

Mesothelioma Clinical Audit Report

Quality Performance Indicators

01 January – 31 December 2023



Contents

Mesothelioma QPI Overview 2023	3
Executive Summary.....	4
Introduction	4
Methodology.....	4
Results	4
Summary of QPI Results	7
Conclusions	8
Action Required	8
Introduction.....	9
Background.....	9
National Context	10
Incidence	10
Results.....	14
QPI 1: Diagnostic Imaging.....	
QPI 2: Diagnostoc Histopathology	19
QPI 3:Multidisciplinary Team	22
QPI 4:Systemic Anti Cancer Treatment.....	23
QPI 5:Radiotherapy for Management of Pain	25
QPI 6: Pleural Fluid Management.....	25
QPI 8: Post Mortem.....	28
Appendix 1: Meta Data	30

Mesothelioma Cancer QPI Overview 2023

Mesothelioma Quality Performance Indicators

Patients Diagnosed: 1 January 2023 - 31 December 2023

Number Diagnosed with Pleural Mesothelioma: **132**

Number Diagnosed with Mesothelioma: **138**

Sex:

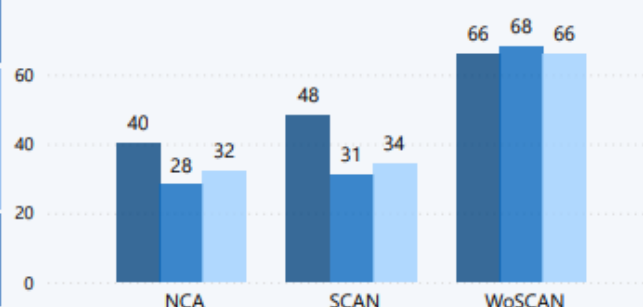
Female 20.5%

Male 79.5%

Median Age: **78**

No. of Patients by Region of Diagnosis

● 2021 ● 2022 ● 2023



QPI Performance

QPI	Target	National	QPI Met
QPI 1(i) - Diagnostic Imaging	90%	93.2%	✓
QPI 1(ii) - Diagnostic Imaging	95%	98.3%	✓
QPI 2(i) - Diagnostic: Histopathology	85%	93.9%	✓
QPI 2(ii) - Diagnostic: Histopathology	95%	99.2%	✓
QPI 2(iii) - Diagnostic: Histopathology	95%	98.7%	✓
QPI 3 - Multidisciplinary Team	95%	97.7%	✓
QPI 4 - Systemic Anti Cancer Treatment	60%	76.3%	✓
QPI 5 - Radiotherapy for Management of Pain	75%	62.5%	✗
QPI 6 - Pleural Fluid Management	90%	73.1%	✗
QPI 8 - Post-Mortem Examination	< 10%	6.3%	✓

Areas for Action

Further analysis will be coordinated by SMN to understand variance in performance:

- QPI 1 (i) and (ii)
- QPI 3
- QPI 5
- QPI 6

Key Achievements

This was the fourth year of the mesothelioma QPI data reporting. QPI data was met nationally on five out of the seven reported QPIs, and performance has improved across all the reported QPIs in all regions with notable improvements in QPI 2 (i) and (iii). QPI 3 continued to improve with ongoing education and engagement with regional MDTs. QPI 5 and 6 did not meet the target despite changes to the measurement criteria at Formal Review in early 2023, although there is improvement shown in QPI 5 and SCAN achieved 100% on QPI 6. QPI 4 showed a marked improvement across all regions.

It should be noted that the denominator numbers for many of the QPIs are small and that impacts percentages. In some cases where QPI targets have not been achieved this has resulted in non compliance in only a single case in some boards.

Executive Summary

Introduction

This report presents an assessment of the performance of Mesothelioma services using clinical audit data relating to patients diagnosed with mesothelioma across Scotland from 01 January 2023 to 31 December 2023. These results are measured against the mesothelioma quality performance indicators (QPIs), which were introduced for patients diagnosed from 01 Jan 2020 for the fifth consecutive year.¹

Methodology

Further detail on the audit and analysis methodology and data quality is available in the meta data within [Appendix 1](#).

A summary of the mesothelioma QPI 2023 clinical audit data is presented below, with a more detailed analysis within the main report. Commentary provided by NHS Boards, or Regions provide insight into the circumstances around each QPI result to assist the improvement process.

Results

The overall number of newly diagnosed mesothelioma patients in Scotland identified by clinical audit was 132, up from the 127 identified by the 2022 audit. Diagnoses rose slightly within SCAN and NCA, however have still not returned to 2021 levels within these regions. Diagnosis remained stable in WoSCAN, down by two patients compared to the previous year, but the same as the 2021 audit.

SMN is carrying out further analysis to understand the variance across 2021-23 (SCAN and NCA numbers dropped from 2021-22 by 30%) and whether it is related to the COVID pandemic, a case ascertainment error or other. If the issue is case ascertainment, then current QPI performance is artificially high and will need to be reviewed.

Summary of QPI Results

Colour Key	
	Above QPI target
	Below QPI target

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

QPI	QPI target	Year	NCA	SCAN	WoSCAN	Scotland
QPI 1(i) - Diagnostic Imaging Proportion of patients in whom CT scan optimised for pleural assessment (between 60 and 90 seconds) is carried out for first discussion at the national MDT	90%	2023	87.5% (28 / 32)	91.2% (31 / 34)	97.0% (64 / 66)	93.2% (123 / 132)
		2022	82.1%	96.8%	95.6%	92.9%
		2021	88%	85%	80%	84%
QPI 1(ii) - Diagnostic Imaging Proportion of patients in whom CT scan optimised for pleural assessment (between 60 and 90 seconds) is carried out for first discussion at the national MDT, and TNM stage is recorded.	95%	2023	100.0% (27 / 27)	100.0% (29 / 29)	96.7% (59 / 61)	98.3% (115 / 117)
		2022	100.0%	100.0%	93.7%	96.4%
		2021	83%	100%	91%	92%
QPI 2(i) - Diagnostic: Histopathology Proportion of patients with mesothelioma who have a histopathological diagnosis.	85%	2023	96.9% (31 / 32)	94.1% (32 / 34)	92.4% (61 / 66)	93.9% (124 / 132)
		2022	92.6%	90.3%	100.0%	96.0%
		2021	83%	96%	94%	92%

QPI	QPI target	Year	NCA	SCAN	WoSCAN	Scotland
QPI 2(ii) - Diagnostic: Histopathology Proportion of patients with a histopathological diagnosis of mesothelioma who have subtype identified.	95%	2023	100.0% (31 / 31)	100.0% (32 / 32)	98.4% (60 / 61)	99.2% (123 / 124)
		2022	100.0%	92.9%	100.0%	98.3%
		2021	100%	100%	100%	100%
QPI 2(iii) - Diagnostic: Histopathology Proportion of patients with a histopathological diagnosis of epithelioid mesothelioma who have IHC markers profiling undertaken.	95%	2023	100.0% (21 / 21)	100.0% (24 / 24)	97.1% (33 / 34)	98.7% (78 / 79)
		2022	84.6%	90.0%	97.4%	93.0%
		2021	100%	91%	87%	92%
QPI 3 - Multidisciplinary Team Proportion of patients with mesothelioma who are discussed at the national mesothelioma MDT meeting.	95%	2023	100.0% (32 / 32)	94.1% (32 / 34)	98.5% (65 / 66)	97.7% (129 / 132)
		2022	100.0%	96.8%	97.1%	97.6%
	100%	2021	100%	96%	88%	94%
QPI 4 - Systemic Anti-Cancer Treatment Proportion of patients with mesothelioma and performance status (PS) 0-1 who receive first line treatment with SACT using platinum and pemetrexed and ipilimumab-nivolumab immunotherapy (This QPI uses previous the year's data; QPI not audited in 2022)	60%	2023	78.6% (11 / 14)	90.0% (9 / 10)	71.4% (25 / 35)	76.3% (45 / 59)
		2022				
		2021	55%	55%	45%	49%
QPI 5 - Radiotherapy for the Management of Pain Proportion of patients with mesothelioma who are referred to the national MDT for pain relief who receive radiotherapy. (This QPI uses previous the year's data; QPI not audited in 2022)	75%	2023	50.0% (- / -)	100.0% (- / -)	66.7% (- / -)	62.5% (5 / 8)
		2022				
		2021	40%	-	55%	53%

QPI	QPI target	Year	NCA	SCAN	WoSCAN	Scotland
QPI 6 - Pleural Fluid Management Proportion of patients with mesothelioma with symptomatic pleural effusion who undergo either talc pleurodesis (via slurry or poudrage) or indwelling pleural catheter (IPC) insertion to manage fluid. (QPI not audited in 2022)	90%	2023	85.7% (12 / 14)	100.0% (17 / 17)	55.6% (20 / 36)	73.1% (49 / 67)
		2022				
		2021	76%	91%	68%	77%
QPI 8 - Post-Mortem Examination Proportion of patients who have died with a pathological diagnosis of mesothelioma who undergo post-mortem examination.	< 10%	2023	14.3% (2 / 14)	5.0% (1 / 20)	3.4% (1 / 29)	6.3% (4 / 63)
		2022	20.0%	5.6%	0.0%	6.3%
		2021	0%	0%	0%	0%



Conclusions

The continued support and commitment of the Scottish Mesothelioma Network members ensures the delivery of high-quality care to mesothelioma cancer patients across the country.

Patients with mesothelioma receive high quality care across Scotland and the results presented in this report demonstrate the continued commitment to improve the experience and care received across the patient pathway. Data capture is of a high standard enabling robust assessment of performance against QPIs.

All QPIs presented in this report were subject to recent evaluation during the first mesothelioma QPI Formal Review in 2022. Changes identified were implemented in the 2023 reporting. QPI measures that have presented continued and specific challenges were amended to capture and report on newly identified best practice. As a result QPI 4, 5 and 6 were not reported in the 2022 audit.

The graphs used in this current 2023 audit report show comparison data across 2021-23 where available. This comparison provides evidence of consistent improvement in QPIs 1, 2, 3, 4 and 8 across all Health Boards. QPIs 5 and 6, around Radiotherapy for Uncontrolled Pain Management and Pleural Fluid Management are proving more challenging. Although QPI 5 is showing some improvement since the changes made at formal review in early 2023.

Each NHS Board has provided detailed comments on the results where QPI targets were not met. Board feedback indicates valid clinical reasons and patient locality or co-morbidities that influenced patient management. There are some areas where there are specific challenges that require action either within or out with specific boards/centres which will be discussed later in the report. Additionally, these 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 going forward.

Areas for Future Consideration

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

The following area for future consideration has been raised across the lifetime of the Mesothelioma QPIs.

- Palliative Management of Mesothelioma Patients

1. Introduction

This report contains an assessment of the performance of Scotland wide Mesothelioma services using clinical audit data relating to patients diagnosed with mesothelioma in the twelve months between 1st January 2023 and 31st December 2023. This audit data underpins 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 a MCN to assure the quality of care delivered across the three regions.

Twelve months of data were measured against v2.0 of the Mesothelioma Quality Performance Indicators (QPIs)¹ which were implemented for patients diagnosed on or after 01 January 2021.

2. Background

Mesothelioma is a type of cancer that develops in the lining that covers the outer surface of many of the body's organs. Mesothelioma mainly affects the lining of the lungs (pleural mesothelioma), although it can also affect the lining of the abdomen (peritoneal mesothelioma), heart or testicles.

In Scotland approximately 200 people are diagnosed with mesothelioma each year. Exposure to asbestos is the most common cause of mesothelioma.

Established in 2019, the Scottish Mesothelioma Network links specialty health professionals, allied health professionals, researchers, patient and carer representatives and voluntary sector representatives to enable collaboration to improve the delivery of care for patients in Scotland. The QPIs developed by Healthcare Improvement Scotland (HIS)¹ working with SMN and the regional cancer networks ensure NHS Boards focus on:

- improving survival
- improving patient experience
- reducing differences in practice
- providing safe, effective, person-centred care



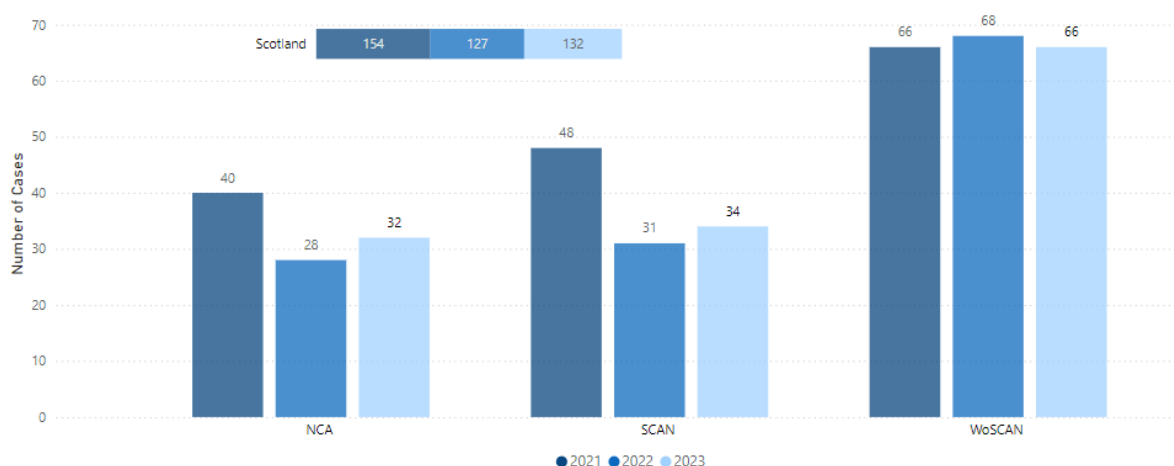
National Context

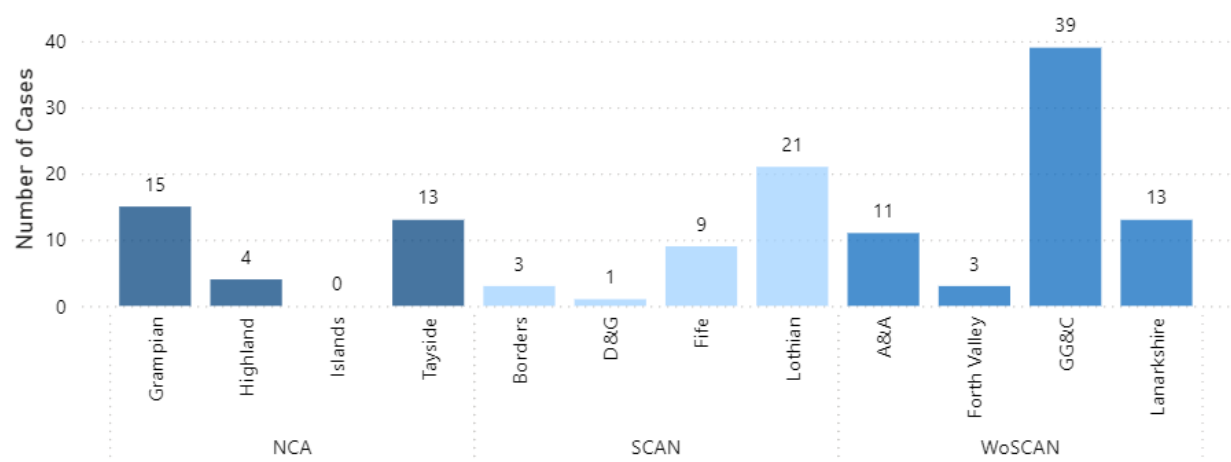
1.) Incidence

Mesothelioma is a relatively rare cancer with 195 diagnoses reported by Public Health Scotland in 2021.³ The 2023 QPI clinical audit identified 132 patients diagnosed with mesothelioma in Scotland.

The distribution of the 132 newly diagnosed cases in 2023 is presented in Figure 1 by location of diagnosis across the fourteen NHS Boards. This indicates slightly more diagnoses in SCAN relative to the adult population distribution in this region as described by the 2022 mid-year population estimates as the majority of the Scottish adult population (44.9%) resides within the West of Scotland (WoS).

Figure 1: Number of patients diagnosed with mesothelioma of the pleura across Scotland by NHS Board, 2023





2 Age and Gender Distribution

Figure 2 illustrates the distribution of mesothelioma cancer cases by age. Mesothelioma continues to be more prevalent in patients' ≥ 70 years with 108 of the total cases diagnosed occurring in patients within this age group. Between January 2023 and December 2023, 81% of the cases diagnosed were male with females accounting for 19% of cases.

Figure 2: Age range of patients diagnosed with mesothelioma.

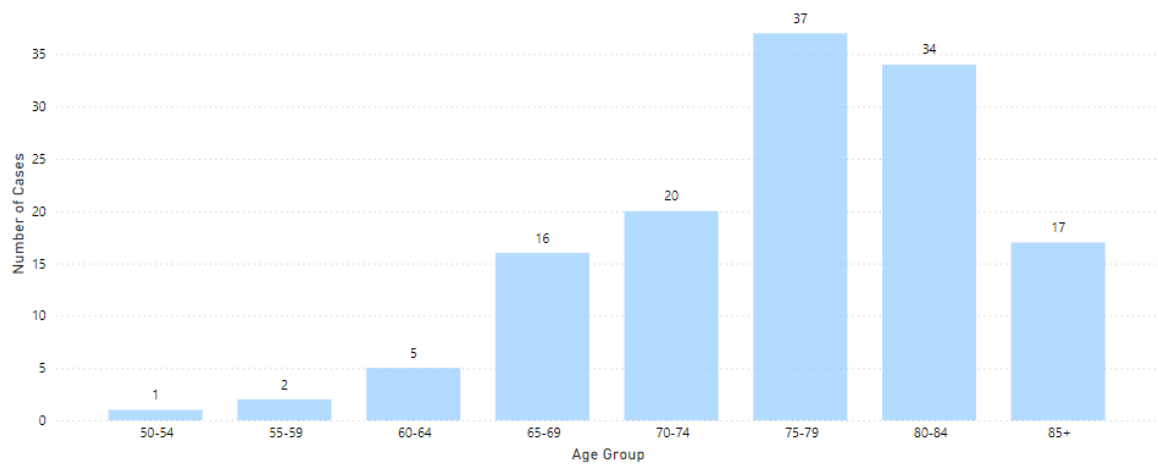


Figure 3: Gender distribution of patients with mesothelioma 2023

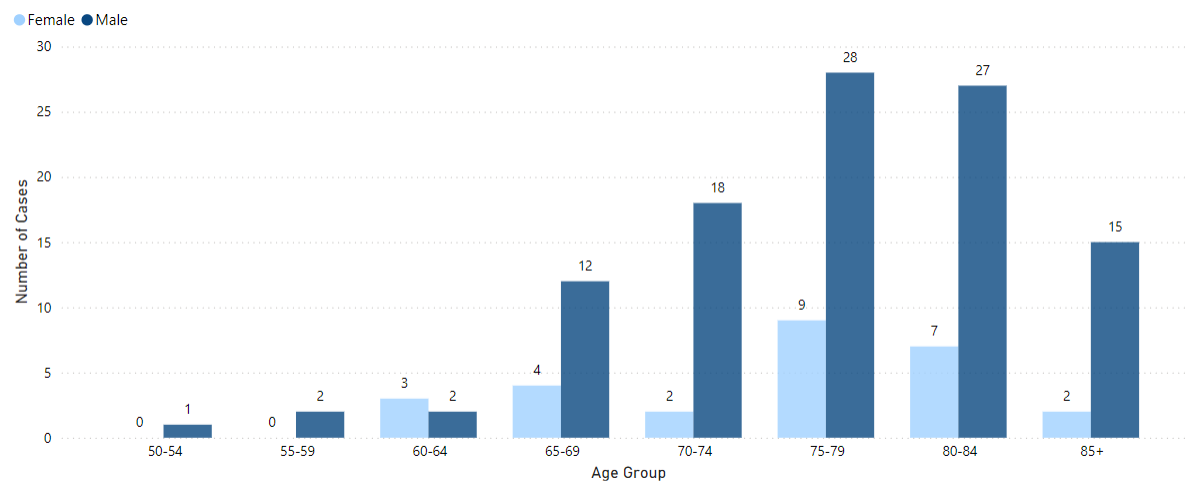
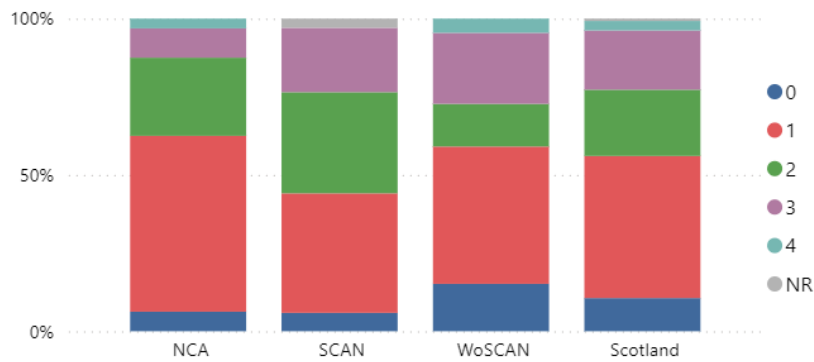


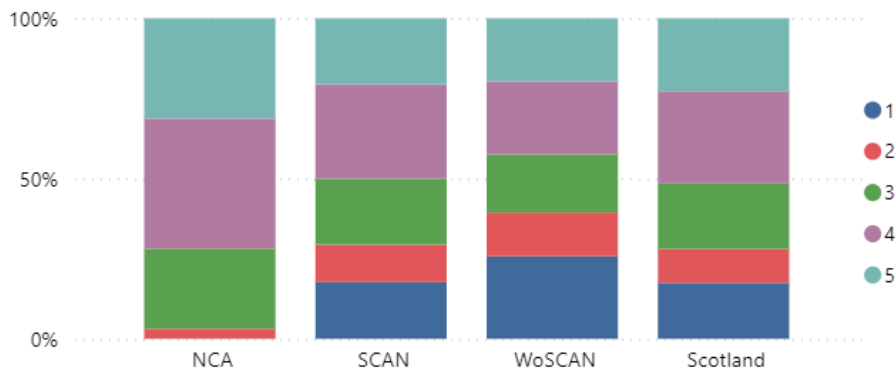
Figure 3: shows the WHO Performance Status (PS) of patients diagnosed with mesothelioma, with 0 being fully active and 4 being completely disabled.



Performance status table

	NCA		SCAN		WoSCAN		Scotland	
	n	%	n	%	n	%	n	%
0	2	6.3%	2	5.9%	10	15.2%	14	10.6%
1	18	56.3%	13	38.2%	29	43.9%	60	45.5%
2	8	25.0%	11	32.4%	9	13.6%	28	21.2%
3	3	9.4%	7	20.6%	15	22.7%	25	18.9%
4	1	3.1%	0	0.0%	3	4.5%	4	3.0%
NR	0	0.0%	1	2.9%	0	0.0%	1	0.8%
Total	32		34		66		132	

Figure below shows the Scottish Index of Multiple Deprivation (SIMD) 2023 quintiles for patients diagnosed mesothelioma.



Methodology

The main report discusses the clinical audit data in more detail with analysis of individual QPI results. Regional or treatment centre performance against each QPI target and overall national results are illustrated. Results are presented as graphic and tabular format. Missing data is highlighted and any possible effect on the measured outcomes identified.

When the denominator of case numbers for any indicator is between one and four, the percentage calculation is not shown on associated charts or tables. This is to avoid unjustified variation associated with small numbers and to minimise disclosure risk. Charts or tables impacted by this restricted data are shown with a dash (-). An asterisk (*) is applied to indicate a denominator of zero and to distinguish it from a 0% performance.

Commentary provided by NHS Boards or Regions relating to any impacted indicators will be included as a detailed record of the circumstances affecting the outcome and to assist the improvement process. Specific NHS Board, Region or MDT/neuro-oncology centre actions have been identified to address issues highlighted through data analysis.

Results

Analysis of individual mesothelioma QPIs are set out in the following sections. Graphs and charts have been provided where this aids interpretation and, where appropriate, numbers are also included to provide context.

Data are presented for each QPI by region of diagnosis or by location of treatment as well as the overall national performance. Where possible, three years of data (Years 2-4) data is presented. As described in the methodology section, data with a denominator between one and four is restricted data (-) to minimise disclosure risk and to avoid skewed data caused by the small numbers involved and for a denominator of zero (*) to distinguish this from a 0% performance. Commentary from Boards and Regions are reported as a record of how the issues highlighted in the report will be addressed.



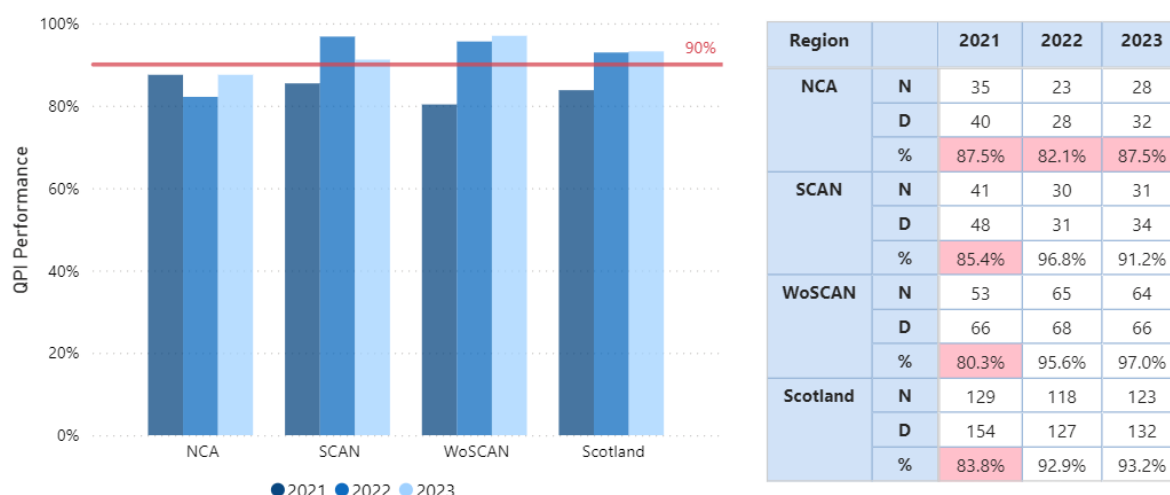
QPI 1: Diagnostic Imaging

(i) Proportion of patients in whom CT scan optimised for pleural assessment (between 60 and 90 seconds) is carried out for first discussion at the national MDT

Thoracic computed tomography (CT) scan optimised for pleural assessment should be undertaken as standard for diagnosis and staging in patients with mesothelioma.¹ The target for this QPI is 90% with the tolerance designed to account for patients with significant renal impairment (e.g. eGFR <30) or allergies to iodinated contrast. In addition, it accounts for those patients in whom diagnosis was an incidental finding on non-contrast CT, and additional imaging is not clinically required¹.

Description:	(i) Proportion of patients in whom CT scan optimised for pleural assessment (between 60 and 90 seconds) is carried out for first discussion at the national MDT.
Numerator:	Number of patients with mesothelioma in whom CT scan optimised for pleural assessment was carried out for first discussion at the national MDT meeting.
Denominator:	All patients diagnosed with mesothelioma.
Exclusions:	Patients who refused investigation.
Target:	90%

Figure 4: The proportion of patients in whom CT scan optimised for pleural assessment (between 60 and 90 seconds) is carried out for first discussion at the national MDT.

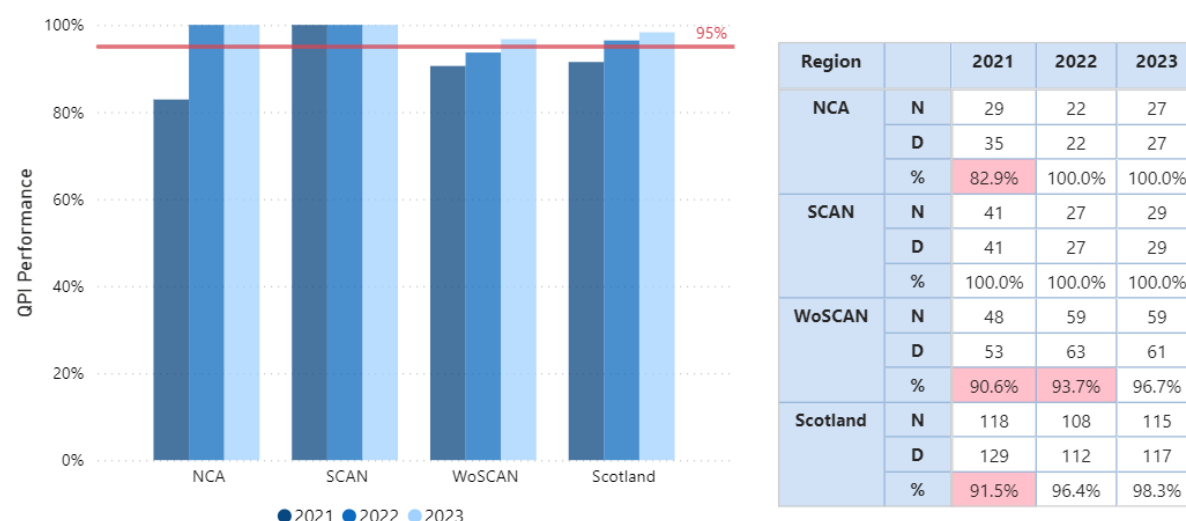


Overall NCA have not meet this target for the past three years. This is as a result of the pathway in NHS Highland which has remained non complaint for the third year in a row. In 2023 zero out of four patients met the target with the HB clinical lead commenting “This remains a problem within our clinical pathway which is set up for lung cancer imaging. Discussions are ongoing as to how we can improve this pathway.”

This follow on from the 2022 commentary which stated “*This is a small number of patients and largely reflects imaging requested prior to the involvement of the respiratory team. We are working with our radiology colleagues to look at a system to improve this.*”

(ii) Proportion of patients in whom CT scan optimised for pleural assessment (between 60 and 90 seconds) is carried out for first discussion at the national MDT, and TNM stage is recorded.

Description:	(ii) Proportion of patients in whom CT scan optimised for pleural assessment (between 60 and 90 seconds) is carried out for first discussion at the national MDT, and TNM stage is recorded.
Numerator:	Number of patients with mesothelioma in whom CT scan optimised for pleural assessment was carried out for first discussion at the national MDT meeting, who have TNM stage recorded.
Denominator:	Number of patients with mesothelioma in whom CT scan optimised for pleural assessment was carried out for first discussion at the national MDT meeting.
Exclusions:	No exclusions.
Target:	95%



Overall, 98.3% of patients across Scotland in whom CT scan was optimised for pleural assessment and carried out for first discussion at the national MDT had TNM recorded, which is above the 95% QPI target.

SCAN achieved 100% compliance for three years in a row and NCA 100% for the last two years.

WoSCAN did not meet the target in 2022 or 2023. Actions outlined in 2023 included:

- NMCN to carry out an internal validation study of CT phase timing for quality control purposes.
- NMCN to provide more support/education to sites with below average performance to encourage engagement with MDT process.
- MCN National Lead and MDT Co-ordinator to consider the introduction of a tickbox on the MDT form to clarify mode of diagnosis.

Overall, as a result of the implementation of the above actions WoSCAN achieved 96.7% (59 out of 61 patients) compliance in 2023.

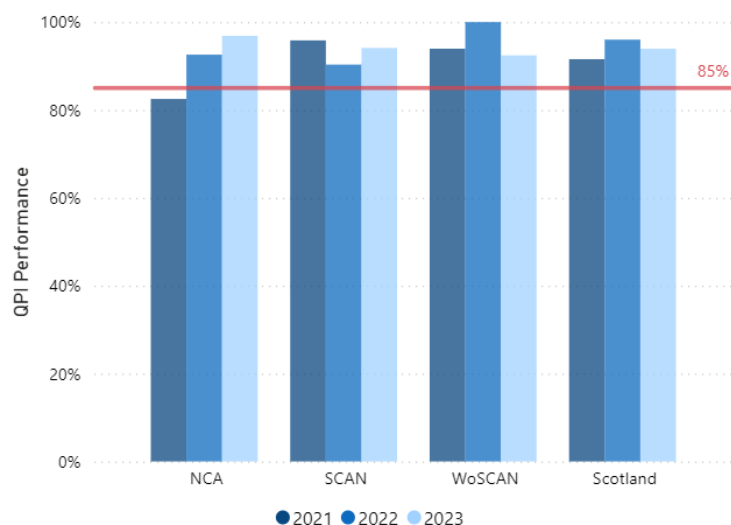
QPI 2: Diagnostic: Histopathology

(i) Proportion of patients with mesothelioma who have a histopathological diagnosis.

Patients should have a histopathological diagnosis of Mesothelioma. A definitive histological diagnosis of mesothelioma is valuable in helping inform patients and carers about the nature of the disease and the likely prognosis and to facilitate compensation claims¹. The tolerance within this target is to account for patients in whom pursuit of tissue is not clinically safe or appropriate¹.

Description:	(i) Proportion of patients with mesothelioma who have a histopathological diagnosis.
Numerator:	Number of patients with mesothelioma who have a histopathological diagnosis.
Denominator:	All patients diagnosed with mesothelioma.
Exclusions:	Patients who refuse investigation.
Target:	85%



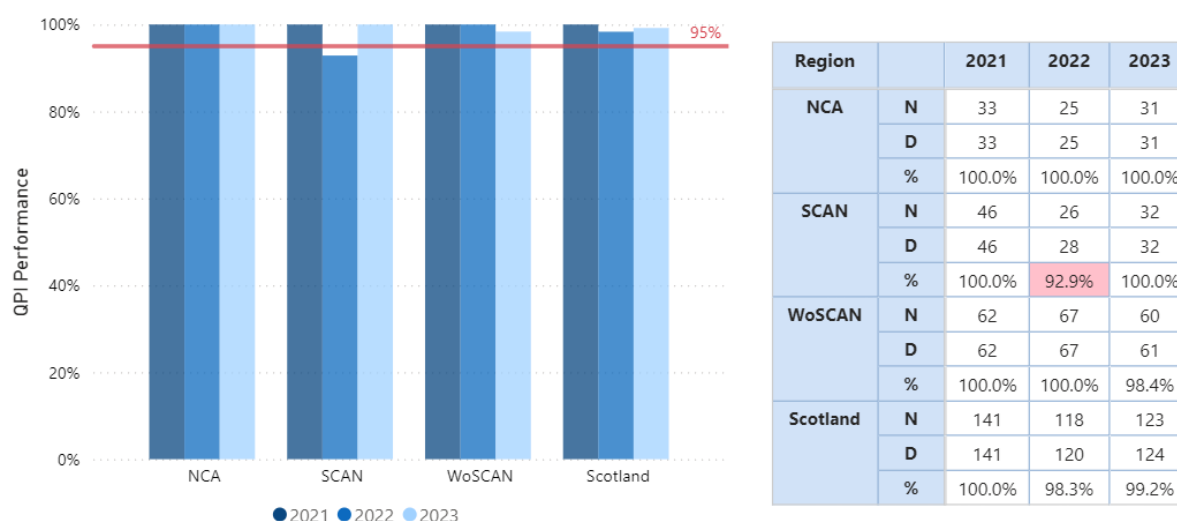


Region		2021	2022	2023
NCA	N	33	25	31
	D	40	27	32
	%	82.5%	92.6%	96.9%
SCAN	N	46	28	32
	D	48	31	34
	%	95.8%	90.3%	94.1%
WoSCAN	N	62	67	61
	D	66	67	66
	%	93.9%	100.0%	92.4%
Scotland	N	141	120	124
	D	154	125	132
	%	91.6%	96.0%	93.9%

Of the 132 patients diagnosed with mesothelioma, 124 had a pathological diagnosis. This resulted in a national performance of 93.9%, against the 85% QPI target. 2021-23 comparison shows that all regions are now consistently meeting this QPI target with Local Anaesthetic Thoracoscopy (LAT) service now available in all five cancer centres. The Grampian LAT service was established in 2022 with support from the SMN and the anticipated benefit has been consistently realised over 2022/23 with NCA overall percentage rising from 82.5% in 2021 to 92.6% in 2022 and 96.9% in 2023.

(ii) Proportion of patients with a histopathological diagnosis of mesothelioma who have subtype identified.

Description:	(ii) Proportion of patients with a histopathological diagnosis of mesothelioma who have subtype identified.
Numerator:	Number of patients with a histopathological diagnosis of mesothelioma who have subtype identified.
Denominator:	All patients with a histopathological diagnosis of mesothelioma.
Exclusions:	No exclusions.
Target:	95%

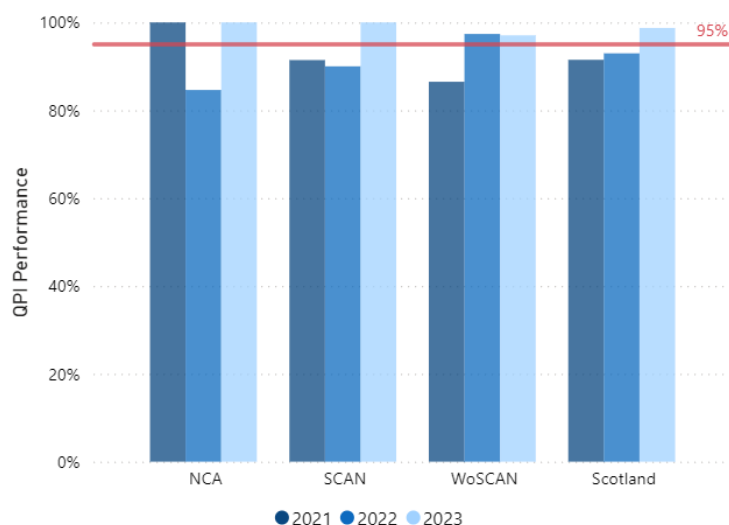


Of the 124 patients who had a histopathological diagnosis of mesothelioma, 123 a subtype identified resulting in a national performance of 99.2% against the 95% QPI target.

(iii) Proportion of patients with a histopathological diagnosis of epithelioid mesothelioma who have IHC markers profiling undertaken.

Description:	(iii) Proportion of patients with a histopathological diagnosis of epithelioid mesothelioma who have IHC marker profiling undertaken.
Numerator:	Number of patients with a histopathological diagnosis of epithelioid mesothelioma who have an appropriate immuno-histochemical panel undertaken on the biopsy.
Denominator:	All patients with a histopathological diagnosis of epithelioid mesothelioma.
Exclusions:	No exclusions.
Target:	95%





Region		2021	2022	2023
NCA	N	22	11	21
	D	22	13	21
	%	100.0%	84.6%	100.0%
SCAN	N	32	18	24
	D	35	20	24
	%	91.4%	90.0%	100.0%
WoSCAN	N	32	37	33
	D	37	38	34
	%	86.5%	97.4%	97.1%
Scotland	N	86	66	78
	D	94	71	79
	%	91.5%	93.0%	98.7%

Of the 79 patients with a histopathological diagnosis of mesothelioma who had a subtype identified, 78 patients with a diagnosis of epithelioid mesothelioma had an appropriate immuno-histochemical panel undertaken on biopsy. This resulted in a national performance of 98.7% against the 95% target, with national compliance being achieved for the first time. 100% compliance was achieved in both SCAN and NCA. With 95.5% (20/21) in Greater Glasgow and Clyde.

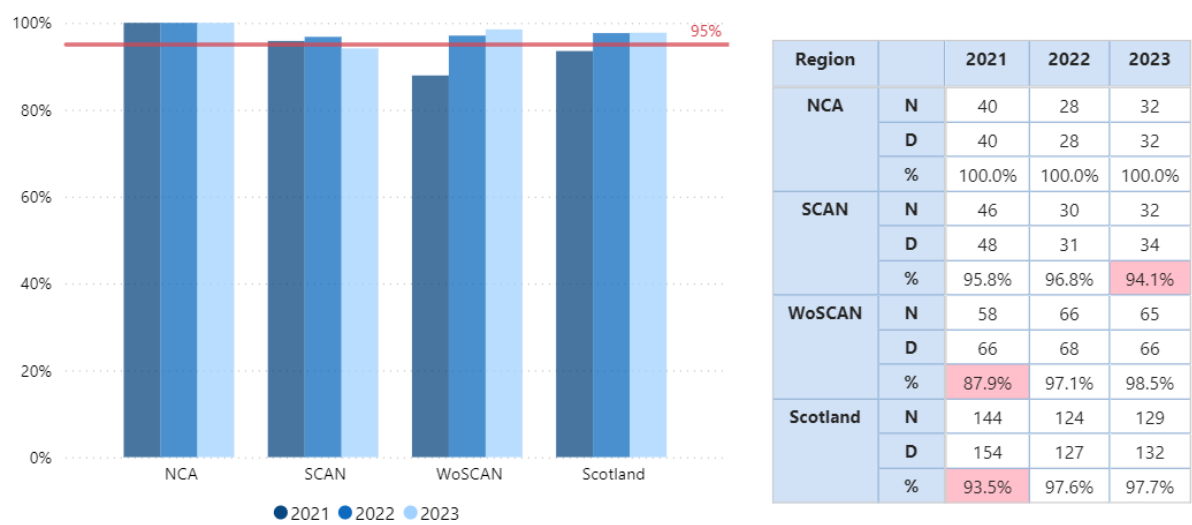
This improvement in performance is resulting from 2021 and 2022 actions which resulted in the SMN liaising with Pathology to compile an updated list of ICC markers and additional markers being added to QPI.



QPI 3: Multidisciplinary Team

Description:	Proportion of patients with mesothelioma who are discussed at the national mesothelioma MDT meeting.
Numerator:	Number of patients with mesothelioma discussed at the national mesothelioma MDT.
Denominator:	All patients diagnosed with mesothelioma.
Exclusions:	No exclusions.
Target:	95%

Figure 9: The proportion of patients with mesothelioma who are discussed at the national mesothelioma MDT meeting.



Overall, in Scotland 97.7% of patients were discussed at the national mesothelioma meeting. This is broadly in line with the 2022 reporting of 97.6% showing a continued improved trend as a result of the overall target changing from 100% to 95% in line with other tumour types in 2022.

QPI 4 - Systemic Anti-Cancer Treatment

Proportion of patients with mesothelioma and performance status (PS) 0-1 who receive first line treatment with SACT using platinum and pemetrexed. Patients with good performance status should receive first line treatment with Systemic Anti-Cancer Treatment (SACT).

For patients with mesothelioma and good PS, first-line SACT leads to longer survival.

This includes chemotherapy using a combination of cisplatin (or carboplatin) and pemetrexed, which is associated with longer survival than treatment with cisplatin alone¹⁴. Carboplatin can be offered instead of cisplatin if cisplatin is contraindicated or would increase risk. This is based on equivalent efficacy in previous studies¹⁵.

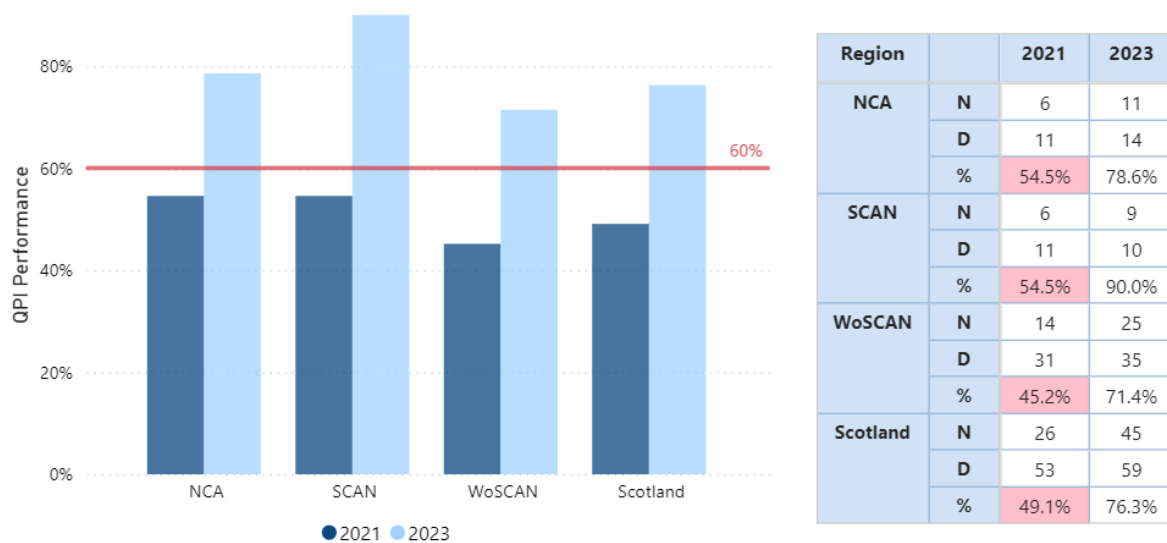
Combination immune checkpoint blockade, using Ipilimumab and Nivolumab, is associated with longer survival than treatment with cisplatin (or carboplatin) plus pemetrexed¹⁶. The superiority of Ipilimumab and Nivolumab was greatest in patients with non-epithelioid histological subtype.

The tolerance within this target accounts for situations where patients with PS 0 -1 may not be suitable for treatment with SACT due to co-morbidities.

Description:	Proportion of patients with mesothelioma and performance status (PS) 0 -1 who receive first line treatment with SACT.
Numerator:	Number of patients with a diagnosis of mesothelioma and PS 0-1 who receive first line treatment with SACT.
Denominator:	All patients with a diagnosis of mesothelioma and PS 0 -1.
Exclusions:	<ul style="list-style-type: none"> • Patients who decline or defer SACT treatment. • Patients receiving chemotherapy treatment as part of a clinical trial.
Target:	60%

Please Note:

This QPI will be reported one year in arrears. This will enable reporting of all patients who receive first line SACT within 12 months following diagnosis. This has been deemed a more appropriate time frame to capture this particular aspect of treatment.



Overall in Scotland 76.3% of patients diagnosed with mesothelioma with PS 0-1 received first line treatment with SACT using platinum and pemetrexed or combination immunotherapy surpassing the 60% target.

This shows a significant improvement on 2021 figures where no regions achieved the target and reflects changes to the QPI at formal review in 2022 to accept other SACT agents, rather than just treatment with platinum and pemetrexed. This QPI was not reported in 2022 audit report due to the addition of the new data items.

HB leads have reviewed the results and confirmed that in cases where patients were not referred it was due to them being deemed not fit for SACT treatment.

QPI 5 - Radiotherapy for the Management of Pain

Radiotherapy should be given for management of uncontrolled pain in patients with mesothelioma where appropriate.

Radiotherapy should not be offered as a prophylactic, preoperative or post-operative treatment modality. Use should be restricted to control of mesothelioma pain.

Localised radiotherapy can improve pain control in mesothelioma, although the effect is variable and is short lived.

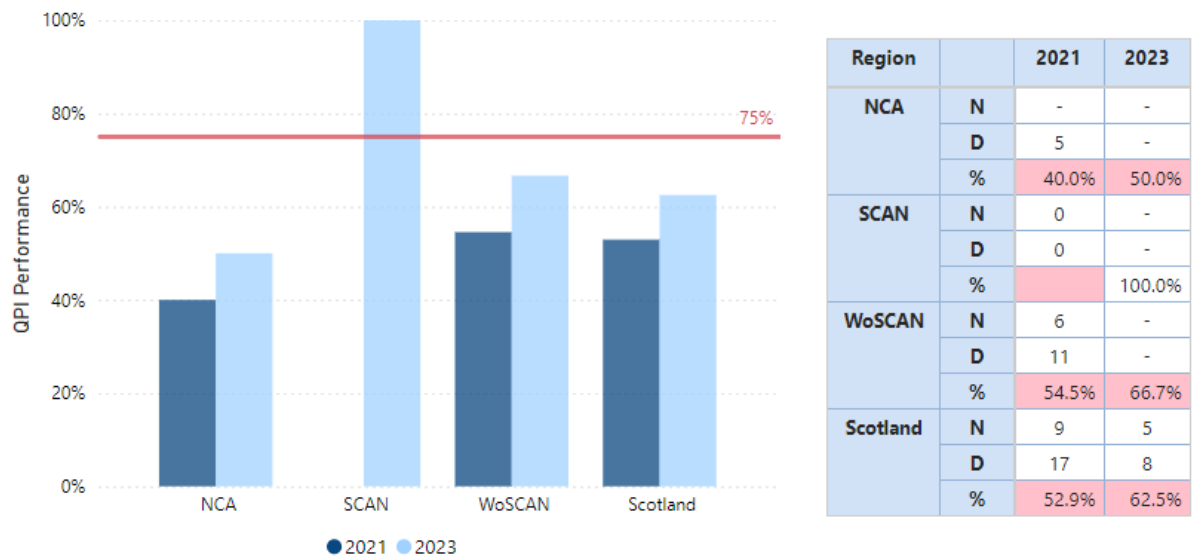
Radiation dose fractionation utilised in studies of localised radiotherapy for pain control in mesothelioma are variable. The optimal dose is not known (SYSTEMS2 trial).

Description:	Proportion of patients with mesothelioma who are referred to the national MDT with uncontrolled pain who receive radiotherapy.
Numerator:	Number of patients with mesothelioma referred to the national MDT with uncontrolled pain who receive radiotherapy.
Denominator:	All patients with mesothelioma referred to the national MDT with uncontrolled pain.
Exclusions:	<ul style="list-style-type: none"> • Patients who decline radiotherapy treatment. • Patients receiving radiotherapy treatment as part of a clinical trial. • Patients who undergo a cordotomy. • Patients with uncontrolled pain which becomes controlled after optimisation of analgesia.
Target:	<p>75%</p> <p>The tolerance within this target accounts for the fact that due to co-morbidities and fitness not all patients will be suitable for radiotherapy. It also accounts for factors of patient choice.</p>

Please Note:

This QPI will be reported one year in arrears. This will enable reporting of all patients referred to the national MDT for pain management who receive radiotherapy within 18 months following diagnosis. This has been deemed a more appropriate time frame to capture this particular aspect of treatment





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

QPI 5 is reported one year in arrears. This enables reporting of all patients referred to the national MDT for pain management who receive radiotherapy within 18 months following diagnosis. This has been deemed a more appropriate time frame to capture this particular aspect of treatment since severe pain may not be an issue immediately after diagnosis in many patients.

The QPI wording was amended at formal review in 2022 to ensure that the exclusion criteria is excluding the correct cohort and that only patients with uncontrolled pain are included. As the dataset was updated this QPI was not reported in the 2022 audit report.

Overall, in Scotland in 2023 62.1% of patients with mesothelioma referred to the national MDT for pain relief received radiotherapy. This is an improvement on the 2021 figure of 52.9%.

Notably Highland achieved 80% compliance with four out of five patients referred to the MDT receiving radiotherapy for uncontrolled pain. Only one patient in SCAN from NHS Fife received this treatment making SCAN 100% compliant and Grampian again referred 1/1 patients making them 100% compliant also.

QPI 6 - Pleural Fluid Management

No single fluid control technique has been shown to be superior in terms of patients' symptoms or pleurodesis success in mesothelioma. However, it is important that patients are able to be offered both techniques and given the choice on fluid management.

As patient choice is difficult to measure the type of fluid management procedure undertaken is utilised within this QPI as a proxy measure. This will provide an indication of any variation in practice across NHS Boards.

VATS-PP has been shown to be more expensive, associated with greater complications and longer hospital stay than talc slurry pleurodesis²³.

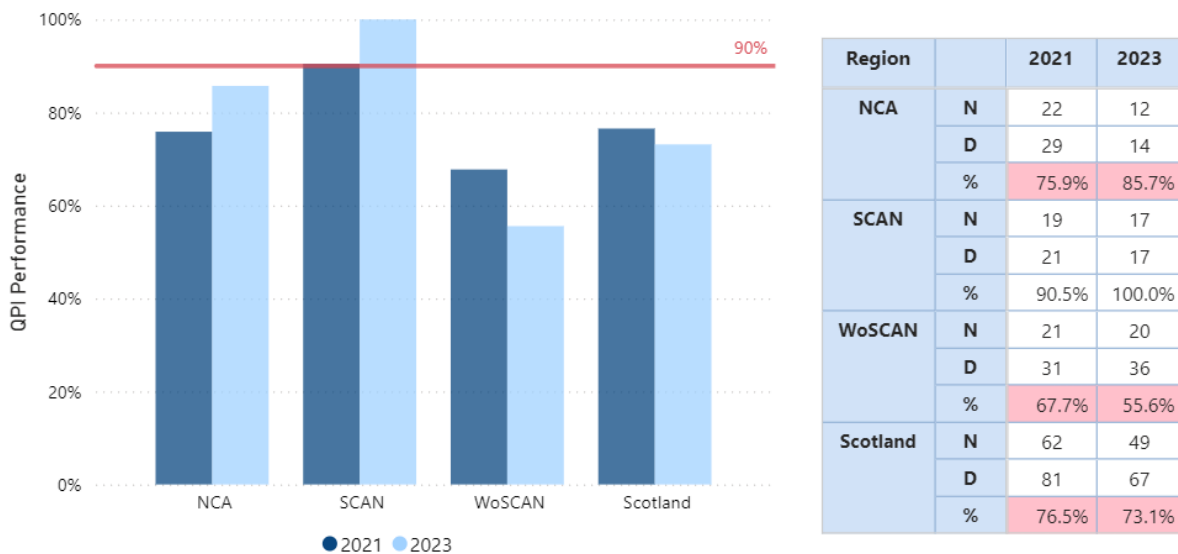
IPC and talc slurry pleurodesis have similar patient-related outcomes in malignant pleural effusion and mesothelioma²⁴.

Description:	Proportion of patients with mesothelioma with symptomatic pleural effusion who undergo either talc pleurodesis (via slurry or poudrage) or indwelling pleural catheter (IPC) insertion to manage fluid.
Numerator:	Number of patients with mesothelioma who have symptomatic pleural effusion who undergo either talc pleurodesis (via slurry or poudrage) or indwelling pleural catheter (IPC) insertion to manage fluid.
Denominator:	All patients with mesothelioma who have symptomatic pleural effusion.
Exclusions:	<ul style="list-style-type: none"> • Patients who refuse to undergo fluid management procedures. • Patients in whom pleural management is not required e.g. no symptomatic re-accumulation of pleural effusion after initial fluid aspiration or fluid removal during thoracoscopy.
Target:	<p>90%</p> <p>The tolerance level within this target is designed to account for the fact that due to co-morbidities and fitness not all patients may be suitable for a procedure. Furthermore, some patients may positively choose a non-definitive procedure, e.g. pleural fluid aspiration, for reasons of perceived convenience or reluctance to commit to definitive management</p>

Please note:

Information on the type of procedure used to manage pleural fluid (talc pleurodesis or IPC) will be reported across NHS Boards alongside this QPI. This information should be reviewed to ensure there is sufficient choice between these options for patients





At QPI formal review in 2022 looking at 2021 audit report where the target was not in NCA and WoSCAN it was noted that a few patients had thoracoscopy and didn't reaccumulate therefore didn't need their pleural fluid managed. It was agreed that if thoracoscopy was performed and patient had no symptomatic recurrence then those patients should be excluded.

It was also noted that the MDT form tries to identify whether pleural effusion is symptomatic. And suggested to add another option for pleural management 'not required' thereby excluding patients who have been deemed by a consultant as not requiring pleural management.

At formal review it was agreed therefor to retain QPI with changes and 2021 patients were not reported due to these dataset changes:

- Add an exclusion for patients who undergo thoracoscopy with no symptomatic recurrence. Need to confirm how this data can be captured accurately and consistently.
- Agree whether patients deemed by MDT as not requiring pleural management should also be excluded.

In current reporting period overall in Scotland 73.1% of patients with mesothelioma who had symptomatic pleural effusion underwent either talc pleurodesis (via slurry or poudrage) or indwelling pleural catheter (IPC) insertion to manage fluid, which is below the 90% QPI target. SCAN was the only region to meet the target with 100% compliance (17/17 patients) and NCA was just under the target at 85.7% across all boards and NHS Highland also achieved 100%.

WoSCAN and NCA reviewed cases not meeting the QPI and provided detailed clinical feedback.

Greater Glasgow and Clyde	44.4%	Of the 10 cases in which this QPI was not met, 2/8 had no effusion drainage ('dementia' PS3; 'not fit' PS2), 4 had large volume aspirations (with no reaccumulation of fluid documented in 3/4), 4 had intercostal drainage without talc pleurodesis (patient choice in 1, talc not required as per MDT). Reluctance to use talc in this cohort may reflect the high incidence of stage I disease (>50%) and concerns regarding obliteration of the pleural space if biopsies from subtle lesions prove non-diagnostic.	Use of IPCs might be preferable in this setting. This data should be reviewed in context of the national data and discussed with clinical leads
Ayrshire and Arran	42.9% 3/7	1 patient had an intercostal chest drain only	The appropriate care for each patient was provided. We don't have a local IPC service (too small numbers) and therefore the action taken has to be balanced with referring to a centre in GGC.
Lanarkshire	80% 8/10	One patient had chest drain only and the other wasn't suitable for fluid management due to trapped lung.	
Tayside	75% 3/4	Patient's condition deteriorated prior to planned IPC insertion.	
Grampian	85.7%	Pleurodesis not done during LAT due to extensive adhesions, Fluid did not recur to consider IPC	

QPI 7: Clinical Trial and Research Study Access

Removed from QPI process. Going forward there will be a suite of measures around clinical trial activity reported by the NHS Research Scotland Central Management Team.

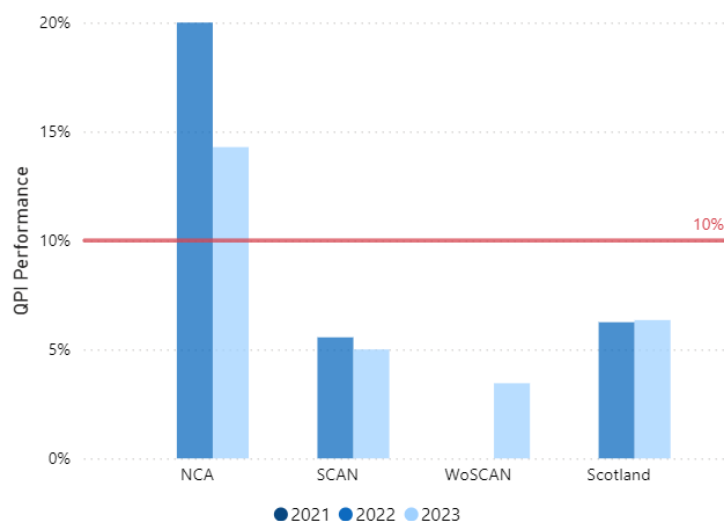
QPI 8 - Post-Mortem Examination

Proportion of patients who have died with a pathological diagnosis of mesothelioma who undergo post-mortem examination. Since 2014, the Procurator Fiscal and Chief Medical

Officer have agreed procedures to reduce distress to the family. Reduction in the number of inappropriate post-mortem examinations carried out will prevent the families of patients being exposed to additional stress following a patients' death²⁵.

Post mortem examination is used to determine diagnosis of mesothelioma for the legal reasons and civil compensation claims. Where a patient has pathological evidence of Mesothelioma this provides a conclusive diagnosis, removing the requirement for post-mortem examination.

Description:	Proportion of patients who have died with a pathological diagnosis of mesothelioma who undergo post-mortem examination.
Numerator:	Number of patients who have died with a pathological diagnosis of mesothelioma who undergo post- mortem examination.
Denominator:	All patients who have died with a pathological diagnosis of mesothelioma.
Exclusions:	None
Target:	<p>>10%</p> <p>This QPI is measuring the proportion of patients who do have a pathological diagnosis and undergo a post mortem examination therefore a 'less than' target level has been set.</p> <p>The tolerance within this target accounts for those patients who undergo post mortem examination for reasons unrelated to mesothelioma.</p>



Region		2021	2022	2023
NCA	N	0	3	2
	D	14	15	14
	%	0.0%	20.0%	14.3%
SCAN	N	0	1	1
	D	24	18	20
	%	0.0%	5.6%	5.0%
WoSCAN	N	0	0	1
	D	35	31	29
	%	0.0%	0.0%	3.4%
Scotland	N	0	4	4
	D	73	64	63
	%	0.0%	6.3%	6.3%

Of the 63 patients across Scotland who died with a pathological diagnosis of mesothelioma four underwent post-mortem examination, resulting in a performance of 6.3%, and achieving the >10% target. Looking across the last three years This result is exactly the same as the previous year. The 2021 report result of 0% may reflect the data collection in 2020



Appendix 1: Meta Data

Report Title	Cancer Audit Report: Mesothelioma QPI Report
Time Period	Patients diagnosed between 01 January 2023 to 31 December 2023
Data Source	Cancer Audit Support Environment (eCASE). A secure centralised web-based database which holds cancer audit information in Scotland.
Data Extraction Date	The data contained within this report was extracted from eCASE on 17 th July 2024.
Methodology	<p>Analysis was performed centrally by NSS Information Management Service. The timescales agreed considered the patient pathway to ensure that a complete treatment record was available for the majority of patients.</p> <p>Initial results were provided to Health Boards to check for inaccuracies, inconsistencies or obvious gaps and a subsequent download taken upon which final analysis was carried out.</p> <p>The final data analysis was disseminated for NHS Board & Region verification in line with the regional audit governance process to ensure that the data was an accurate representation of service in each area.</p>
Data Quality	<p>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). This is known as case ascertainment. Figures should only be used as a guide as it is not possible to compare the same 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 regions.</p>

