 9: HER2 Status for Decision Making** MCN Clinical Lead to liaise with Molecular Pathology regarding possible strategy to improve FISH reporting time.						
2.	**QPI 10: Radiotherapy for Breast Conservation in Older Adults** To reflect the change in evidence and practice this QPI will be archived as part of the formal QPI review process.						

No	Action Required	Health Board Action Taken	Timescales		Lead	Progress/Action Status	Status (see key)
			Start	End			
3.	**QPI 11: Adjuvant Chemotherapy** The definition of this QPI will be revised to exclude patients with a low genomic score.						
4.	**QPI 17: Genomic Testing** The definition of this QPI will be revised to exclude patients with a low genomic score.						

Breast Cancer QPI Action / Improvement Plan

Health Board:	NHS Ayrshire & Arran
Action Plan Lead:	
Date:	

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

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*
1.	**QPI 11: Adjuvant Chemotherapy** All NHS Boards are encouraged to clearly record the estimated benefit of adjuvant chemotherapy using the NHS Predict online tool to ensure all relevant cases are identified.						
2.	**QPI 17: Genomic Testing** All NHS Boards are encouraged to clearly record the estimated benefit of adjuvant chemotherapy using the NHS Predict online tool to ensure all relevant cases are identified.						
3.	**QPI 18: Neo-adjuvant Chemotherapy (i)** NHSAA to expand on the reasons for the 11 patients not						

No	Action Required	Health Board Action Taken	Timescales		Lead	Progress/Action Status	Status (see key)
			Start	End			
	receiving neoadjuvant chemotherapy.						
4.	**QPI 18: Neo-adjuvant Chemotherapy (ii)** NHSAA to confirm treatment regimes and proportion of patients completing treatment. Audit team to ensure the same definition of pathological complete response being applied.						
5.	**QPI 19: Deep Inspiratory Breath Hold (DIBH) Radiotherapy** NHSAA to review cases further with oncology lead to establish reasons for DIBH not being used.						

Breast Cancer QPI Action / Improvement Plan

Health Board:	NHS Forth Valley
Action Plan Lead:	
Date:	

KEY (Status)	
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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*
1.	**QPI 11: Adjuvant Chemotherapy** All NHS Boards are encouraged to clearly record the estimated benefit of adjuvant chemotherapy using the NHS Predict online tool to ensure all relevant cases are identified.						
2.	**QPI 17: Genomic Testing** All NHS Boards are encouraged to clearly record the estimated benefit of adjuvant chemotherapy using the NHS Predict online tool to ensure all relevant cases are identified.						

Breast Cancer QPI Action / Improvement Plan

Health Board:	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)

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*
1.	**QPI 11: Adjuvant Chemotherapy** All NHS Boards are encouraged to clearly record the estimated benefit of adjuvant chemotherapy using the NHS Predict online tool to ensure all relevant cases are identified.						
2.	**QPI 17: Genomic Testing** All NHS Boards are encouraged to clearly record the estimated benefit of adjuvant chemotherapy using the NHS Predict online tool to ensure all relevant cases are identified.						
3.	**QPI 18: Neo-adjuvant Chemotherapy (i)** NHSGGC to ensure the option of neoadjuvant chemotherapy						

No	Action Required	Health Board Action Taken	Timescales		Lead	Progress/Action Status	Status (see key)
			Start	End			
	is recorded at MDT where appropriate.						
4.	**QPI 18: Neo-adjuvant Chemotherapy (ii)** NHS GGC North sector to confirm treatment regimes and proportion of patients completing treatment. Audit team to ensure the same definition of pathological complete response being applied.						

Breast Cancer QPI Action / Improvement Plan

Health Board:	NHS Lanarkshire
Action Plan Lead:	
Date:	

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

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*
1.	**QPI 11: Adjuvant Chemotherapy** All NHS Boards are encouraged to clearly record the estimated benefit of adjuvant chemotherapy using the NHS Predict online tool to ensure all relevant cases are identified.						
2.	**QPI 17: Genomic Testing** All NHS Boards are encouraged to clearly record the estimated benefit of adjuvant chemotherapy using the NHS Predict online tool to ensure all relevant cases are identified.						
3.	**QPI 17: Genomic Testing** NHSL to present the findings of the proposed clinical review to the MCN.						

No	Action Required	Health Board Action Taken	Timescales		Lead	Progress/Action Status	Status (see key)
			Start	End			
4.	**QPI 18: Neo-adjuvant Chemotherapy (i)** NHSL to report to MCN with the outcome of the further clinical review of those patients seen at clinic prior to HER2 status being reported.						