

**North, South East and West of
Scotland Cancer Networks**

**HepatoPancreatoBiliary Cancers
National Managed Clinical Network**



Audit Report

Report of the 2019 Clinical Audit Data

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HPB Cancer QPI Overview

Patients diagnosed Jan - Dec 2019

Number of patients **1669**

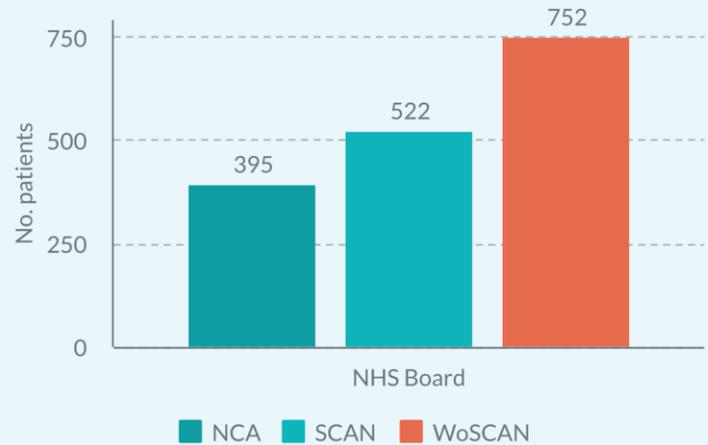
Median Age **74**

Gender of patients:

Male **57%**

Female **43%**

Where are patients diagnosed



Performance (%)

Target
Performance
2019

MDT meeting

95%
91%

Pathological Diagnosis of
Pancreatic, Duodenal or Biliary
Tract Cancer

75%
91%

Diagnosis and Staging of
HCC

(i) 90% (ii) 90%
98% **67%**

Lymph Node Yield

15
23

Referral to Scottish Liver
Transplant Unit

90%
89%

30 & 90 Day Mortality following
Resection for Pancreatic,
Duodenal or Biliary Tract Cancer

30 5% 90 <7.5%
4% **5%**

Palliative Treatment for
HCC

40%
40%

Volume of Cases per Centre /
Surgeon

(i) 11 (ii) 4
3 of 5 **14 of 23**
centres surgeons

30 Day Mortality after
Curative Treatment for
HCC

(i) <5% (ii) <5% (iii) <5%
0% **0%** **0%**

Clinical Trial and Research Study
Access

15%
9%

90 Day Mortality after
Curative Treatment for
HCC

(i) <7.5% (ii) <7.5% (iii) <7.5%
0% **5%** **2%**

30 Day Mortality following
treatment for Colorectal
Cancer Liver Metastases

(i) <5% (ii) <5%
0% **0%**

30 Day Mortality after
Palliative TACE for HCC

<10%
1%

90 Day Mortality following
treatment for Colorectal
Cancer Liver Metastases

(i) <7.5% (ii) <7.5%
1% **0%**

Key Achievements:

- Low mortality in first year of reporting outcomes of treatment for colorectal liver metastases.

Areas for Improvement:

- Discussion of patients at appropriate MDT.
- Complete recording of imaging data.



Executive Summary

Introduction

This report contains an assessment of performance of HepatoPancreatoBiliary (HPB) Cancer Services relating to patients diagnosed across Scotland during 2019.

In order to ensure the success of the Cancer QPIs in driving quality improvement in cancer care, QPIs will continue to be assessed for clinical effectiveness and relevance. Formal reviews of the HPB cancer QPIs took place in 2017 and 2020. These clinically led reviews aim to identify potential refinements to the current QPIs and involve key clinicians from each of the Regional Cancer Networks. While some of the amendments made in the 2020 review have been incorporated within this report, data available does not allow complete reporting of the revised indicators for patients diagnosed in 2019, these will be reported for patients diagnosed from January 2020 onwards.

Results

A summary of the HPB cancer QPI performance for the 2019 audit period is presented below, with a more detailed analysis of the results set out in the main report. Data are analysed by location of diagnosis or treatment, and illustrate NHS Board or treatment-centre performance against each target and overall national performance for each performance indicator.

Quality Performance Indicator (QPI)	Performance by Region					
	QPI target	Year	NCA	SCAN	WoSCAN	Scotland
QPI 1: Proportion of patients with HPB cancer who are discussed at MDT meeting before definitive treatment.	95%	2019	93.2%	90.8%	89.3%	90.7%
		2018	91.0%	90.3%	82.2%	86.6%
		2017	93.6%	89.8%	78.6%	85.6%
QPI 2(i) Proportion of patients with HCC who have undergone computerised tomography (CT) or Magnetic Resonance Imaging (MRI).	90%	2019	97.5%	95.9%	99.0%	97.8%
		2018	96.5%	90.9%	100%	96.5%
		2017	97.5%	90.7%	100%	96.5%
QPI 2 (ii) Proportion of patients with HCC who have undergone computerised tomography (CT) or Magnetic Resonance Imaging (MRI) with full information recorded.	90%	2019	78.8%	36.9%	81.2%	67.3%
		2018	84.1%	37.3%	84.7%	68.8%
		2017	47.1%	29.9%	81.9%	58.2%
*QPI 3: Proportion of patients with HCC who meet the current UK listing criteria for orthotopic liver transplantation referred to the SLTU for consideration of liver transplantation.	90%	2019	100%	97.4%	84.3%	89.2%
		2018	100%	100%	85.1%	90.7%
		2017	100%	100%	79.5%	88.5%
*QPI 4: Proportion of patients with HCC not suitable for treatment with curative intent that undergo specific treatment with palliative intent (TACE, SACT or radiotherapy).	40%	2019	42.6%	33.3%	43.3%	40.1%
		2018	44.1%	42.0%	48.2%	45.6%
		2017	42.6%	47.2%	47.4%	46.3%
*†QPI 5a: Proportion of patients with HCC undergoing disease specific treatment who die within 30 days of liver transplant.	< 5%	2019	-	0%	-	0%
		2018	-	0%	-	0%
		2017	-	0%	-	0%
*†QPI 5a: Proportion of patients with HCC undergoing disease specific treatment who die within 90 days of liver transplant.	< 7.5%	2019	-	0%	-	0%
		2018	-	0%	-	0%
		2017	-	0%	-	0%
*†QPI 5b: Proportion of patients with HCC undergoing disease specific treatment who die within 30 days of resection.	< 5%	2019	0%	0%	-	0%
		2018	0%	0%	-	0%
		2017	0%	0%	-	0%

Quality Performance Indicator (QPI)	Performance by Region					
	QPI target	Year	NCA	SCAN	WoSCAN	Scotland
*†QPI 5b: Proportion of patients with HCC undergoing disease specific treatment who die within 90 days of resection.	< 7.5%	2019	20.0%	0%	-	5.3%
		2018	0%	0%	-	0%
		2017	0%	0%	-	0%
*†QPI 5c: Proportion of patients with HCC undergoing disease specific treatment who die within 30 days of ablation.	< 5%	2019	-	0%	0%	0%
		2018	0%	0%	0%	0%
		2017	0%	0%	0%	0%
*†QPI 5c: Proportion of patients with HCC undergoing disease specific treatment who die within 90 days of definitive treatment ablation.	< 7.5%	2019	-	0%	3.3%	2.0%
		2018	0%	0%	4.2%	2.4%
		2017	0%	0%	0%	0%
*†QPI 5d: Proportion of patients with HCC undergoing disease specific treatment who die within 30 days of TACE.	< 10%	2019	7.7%	0%	0%	1.1%
		2018	0%	2.8%	2.6%	2.4%
		2017	6.7%	0%	3.1%	2.4%
*QPI 7: Proportion of patients with pancreatic, duodenal or biliary tract cancers undergoing non-surgical treatment who have a cytological or histological diagnosis.	75%	2019	81.0%	85.2%	98.8%	90.5%
		2018	82.8%	89.7%	96.6%	91.3%
		2017	60.6%	79.4%	96.3%	84.6%
*†QPI 10: Average number of lymph nodes resected and pathologically examined per patient with pancreatic, duodenal or distal biliary tract cancer who undergo pancreatoduodenectomy performed by a specialist centre over a 1 year period.	Average of 15 nodes per patient	2019	21	22	24	23
		2018	20	17	27	21
		2017	19	21	28	22
*†QPI 11(i): 30-day mortality after surgical resection for pancreatic, duodenal or distal biliary tract cancer.	< 5%	2019	12.0%	2.9%	0%	4.2%
		2018	4.3%	3.4%	6.3%	4.8%
		2017	0%	0%	0%	0%
*†QPI 11(i): 90-day mortality after surgical resection for pancreatic, duodenal or distal biliary tract cancer.	< 7.5%	2019	16.0%	2.9%	0.0%	5.2%
		2018	4.3%	3.4%	6.7%	4.9%
		2017	5.6%	0%	0%	1.6%

Quality Performance Indicator (QPI)	Performance by Region					
	QPI target	Year	NCA	SCAN	WoSCAN	Scotland
*†QPI 12a: Number of surgical resections for pancreatic, duodenal or distal biliary tract cancer performed by a specialist centre over a 1 year period.	11 per centre per year	2019	1 met 2 not met	34	37	3 met 2 not met
		2018	1 met 2 not met	29	31	3 met 2 not met ^a
		2017	1 met 2 not met	28	18	3 met 2 not met
*†QPI 12b: Number of surgical resections for pancreatic, duodenal or distal biliary tract cancer performed by each surgeon over a 1 year period.	4 per surgeon per year	2019	4 met 5 not met	6 met 3 not met	4 met 1 not met	14 met 9 not met
		2018	4 met 3 not met	4 met 4 not met	4 met 1 not met	12 met 8 not met
		2017	4 met 4 not met	3 met 5 not met	3 met 1 not met	10 met 10 not met
QPI 13: Proportion of patients diagnosed with HPB cancer who are consented for a clinical trial / research study	15%	2019	5.0%	1.6%	14.7%	8.7%
		2018	4.3%	2.3%	7.4%	5.3%
		2017	3.1%	3.6%	6.0%	4.7% ¹
*†QPI 17a: Proportion of patients with CRLM undergoing curative treatment (resection) who die within 30 days of treatment	< 5%	2019	0%	0%	-	0%
		2018				
		2017				
*†QPI 17b: Proportion of patients with CRLM undergoing curative treatment (resection) who die within 90 days of treatment	< 7.5%	2019	3.2%	0.0%	-	1.1%
		2018				
		2017				
*†QPI 17a: Proportion of patients with CRLM undergoing curative treatment (ablation) who die within 30 days of treatment	< 5%	2019	0%	0%	0%	0%
		2018				
		2017				
*†QPI 17b: Proportion of patients with CRLM undergoing curative treatment (ablation) who die within 90 days of treatment	< 7.5%	2019	0%	0%	0%	0%
		2018				
		2017				

*Small numbers in some Boards/Regions - percentage comparisons over a single year should be viewed with caution.

† Reported by location of Surgery / Non surgical treatment.

Conclusions and Action Required

Cancer audit data underpins much of the development and service improvement work of the NMCN and regular reporting of activity and performance is a fundamental requirement of an MCN to assure the quality of care delivered. The Scottish HepatoPancreatoBiliary Cancer NMCN remains committed to improve the quality and completeness of clinical audit data to ensure continued robust performance assessment and the identification of areas for service improvement.

The SHPBN had another busy twelve months in 2019 with increasing numbers of pancreatic and liver cancer cases being diagnosed in Scotland. For the majority of QPI's the results are excellent with the target being met both across Scotland and within each region.

This is the first year that outcomes after curative management for Colorectal liver metastases have been included in the data set. This should greatly improve the data collection and ensure audit and standardized outcomes for this group of patients.

There are however consistently issues with the following QPIs:

- QPI 1 this is kept under close review with further analysis of these patients being carried out.
- QPI 2(ii) specifically in the SCAN region, these are currently being addressed through a retrospective audit of reasons for not meeting the target and updating of referral forms.
- QPI 3 is not met by WoSCAN however going forward the region will ensure these patients are all discussed at the WoS HCC MDT which has an Edinburgh Surgeon participating by video conference.

There has been a variation in volume of cases and outcomes following surgery across the Networks with NCA having both low volume and high mortality. This is openly acknowledged by the NCA clinical and management teams and has been presented and fully discussed at the National M&M meeting. They are currently both reviewing and setting out plans to address this in the NCA.

The Network continues to work collaboratively with a multidisciplinary approach to meet the QPI targets, and provide the highest quality of care to all our HPB cancer patients across Scotland.

Action Required: -

- All NHS Boards to undertake further analysis of the patients not discussed at MDT prior to definitive treatment and share findings at a regional level.
- All NHS Boards to ensure that they use the latest HCC referral form when referring patients to the MDT and complete all fields.
- NHS Glasgow Greater and Clyde to ensure that SLTU are informed of all patients meeting the radiological criteria for a liver transplant, even where they are considered unfit for surgery.

NHS Boards are asked to develop local Action/Improvement Plans in response to the findings presented in the report. **Completed Action Plans should be returned to WoSCAN within two months of publication of this report.**

Progress against these plans will be monitored by the MCN Advisory Board and any service or clinical issue which the Advisory Board considers not to have been adequately addressed will be escalated to the NHS Board Territorial Lead Cancer Clinician and Regional Lead Cancer Clinician. Additionally, progress will be reported annually to the Regional Cancer Advisory Group (RCAG) by NHS Board Territorial Lead Cancer Clinicians and MCN Clinical Leads, and nationally on a three-yearly basis to Healthcare Improvement Scotland as part of the governance processes set out in CEL 06 (2012).

1. Introduction

The National Managed Clinical Network (NMCN) for HepatoPancreatoBiliary (HPB) Cancers launched in 2005 with the aim of providing quality and equitable care for all patients in Scotland. The purpose of this report is to present an assessment of performance of HPB Cancer Services relating to patients diagnosed across Scotland during 2019 through clinical audit data and to provide a summary of the first year of analysis after the second formal review of the HPB cancer Quality Performance Indicators (QPIs). These audit data underpin much of the regional and national service improvement and development work of the NMCN. Regular reporting of activity and performance is a fundamental requirement of an NMCN to assure the quality of care delivered across the country.

In order to ensure the success of the National Cancer QPIs in driving quality improvement in cancer care across NHS Scotland it is critical that the QPIs continue to be clinically relevant and focus on areas which will result in improvements to the quality of patient care. A programme of formal reviews of all QPIs was implemented whereby all tumour specific QPIs were reviewed following three years of comparative reporting. Formal reviews of the HPB cancer QPIs was undertaken in 2017 and 2020, with the revised QPIs (v4.0) published in May 2020¹.

Twelve months of data were measured against v4.0 of the HPB cancer QPIs¹ where possible, however some QPI amendments required data that was not collected for patients diagnosed in 2019. Consequently the changes in definitions for QPIs 2(i), 2(ii), 6, 7 and 14 cannot be reported this year; amendments to QPIs 2(i), 2(ii) and 7 are minor and therefore these measured are reported using the V3.0 definitions while QPIs 6 and 14 are not reported. Similarly, new measures for QPI 2(iii), 15 and 16 cannot be reported for patients diagnosed in 2019.

2. Background

HPB cancers are a rare group of cancers. In 2019, the audit identified 1,669 patients diagnosed with a new primary cancer of the liver, pancreas, bile duct, gallbladder or duodenum in Scotland. Pancreatic cancer accounted for almost half of all HPB cancer diagnoses (47.9%). Figure 1 illustrates the proportion of new cases of each HPB cancer type diagnosed in Scotland over the last 5 years.

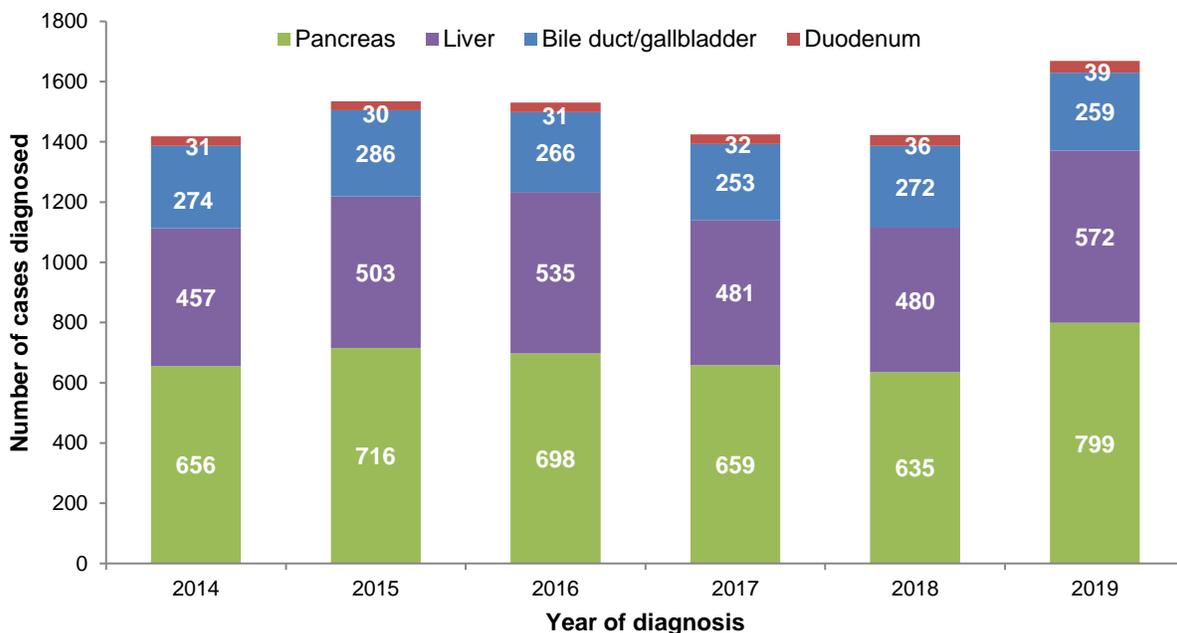


Figure 1: Numbers of new cases of each HPB cancer type diagnosed in Scotland from 2014 to 2019. The data labels represent the corresponding number of new cases diagnosed.

The distribution of the 1,669 patients diagnosed in 2019 across the fourteen Scottish NHS Boards is presented in Figure 2. The West of Scotland Cancer Network (WoSCAN) is the most populous of the three Regional Cancer Networks in Scotland and, with 752 patients diagnosed in WoS in 2019, represents almost half of all HPB cancer diagnoses in Scotland (45.1%). NHS Greater Glasgow and Clyde diagnosed the greatest number of patients, followed by NHS Lothian. This reflects the population distribution in Scotland, where these are the two most heavily populated NHS Boards².

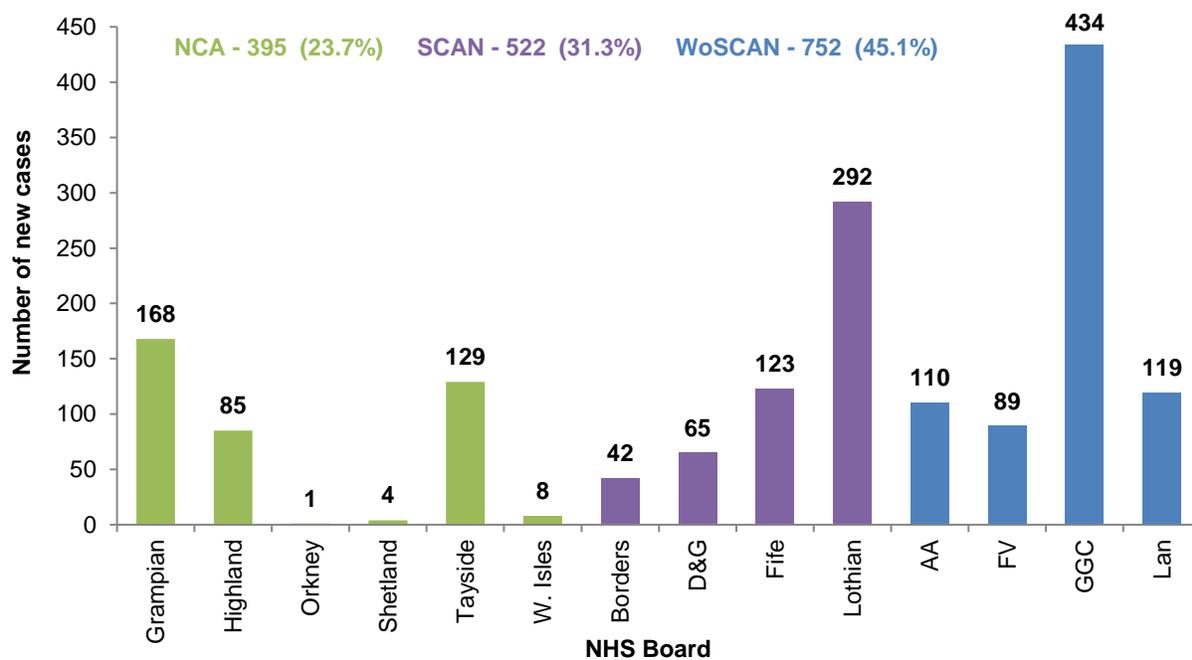


Figure 2: Number of new cases diagnosed with HPB cancer within each NHS Board across Scotland in 2019.

Table 2 details the five HPB cancer centres in Scotland. These are considered the centres for specialist treatment, which includes surgery, systemic anti-cancer therapy (SACT) and radiotherapy. Patients may receive diagnostic and palliative care elsewhere, usually in their local hospital, however most patients are referred to one of the five centres for specialist management. Additionally, the Scottish Liver Transplant Unit (SLTU) is located in the Royal Infirmary of Edinburgh where all liver transplant cases in Scotland are referred, this being one of the treatment options in the management of patients with primary liver cancer.

Table 1: Summary of HPB Cancer treatment provided by specialist centres in Scotland.

Centre	Constituent Hospital(s)
Aberdeen	Aberdeen Royal Infirmary
Dundee	Ninewells Hospital
Edinburgh	Royal Infirmary of Edinburgh (RIE – surgery, ablation and trans-arterial chemoembolisation (TACE)) and Western General Hospital (WGH – systemic anti-cancer therapy (SACT) and radiotherapy)
Glasgow	Glasgow Royal Infirmary (GRI – surgery and TACE), Gartnavel General Hospital (GGH – ablation), Queen Elizabeth University Hospital (QEUH – TACE) and Beatson West of Scotland Cancer Centre (BWoSCC – SACT and radiotherapy)
Inverness	Raigmore Hospital

In Scotland, liver cancer is the eleventh most common cancer in males and nineteenth in females⁴. The incidence of liver cancer is rising and the last decade has seen the overall incidence of liver cancer increase by 41.0% in Scotland³, with increases in incidence of 36.6% and 53.5% in males and females respectively³. The percentage frequency of liver cancer is however relatively low at 1.7% of all cancer types³. There has been an overall rise in mortality rates for cancer of the liver over the past ten years of 58.8%⁴. Liver cancer was ranked as the seventh most common cause of death from

cancer in 2018, and the 10-year percentage change in mortality rates show significant increases of 55.2% and 67.0% for males and females respectively⁴.

Pancreatic cancer is the tenth most common cancer in males and ninth in females³. The incidence of pancreatic cancer is rising and the last decade has seen the overall incidence of pancreatic cancer increase by 2.4% in Scotland³. Whilst pancreatic cancer is relatively rare (accounting for 2.4% of all cancers), it remains the sixth most common cause of death from cancer in Scotland⁴. Pancreatic cancers tend to present at an advanced stage and are less amenable to treatment. As a result of this, survival is poor. There has been a slight improvement in the 1-year relative (age-standardised) survival in the last twenty years however survival rates remain low at 17.7% in males and 17.1% in females⁵. There has been no recorded improvement in 5-year survival for pancreatic cancer over the past two decades and 5-year relative survival is 3.3% in males and 4.5% in females⁵.

HPB cancers occur most frequently later in life. Figure 3 illustrates the number of new cases in 2019 by age group and sex. There are approximately 5 males diagnosed for every 4 females and the incidence of HPB cancers is higher in males in most age groups. As women live longer than men, the total number of cases diagnosed in women aged 85 years or more is greater than for males. Although the majority of cases do occur in older individuals for both sexes, it is noted that approximately a quarter of HPB cancers were diagnosed in individuals under the age of 65 years (25.6%).

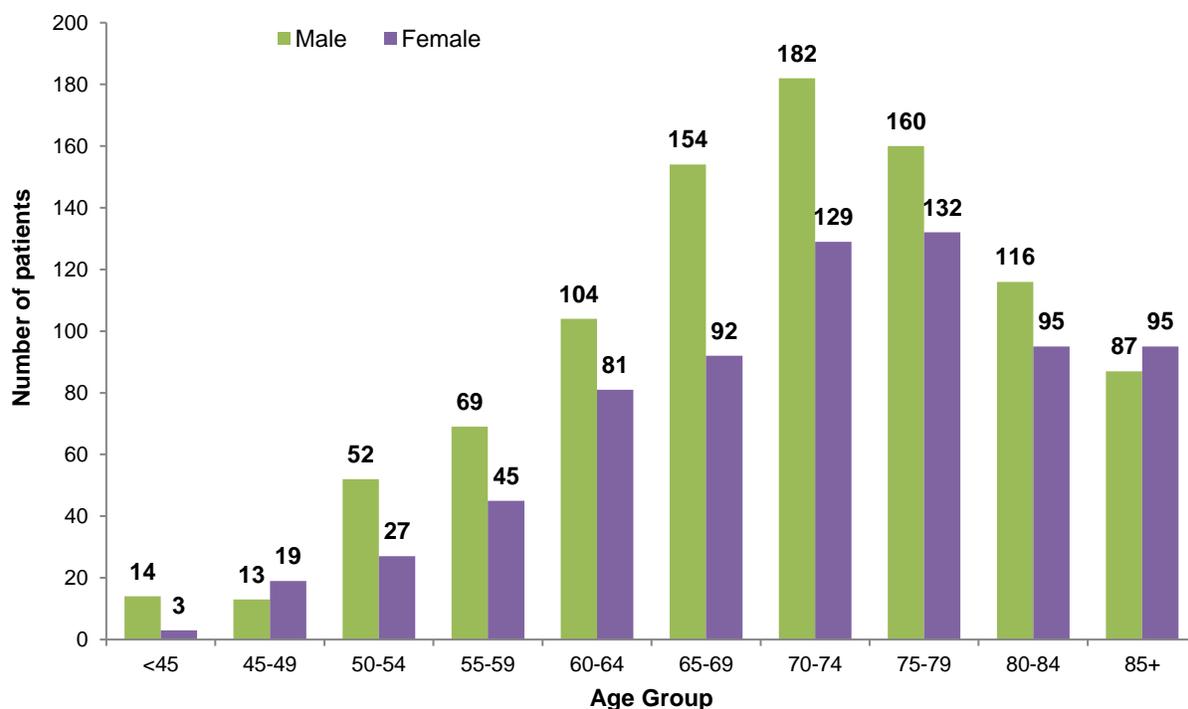


Figure 3: Number of new cases diagnosed with HPB cancer in Scotland in 2019 by age group and sex.

3. Methodology

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

4. Results and Action Required

Results for each QPI are shown in detail in the following sections. Data are presented by location of diagnosis and illustrate NHS Board or treatment centre performance against each target and overall regional performance for each performance indicator.

Data are presented by location of diagnosis or treatment. 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 tables impacted by this restricted data are denoted with a dash (-). An asterisk (*) is used to specify a denominator of zero. Any commentary provided by NHS Boards relating to the impacted indicators will however be included as a record of continuous improvement. Specific regional and NHS Board actions have been identified to address issues highlighted through the data analysis.

The following table shows the percentage of patients included in the denominator for each applicable QPI by NHS Board and Region; it can be seen that only a small proportion of those diagnosed with HPB are included in the measurement of many of the QPIs due to the specific nature of the measures. QPIs 12, 13 and 17 are not shown in the table below as it is not appropriate considering the QPI definitions.

NHS Board	No. audited	% of audited patients included within QPI denominator												
		1	2(i)	2(ii)	3	4	5a*	5b*	5c*	5d*	7	10*	11	
Grampian	168	96%	15%	15%	1%	11%	0%	1%	0%	3%	9%	7%	10%	
Highland	85	99%	28%	28%	5%	19%	0%	1%	0%	0%	16%	2%	4%	
Orkney	1	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Shetland	4	100%	25%	25%	0%	25%	0%	0%	0%	0%	50%	0%	0%	
Tayside	129	95%	22%	22%	2%	13%	0%	2%	1%	6%	8%	4%	5%	
W Isles	8	88%	13%	13%	0%	13%	0%	0%	0%	0%	13%	0%	0%	
NCA	395	96%	20%	20%	2%	14%	0%	1%	0%	3%	11%	5%	6%	
Borders	42	100%	17%	17%	5%	10%	0%	0%	0%	0%	17%	0%	0%	
D&G	65	98%	22%	22%	2%	20%	0%	0%	0%	0%	12%	0%	0%	
Fife	123	98%	20%	20%	3%	18%	0%	0%	0%	0%	12%	0%	0%	
Lothian	292	97%	26%	26%	11%	15%	3%	5%	6%	14%	8%	12%	12%	
SCAN	522	98%	23%	23%	7%	16%	2%	3%	3%	8%	10%	7%	7%	
A&A	110	95%	18%	18%	5%	14%	0%	0%	0%	0%	15%	0%	0%	
FV	89	96%	21%	21%	8%	17%	0%	0%	0%	0%	7%	0%	0%	
GGC	434	98%	30%	30%	13%	21%	0%	0%	7%	8%	10%	9%	9%	
Lan	119	96%	29%	29%	11%	18%	0%	0%	0%	0%	13%	0%	0%	
WoSCAN	752	97%	27%	27%	11%	19%	0%	0%	4%	5%	11%	5%	5%	
Scot	1669	97%	24%	24%	8%	17%	1%	1%	3%	5%	11%	5%	6%	
		HPB QPI	HCC specific QPI								Pancreatic, Duodenal & Distal Biliary Tract Cancer specific QPIs			

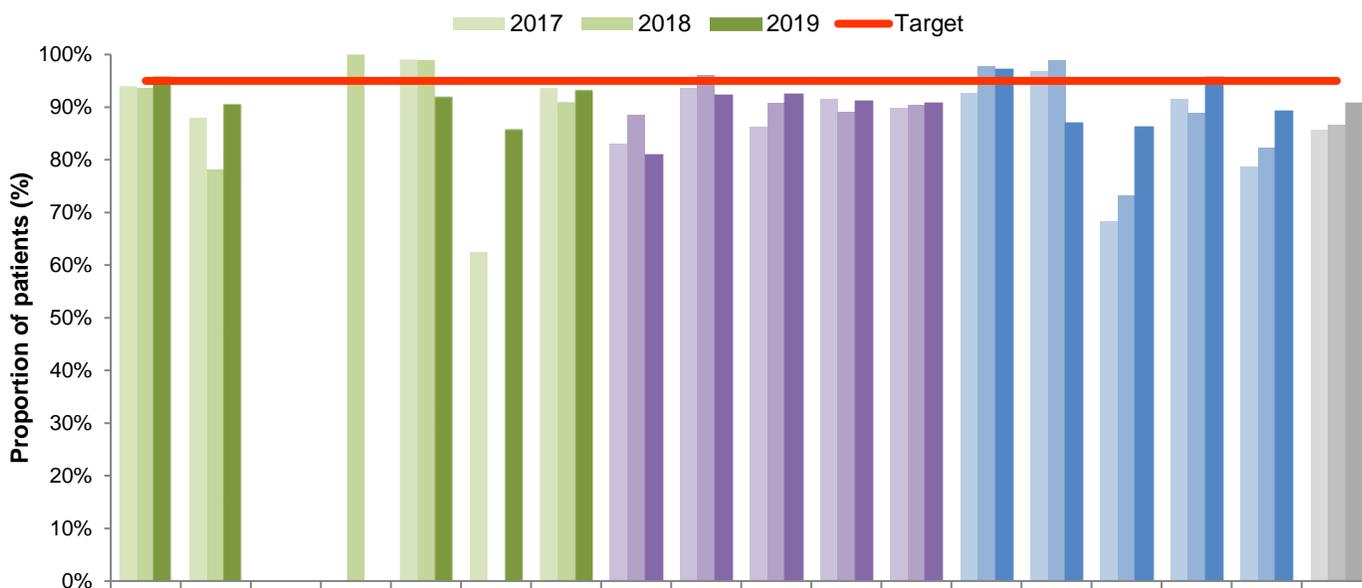
* QPIs reported by centre of surgery / non surgical treatment.

QPI 1: Multi-Disciplinary Team (MDT) Meeting

Evidence suggests that patients with cancer who are managed through a multi-disciplinary team (MDT) experience better outcomes and improved satisfaction with care. QPI 1 states that 95% of patients should be discussed at the MDT prior to definitive treatment. The tolerance allows for patients who need urgent treatment¹.

QPI 1:	Patients with HPB cancer should be discussed by an MDT prior to definitive treatment.
Description:	Proportion of patients with HPB cancer who are discussed at MDT meeting before definitive treatment.
Numerator:	Number of patients with HPB cancer discussed at the MDT before definitive treatment.
Denominator:	All patients with HPB cancer.
Exclusions:	Patients who died before first treatment.
Target:	95%

The figure below shows a summary of the results for QPI 1 by NHS Board of diagnosis for the three most recent years of audit data (2017 to 2019). For patients diagnosed in 2019 a more detailed breakdown of the results is shown in the table underneath.



2019 data	Grampian	Highland	Orkney	Shetland	Tayside	W Isles	NCA	Borders	D&G	Fife	Lothian	SCAN	A&A	Forth Valley	GGC	Lanarkshire	WoSCAN	Scotland
Numerator	155	76	0	-	113	6	354	34	59	112	259	464	102	74	368	109	653	1471
Denominator	162	84	0	-	123	7	380	42	64	121	284	511	105	85	427	114	731	1622
Performance (%)	95.7	90.5	*	-	91.9	85.7	93.2	81.0	92.2	92.6	91.2	90.8	97.1	87.1	86.2	95.6	89.3	90.7

Only four of the thirteen NHS Boards with patients included within this QPI met the 95% target, with the target not being met at a regional or national level. However, the overall national performance shows an improvement on previous years with 90.7% of patients being discussed at MDT before definitive treatment.

Boards not achieving the target have reviewed patients not discussed at MDT before definitive treatment; the main reasons for patients not being discussed at MDT included patients requiring urgent treatment, incidental tumour found at surgery, stent inserted prior to MDT and patients identified for best supportive care from the outset. The MCN is assured by this data that, in the main, all patients undergoing active treatment are discussed and considered by the MDT. In 2020 NHS Highland held an educational meeting with physicians to highlight the importance of all patients being discussed at MDT, which should improve performance within the Board in future years.

NHS GGC noted that a significant number of patients not discussed died within a few weeks of diagnosis. It is possible that a decision was made to offer best supportive care rather than pursue management through the Regional MDT but this does require further analysis and communication at a regional level to help achieve this target.

Actions:

- All NHS Boards to undertake further analysis of the patients not discussed at MDT prior to definitive treatment and share findings at a regional level.

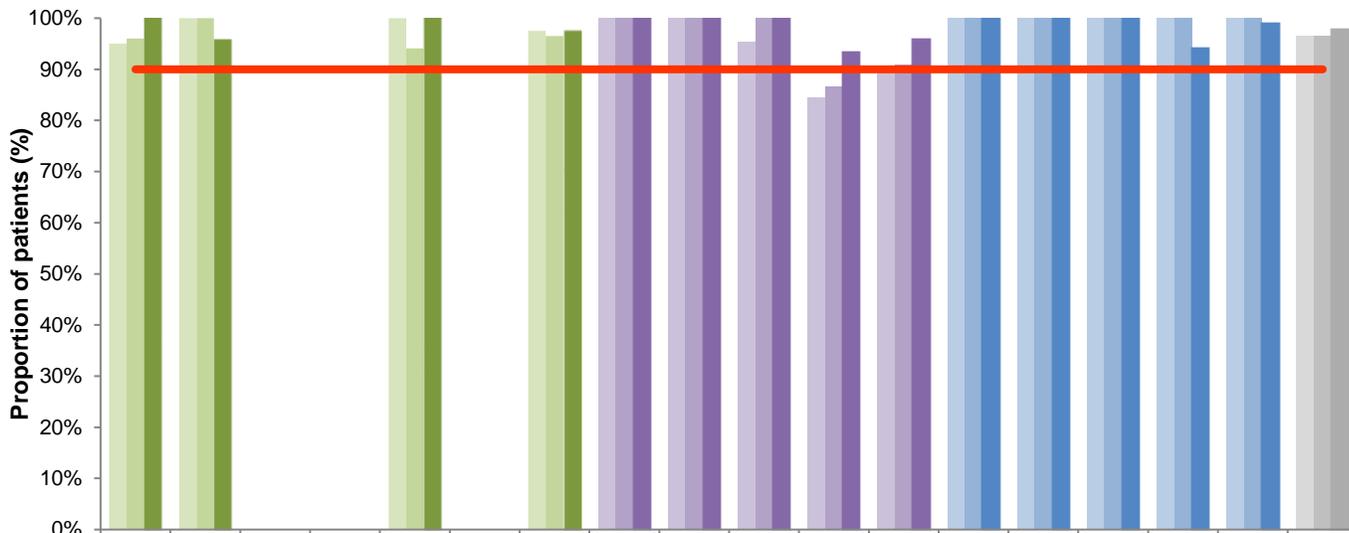
QPI 2: Diagnosis and Staging of HCC

The management of Hepatocellular Carcinoma (HCC) is determined by both the stage of HCC and the presence or severity of underlying chronic liver disease¹. Complete information is required to enable correct management decisions to be made by the multi-disciplinary team (MDT), such as the location, number and size of tumours. The 90% target set for QPI 2 accounts for the fact that some patients may have significant co-morbidities and therefore may not be fit for investigation and/or treatment¹.

A new specification (iii) for this QPI was added at the Formal Review undertaken in 2020; this cannot be reported for patients diagnosed in 2019 as the data required is not available so will be reported for patients diagnosed from January 2020.

QPI 2:	Patients with Hepatocellular Carcinoma (HCC) should be appropriately diagnosed and staged.
Description:	Proportion of patients with HCC who have undergone computerised tomography (CT) or Magnetic Resonance Imaging (MRI) and with full information recorded.
Numerator:	(i) Number of patients with HCC undergoing either CT or MRI. (ii) Number of patients with HCC undergoing either CT or MRI with full information recorded.
Denominator:	All patients with HCC.
Exclusions:	No exclusions.
Target:	90%

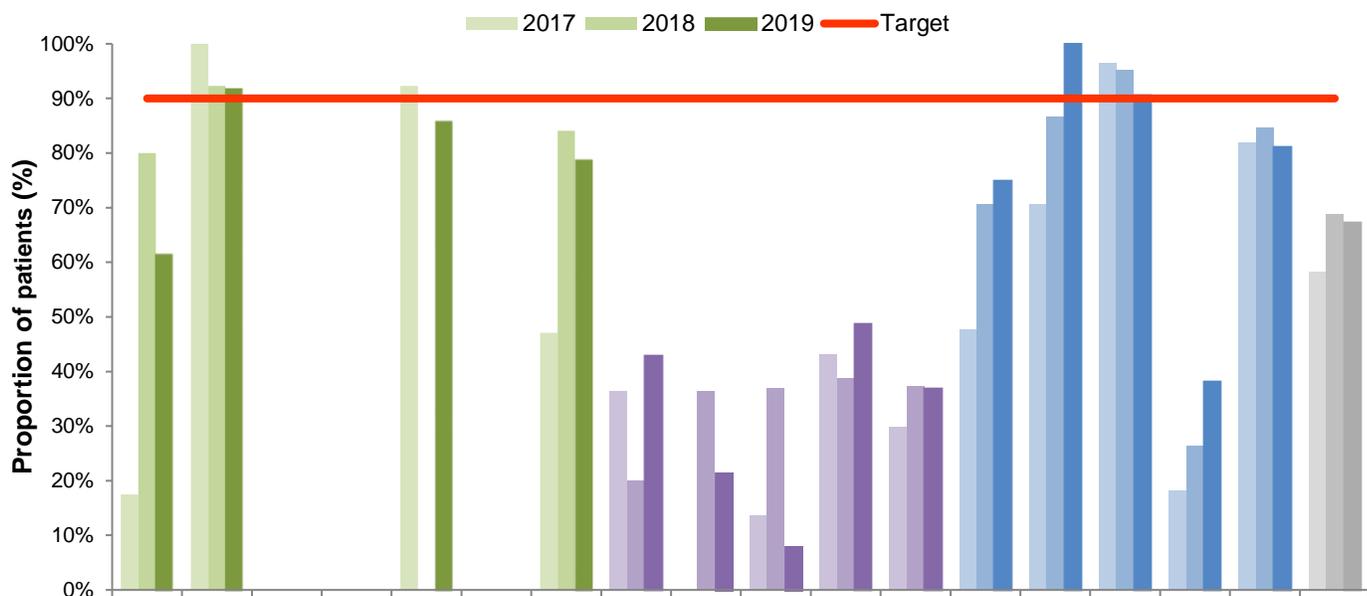
Specification (i) results are summarised below. Across Scotland 97.8% of patients with HCC had either a CT or MRI, meeting the 90% target. Twelve of the thirteen NHS Boards with patients diagnosed with HCC in 2019 met this target as did all three regions.



2019 data	Grampian	Highland	Orkney	Shetland	Tayside	W Isles	NCA	Borders	D&G	Fife	Lothian	SCAN	A&A	Forth Valley	GGC	Lanarkshire	WoSCAN	Scotland
Numerator	26	23	0	-	28	-	78	7	14	25	71	117	20	19	129	32	200	395
Denominator	26	24	0	-	28	-	80	7	14	25	76	122	20	19	129	34	202	404
Performance (%)	100	95.8	*	-	100	-	97.5	100	100	100	93.4	95.9	100	100	100	94.1	99.0	97.8

NHS Lothian provided feedback on cases not meeting the target for specification (i); all of these patients did not receive imaging as their tumour was an incidental finding at surgery.

Specification (ii) considers the proportion of patients that have a CT or MRI imaging where full information is provided within the radiology report. Across Scotland 67.3% of patients with HCC had CT or MRI imaging where all required information was included within the report, below the target of 90% and similar to performance in 2018. Four of the thirteen Boards with patients with HCC cancer met this target, it was not achieved by any of the three regions, with performance in SCAN considerably lower than in other regions.



2019 data	Grampian	Highland	Orkney	Shetland	Tayside	W Isles	NCA	Borders	D&G	Fife	Lothian	SCAN	A&A	Forth Valley	GGC	Lanarkshire	WoSCAN	Scotland
Numerator	16	22	0	-	24	-	63	3	3	2	37	45	15	19	117	13	164	272
Denominator	26	24	0	-	28	-	80	7	14	25	76	122	20	19	129	34	202	404
Performance (%)	61.5	91.7	*	-	85.7	-	78.8	42.9	21.4	8.0	48.7	36.9	75.0	100	90.7	38.2	81.2	67.3

Review of patients not meeting specification (ii) indicates incomplete recording of the Child's Pugh score across the majority of the NHS Boards not meeting this target; and to a lesser extent vascular invasion.

The HCC referral forms were updated in 2019 to require referring clinicians to record the information required to meet this QPI, which will hopefully improve performance against this specification in future years.

In addition individual NHS Boards have made additional efforts to ensure that information is appropriately recorded as follows:

- NHS Grampian will work to improve recording of the required information at the time of MDT discussion.
- NHS Tayside will ensure that the CNS team review MDT outputs following each MDT meeting to make sure data is complete.
- NHS Fife MDT team will ensure that the modified referral forms are completed appropriately.
- NHS Lanarkshire have reiterated to the Lanarkshire UG/HPB MDT the importance of recording Childs Pugh score and vascular invasion in all cases, and in addition anticipate that the new electronic MDT system will help to further improve recording of these data.

Actions:

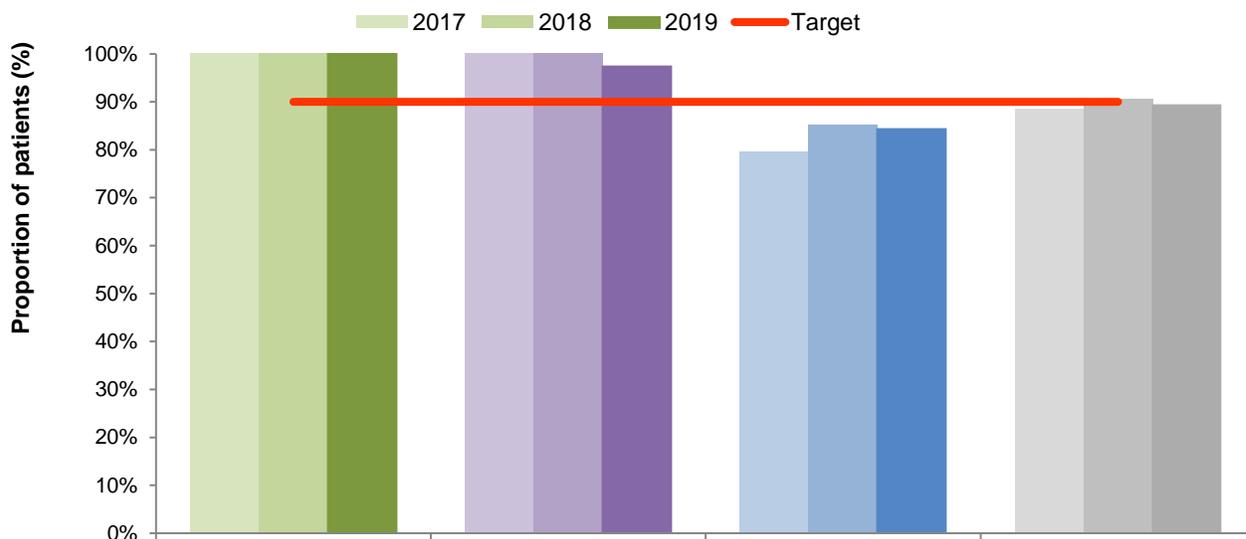
- All NHS Boards to ensure that they use the latest HCC referral form when referring patients to the MDT and complete all fields.

QPI 3: Referral to Scottish Liver Transplant Unit

The Scottish Liver Transplant Unit (SLTU) was established in 1992 at the Royal Infirmary in Edinburgh and is the specialist centre for liver transplantation in Scotland. Liver transplantation is associated with good long term outcome in selected patients with HCC¹. All patients with early HCC should be considered for liver transplantation and there should be equity of access to liver transplantation across Scotland¹. The current UK listing criteria are well validated selection criteria based on tumour number and size. Full details are published within the HPB QPI document¹.

QPI 3:	Patients with early HCC should be referred for consideration of liver transplantation.
Description:	Proportion of patients with HCC who meet the current UK listing criteria for orthotopic liver transplantation referred to the SLTU for consideration of liver transplantation.
Numerator:	Number of patients with HCC meeting the UK listing criteria that are referred to SLTU.
Denominator:	All patients with HCC meeting UK listing criteria ¹ (as defined by NHS Blood and Transplant).
Exclusions:	<ul style="list-style-type: none"> • Patients who refuse treatment. • Patients with evidence of vascular invasion. • Patients with extrahepatic disease.
Target:	90%

Across Scotland 89.2% of patients with HCC who met the UK listing criteria were referred to SLTU in 2019, just below the target of 90%. As with previous years there was regional variation in performance against this indicator, with NCA and SCAN comfortably meeting the target while WoSCAN falls below the target level. Results for this QPI are reported by region rather than by NHS Board due to the small numbers of patients included for many of the Boards.



2019 data	NCA	SCAN	WoSCAN	Scotland
Numerator	9	37	70	116
Denominator	9	38	83	130
Performance (%)	100%	97.4%	84.3%	89.2%

In NHS Greater Glasgow & Clyde patients meeting the radiological criteria for a transplant but who were not fit enough for surgery were not always discussed with the SLTU. Performance should improve in future as the Edinburgh Transplant Surgeon now participates in the Glasgow HCC MDT, and in addition details of any patients not discussed with SLTU at MDT will be emailed to the Edinburgh team for possible formal discussion at the following SEoS HPB MDT meeting.

Actions:

- NHS Glasgow Greater and Clyde to ensure that SLTU are informed of all patients meeting the radiological criteria for a liver transplant, even where they are considered unfit for surgery.

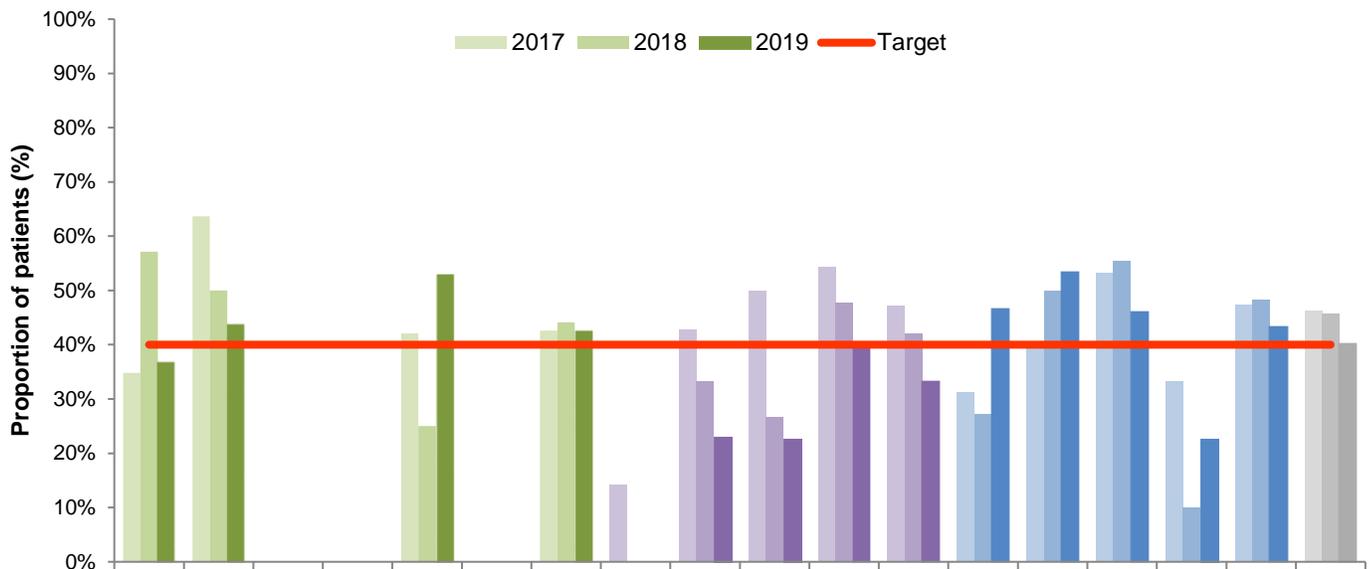
QPI 4: Palliative Treatment for HCC

Trans-arterial chemoembolisation (TACE) and Systemic Anti Cancer Therapy (SACT) are palliative therapies which have been demonstrated to improve survival in patients with HCC and well compensated chronic liver disease that are not suitable for treatments with curative intent¹. Historically, radiotherapy has not been used widely for the treatment of HCC due to the risk of radiation induced liver damage (RILD). However, recent technological advances in radiotherapy targeting have allowed it to become a viable treatment option for HCC⁶.

The target within this QPI is set at 40% and accounts for the fact that some patients will have significant co-morbidities or a fitness level which means that TACE, SACT or radiotherapy are not appropriate¹.

QPI 4:	Patients with Hepatocellular Carcinoma (HCC) who are not suitable for curative treatment should receive palliative treatment.
Description:	Proportion of patients with HCC not suitable for treatment with curative intent (liver transplantation, resection or ablative therapies) that undergo specific treatment with palliative intent (Trans-arterial chemoembolisation (TACE), Systemic Anti Cancer Therapy (SACT) or radiotherapy).
Numerator:	Number of patients with HCC not undergoing treatment with curative intent who receive TACE, SACT or radiotherapy.
Denominator:	All patients with HCC not undergoing treatment with curative intent (liver transplantation, resection or ablative therapies).
Exclusions:	<ul style="list-style-type: none">• Patients who refuse treatment.• Patients with decompensated chronic liver disease (Child-Pugh Grade C).
Target:	40%

Of the 279 patients diagnosed with HCC across Scotland in 2019 and not undergoing treatment with curative intent, 112 (40.1%) received palliative treatment. Therefore the QPI target of 40% was met at a national level, although performance against this measure was lower than in the previous two years. Seven of the thirteen NHS Boards with patients included within this measure met the target.



2019 data	Grampian	Highland	Orkney	Shetland	Tayside	W Isles	NCA	Borders	D&G	Fife	Lothian	SCAN	A&A	Forth Valley	GGC	Lanarkshire	WoSCAN	Scotland
Numerator	7	7	0	-	9	-	23	*	3	5	18	28	7	8	41	5	61	112
Denominator	19	16	0	-	17	-	54	*	13	22	45	84	15	15	89	22	141	279
Performance (%)	36.8	43.8	*	-	52.9	-	42.6	*	23.1	22.7	40.0	33.3	46.7	53.3	46.1	22.7	43.3	40.1

Where Boards have not met the target, cases have been reviewed. Patients not meeting the QPI were discussed at the MDT and for the vast majority of these, palliative treatment was not considered appropriate due to patient frailty and comorbidities. Due to late presentation of disease and high levels of co-morbidity this QPI target is challenging to meet; the establishment of awareness campaigns aimed at encouraging improved general health and more specifically to promote early presentation of HPB cancer would likely result in an increase in the proportion of patients being suitable for treatment, both curative and palliative.

It was noted that the lack of recording Childs Pugh score for 71 of the patients included within this QPI means that some patients with decompensated chronic liver disease (Child-Pugh Grade C) may have been erroneously included within the measure, potentially lowering performance. Efforts to improve recording of Childs Pugh score (QPI 2(ii)) should result in improved reporting against this QPI in future years.

QPI 5: 30 and 90 Day Mortality after Curative or Palliative Treatment for HCC

Disease specific interventions for HCC are delivered with either curative (transplant, resection, ablation) or palliative (TACE) intent. In either case, treatments should be performed safely with low rates of mortality and should not be undertaken in futile situations¹.

QPI 5:	30-day and 90-day mortality following treatment for Hepatocellular Carcinoma (HCC) with curative or palliative intent.
Description:	Proportion of patients with HCC undergoing disease specific treatment, either curative (liver transplantation, resection or ablation) or palliative (Trans-arterial chemoembolisation (TACE)), who die within 30 or 90 days of definitive treatment.
Numerator:	Number of patients with HCC undergoing curative or palliative treatment that die within 30 or 90 days of definitive treatment (90-day mortality measured for curative treatments only).
Denominator:	All patients with HCC undergoing disease specific treatment (liver transplant, resection, ablation or TACE)
Exclusions:	No exclusions
Target:	<p>Curative: 30 days <5% 90 days <7.5%</p> <p>Palliative: 30 days <10%</p>

National mortality figures for 2017 to 2019 are presented in the table below by treatment type. Data is not displayed graphically and data for the 3 surgical centres in the North of Scotland (Aberdeen, Inverness and Dundee) are aggregated due to the small numbers of patients included within the measures. For curative treatments no patients died within 30 days of treatment in 2019, while two patients died within 90 days of curative treatment. Mortality levels were well within the targets of less than 5% for 30 day mortality and less than 7.5% for 90 day mortality at a national level. One patient (1.1%) died within 30 days of receiving palliative TACE, well within the target of less than 10% of patients.

Liver Transplant		Aberdeen, Inverness and Dundee 2019	Edinburgh 2019	Glasgow 2019	Scotland 2019	Scotland 2018	Scotland 2017
30 day mortality Target < 5%	Numerator	0	0	0	0	0	0
	Denominator	0	10	0	10	20	22
	Performance (%)	-	0%	-	0%	0%	0%
90 day mortality Target < 7.5%	Numerator	0	0	0	0	0	0
	Denominator	0	10	0	10	19	21
	Performance (%)	-	0%	-	0%	0%	0%

Resection		Aberdeen, Inverness and Dundee 2019	Edinburgh 2019	Glasgow 2019	Scotland 2019	Scotland 2018	Scotland 2017
30 day mortality Target < 5%	Numerator	0	0	0	0	0	0
	Denominator	5	14	0	19	18	13
	Performance (%)	0%	0%	0%	0%	0%	0%
90 day mortality Target < 7.5%	Numerator	1	0	0	1	0	0
	Denominator	5	14	0	19	18	13
	Performance (%)	20.0%	0%	0%	5.3%	0%	0%

Ablation		Aberdeen, Inverness and Dundee 2019	Edinburgh 2019	Glasgow 2019	Scotland 2019	Scotland 2018	Scotland 2017
30 day mortality following Ablation Target < 7.5%	Numerator	-	0	0	0	0	0
	Denominator	-	18	31	50	43	24
	Performance (%)	-	0%	0%	0%	0%	0%
90 day mortality following Ablation Target < 5%	Numerator	-	0	1	1	1	0
	Denominator	-	18	30	49	41	24
	Performance (%)	-	0%	3.3%	2.0%	2.4%	0%

TACE		Aberdeen, Inverness and Dundee 2019	Edinburgh 2019	Glasgow 2019	Scotland 2019	Scotland 2018	Scotland 2017
30 day mortality following TACE Target < 10%	Numerator	1	0	0	1	2	2
	Denominator	13	42	36	91	85	85
	Performance (%)	7.7%	0%	0%	1.1%	2.4%	2.4%

Patients that die following treatment are reviewed at the monthly centre mortality and morbidity reviews and the annual NMCN mortality and morbidity review. The number of patients who died following treatment for HCC was very low in 2019 and the NMCN review agreed further improvements in best practice for all five centres.

QPI 6: Radiological Diagnosis of Pancreatic, Duodenal or Biliary Tract Cancer

Following formal review, QPI 6 was amended to remove the requirement for CT of the chest or CT of pelvis (leaving CT of abdomen only) with an increased target of 95%. Due to new data items being required to measure this, performance against this revised QPI cannot be reported until next year.

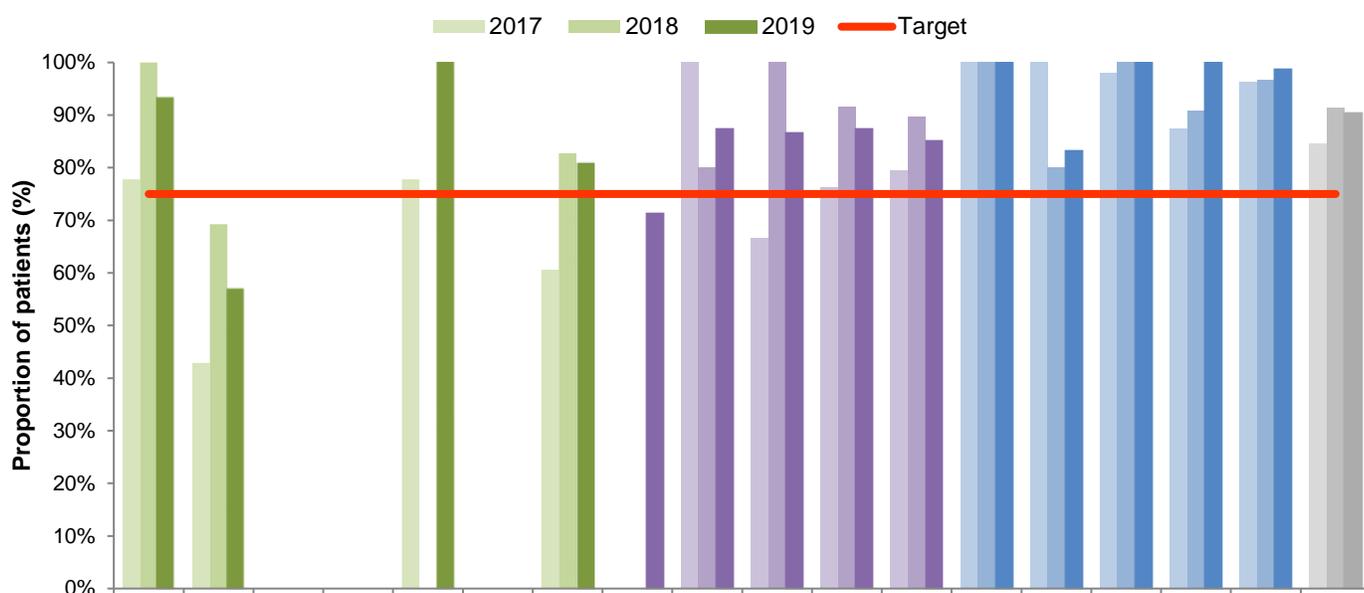
QPI 7: Pathological Diagnosis of Pancreatic, Duodenal or Biliary Tract Cancer

In patients who are being considered for anti-cancer therapy, definitive cytological or histological diagnosis is essential before chemotherapy to ensure full benefit of any treatment offered¹. Even when no active treatment is being considered, a definitive diagnosis is valuable in helping to inform patients and carers about the nature of the disease and the likely prognosis¹. It is not always appropriate, safe or possible to obtain a histological or cytological diagnosis due to the performance status of the patient or advanced nature of the disease and the 75% target reflects this and also factors relating to patient choice.

Slight amendments were made to this QPI at the Formal Review undertaken in 2020; these cannot be reported for patients diagnosed in 2019 as the data required is not available so previous measurability has been used in this report. The new definition will be reported for patients diagnosed from January 2020.

QPI 7:	Patients with pancreatic, duodenal or biliary tract cancers having non-surgical treatment should have a cytological or histological diagnosis
Description:	Proportion of patients with pancreatic, duodenal or biliary tract cancer undergoing non-surgical treatment who have a cytological or histological diagnosis
Numerator:	Number of patients with pancreatic, duodenal or distal biliary tract cancer undergoing non-surgical treatment who have a histological or cytological diagnosis (e.g. brush cytology, endoscopic or image guided biopsy)
Denominator:	All patients with pancreatic, duodenal or distal biliary tract undergoing non-surgical treatment
Exclusions:	No exclusions
Target:	75%

Of the 179 patients diagnosed with pancreatic, duodenal or distal biliary tract in Scotland in 2019 and undergoing non-surgical treatment, 90.5% had a cytological or histological diagnosis, comfortably achieving the 75% target. The QPI was met by all three regions and by 10 of the 13 NHS Boards with patients measured within the QPI.



2019 data	Grampian	Highland	Orkney	Shetland	Tayside	W Isles	NCA	Borders	D&G	Fife	Lothian	SCAN	A&A	Forth Valley	GGC	Lanarkshire	WoSCAN	Scotland
Numerator	14	8	0	-	10	-	34	5	7	13	21	46	16	5	45	16	82	162
Denominator	15	14	0	-	10	-	42	7	8	15	24	54	16	6	45	16	83	179
Performance (%)	93.3	57.1	*	-	100	-	81.0	71.4	87.5	86.7	87.5	85.2	100	83.3	100	100	98.8	90.5

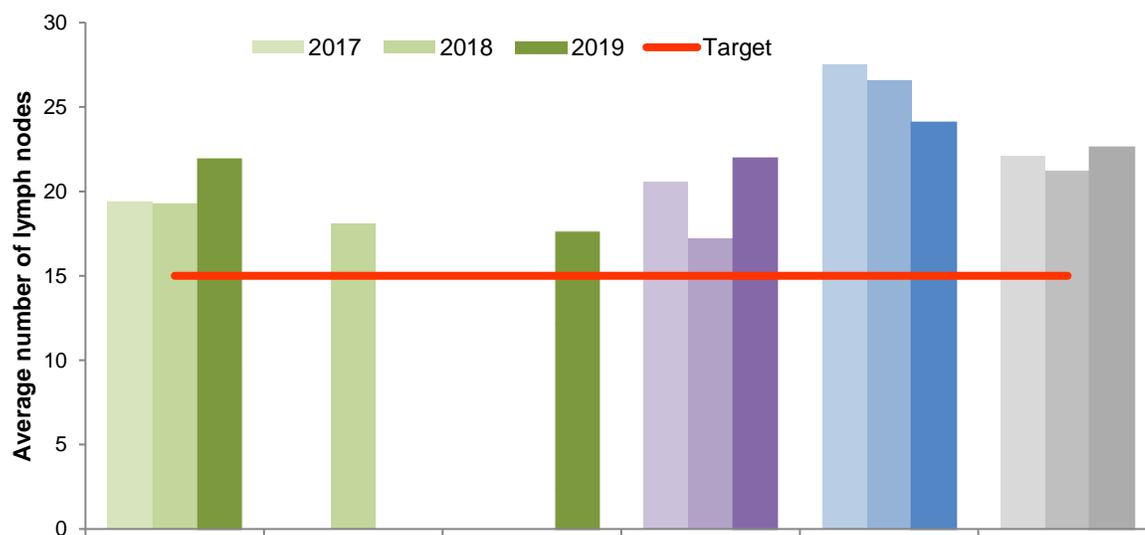
Within NHS Highland the historic use of EUS FNA (Endoscopic Ultrasound-guided Fine Needle Aspiration) resulted in lower performance against this QPI than other NHS Boards as FNA does not always provide an adequate sample to enable diagnosis. During late 2019 into 2020 the Board moved to using EUS FNB (Endoscopic Ultrasound-guided Fine Needle Biopsy) in order to improve the diagnostic yield from samples. It is anticipated that this will result in improved performance against this QPI in future years of reporting.

QPI 10: Lymph Node Yield

Adequate lymph node yield is important for accurate staging and is a surrogate marker of adequacy of en-bloc cancer resection and diligence of the pathologist¹. Evidence suggests that pancreatoduodenectomy should yield a minimum of 15 lymph nodes from the principal specimen¹.

QPI 10:	In patients undergoing surgery for pancreatic, duodenal or distal biliary tract cancer the number of lymph nodes examined should be maximised.
Description:	Average number of lymph nodes resected and pathologically examined for patients with pancreatic, duodenal or biliary tract cancer who undergo pancreatoduodenectomy performed by a specialist centre, over a 1 year period.
Numerator:	Total number of lymph nodes resected and pathologically examined for all patients with pancreatic, duodenal or distal biliary tract cancer who undergo pancreatoduodenectomy.
Denominator:	All patients with pancreatic, duodenal or distal biliary tract cancer who undergo pancreatoduodenectomy (no exclusions).
Exclusions:	No exclusions.
Target:	Average of 15 nodes per patient per centre.

In 2019, as in previous years, all five surgical centres across Scotland had an average lymph node yield of more than 15 nodes per patient. Across Scotland patients who had a pancreatoduodenectomy had an average of 23 lymph nodes resected and pathologically examined.



2019 data	Aberdeen	Inverness	Dundee	Edinburgh	Glasgow	Scotland
No. nodes examined	263	-	88	747	893	2030
No. surgeries	12	-	5	34	37	90
Average no. nodes	21.9	-	17.6	22.0	24.1	22.6

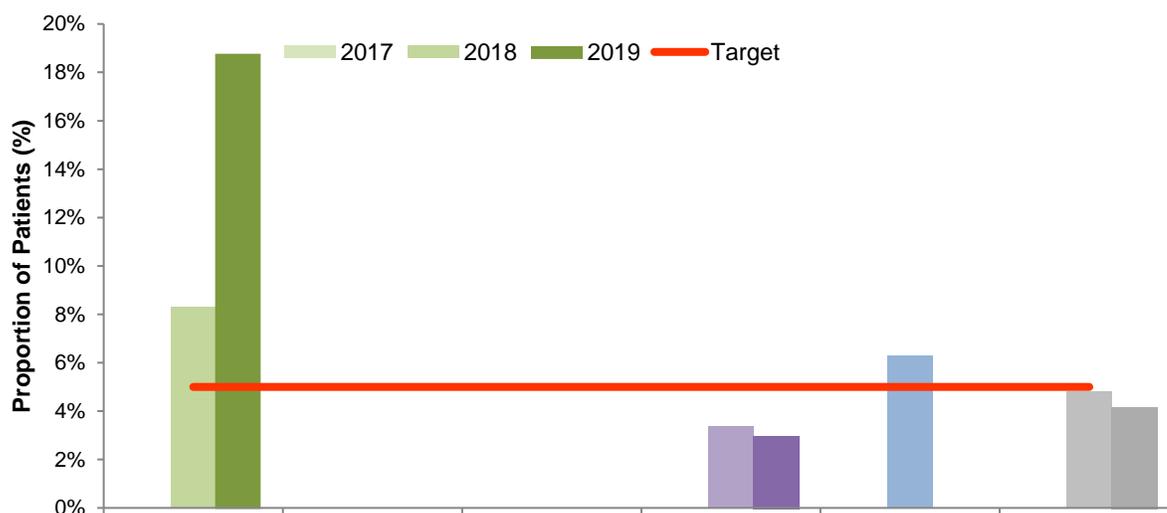
QPI 11: 30 and 90-day Mortality Following Surgical Resection for Pancreatic, Duodenal or Distal Biliary Tract Cancer

Mortality following resection for HPB cancer has fallen over the past 30 years and in specialist units should be less than 5%¹. Treatment related mortality is a marker of the quality and safety of the whole service provided by the multidisciplinary team.

QPI 11:	30-day and 90-day mortality surgical resection for pancreatic, duodenal or distal biliary tract cancer.
Description:	Proportion of patients with pancreatic, duodenal or distal biliary tract cancer who die within 30/90 days of surgical resection.
Numerator:	Number of patients with pancreatic, duodenal or distal biliary tract cancer who undergo surgical resection that die within 30/90 days of treatment.
Denominator:	All patients with pancreatic, duodenal or distal biliary tract cancer who undergo surgical resection.
Exclusions:	No exclusions.
Target:	30 days <5% 90 days <7.5%

30 Day Mortality

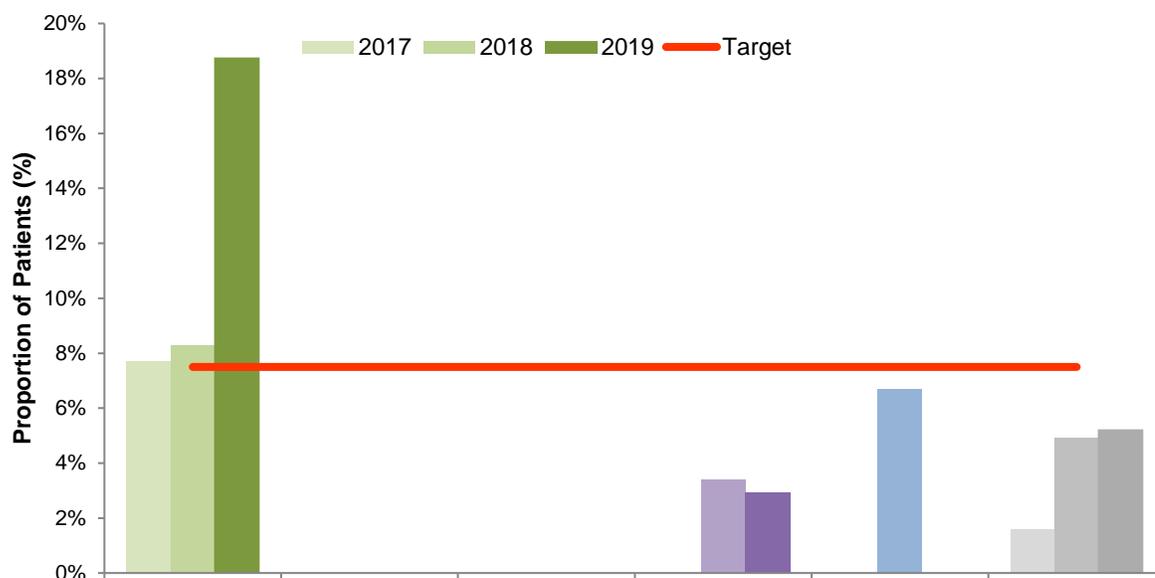
Across Scotland 4.2% of patients having surgical resection died within 30 days of surgery, meeting the target of less than 5%. Analysis by surgical centre indicates that this target was met in 4 of the 5 centres, although caution should be exercised in interpreting variation based on the outcomes of small numbers of patients.



2019 data	Aberdeen	Inverness	Dundee	Edinburgh	Glasgow	Scotland
Numerator	3	-	0	1	0	4
Denominator	16	-	6	34	37	96
Mortality (%)	18.8%	-	0%	2.9%	0%	4.2%

90 Day Mortality

Across Scotland 5.2% of patients having surgical resection dies within 90 days of surgery, meeting the target of less than 7.5%. Analysis by surgical centre indicates that this target was met in 3 of the 5 centres, although caution should again be exercised in interpreting variation based on the outcomes of small numbers of patients.



2019 data	Aberdeen	Inverness	Dundee	Edinburgh	Glasgow	Scotland
Numerator	3	-	0	1	0	5
Denominator	16	-	6	34	37	96
Mortality (%)	18.8%	-	0%	2.9%	0%	5.2%

Patients that die following treatment are reviewed at the monthly centre mortality and morbidity reviews and the annual NMCN mortality and morbidity review.

Within the NCA performance against this QPI and QPI 12 has been escalated to the North of Scotland Medical Directors as part of the low volume cancer surgery programme. A number of actions are in progress to establish regional collaboration for HPB cancer services, most notably the establishment of an optimal volume surgical service for North of Scotland patients to drive improvement in patient outcomes. The first step will be the establishment of a North of Scotland HPB MDT for discussion of all North patients with relevant HPB specialists, with go live scheduled for Spring 2021.

There continues to be cross-board collaboration for the management of HPB surgery patients in the North of Scotland with surgeons from each centre working collaboratively to deliver services. A NoS HPB surgery planning meeting has been established to provide resilience among the NoS Boards during the current pandemic and support surgery planning.

Results against this QPI will continue to be reviewed and patient deaths within 30 and 90-days of surgical resection are discussed at board, regional and national meetings. A North of Scotland Morbidity & Mortality review has been established for cases to be reviewed by the relevant HPB specialists in the North of Scotland.

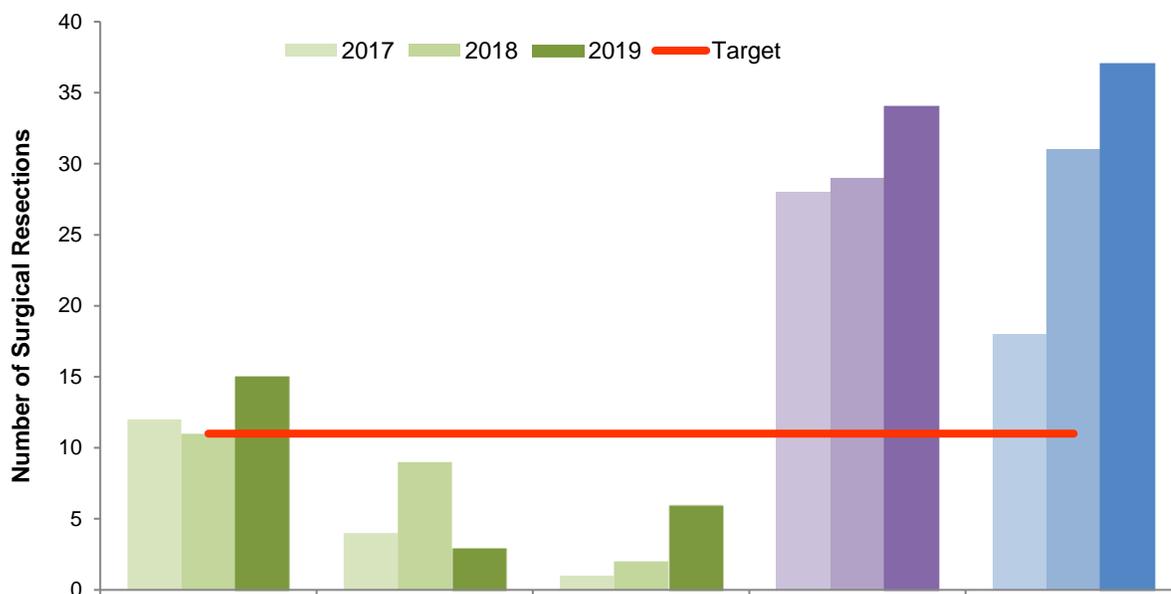
QPI 12: Volume of Cases per Centre/Surgeon

HPB resectional surgery should be performed by surgeons who work in a specialist multidisciplinary team in a specialist centre, with outcomes audited regularly and benchmarked nationally¹. Surgical resection should be confined to specialist centres to increase resection rates and reduce hospital morbidity and mortality. The literature demonstrates that there is a relationship between increasing surgical volumes for major HPB resections and improved patient outcomes (mortality)¹.

QPI 12a/b:	HPB resectional surgery should be performed in hospitals where there is an appropriate annual volume of such cases.
Description:	Number of surgical resections for pancreatic, duodenal or distal biliary tract cancer performed by a specialist centre (a), and surgeon (b), over a 1 year period.
Target:	a) Minimum of 11 cases per centre in a one year period. b) Minimum of 4 procedures per surgeon in a one year period.

Number of surgical resections per centre

Of the five surgical centres in Scotland, three met the minimum number of cases required within a one year period to meet this target in 2019. As in the 2017 and 2018, less than 11 resections were undertaken in Inverness and Dundee.



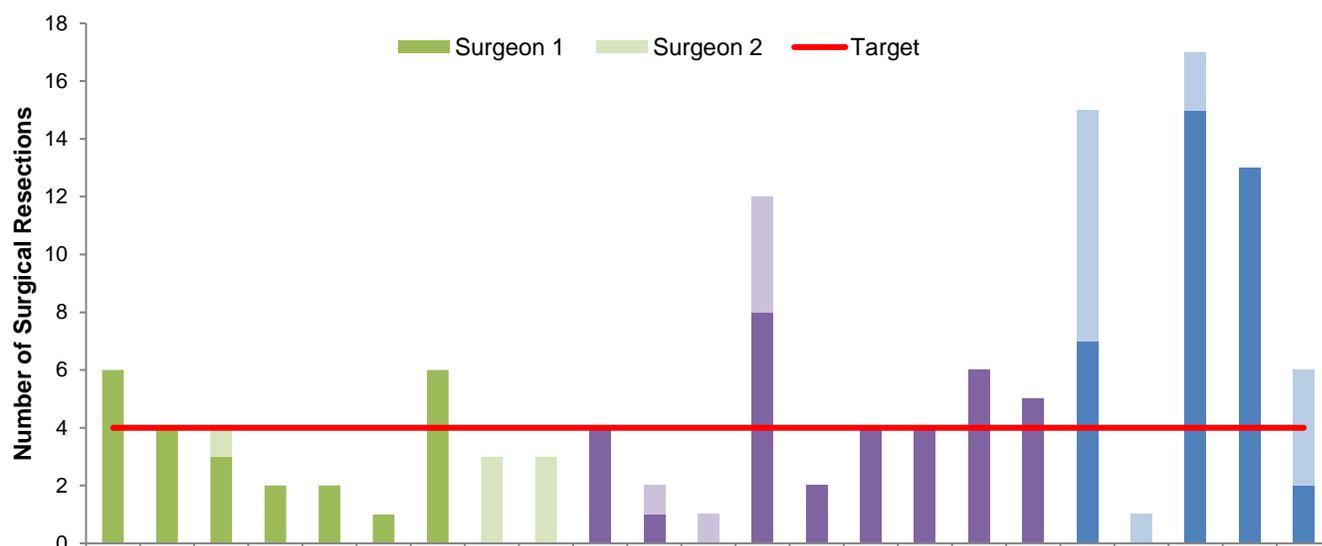
Number of Surgical Resections	Aberdeen	Inverness	Dundee	Edinburgh	Glasgow
2017	12	4	1	28	18
2018	11	9	2	29	31
2019	15	3	6	34	37

NHS Tayside noted that nine pancreatic resections were performed in Dundee in 2019, close to the target of 11; however three of these were on patients with disease that is not included within the HPB cancer audit and therefore not included within the figures reported. It was also noted that 18 pancreatic resections were performed in Dundee in 2020, as such the target would have been met in Dundee if all

patients having pancreatic resections were included within figures, rather than only those with a diagnosis of pancreatic, duodenal or distal biliary tract cancer.

Number of surgical resections per surgeon

Of the 23 surgeons undertaking surgical resection in 2019, 14 undertook 4 or more surgeries within the year, therefore meeting the QPI target. Of the 9 surgeons performing less than 4 surgeries in the year 5 were from surgical centres in the NoS, three from Edinburgh and one from Glasgow.



Centre	Aberdeen				Inverness		Dundee			Edinburgh								Glasgow					
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
Performed as surgeon 1	6	4	3	2	2	1	6	0	0	4	1	0	8	2	4	4	6	5	7	0	15	13	2
Performed as surgeon 2	0	0	1	0	0	0	0	3	3	0	1	1	4	0	0	0	0	0	8	1	2	0	4
Total	6	4	4	2	2	1	6	3	3	4	2	1	12	2	4	4	6	5	15	1	17	13	6

Centres in Dundee and Edinburgh noted that staffing changes had affected performance for some surgeons, with surgeons only being in post for part of the year reported.

In Glasgow the surgeon not meeting this QPI has now progressed to a senior medical management role and no longer undertakes resections as the primary operator. As a senior pancreatic surgeon he will still be available for mentorship and advice and may therefore continue to be named on operations notes. Similarly, in Dundee it was noted that Senior HPB surgeons double scrub for all pancreatic resections to ensure skills are maintained and volumes of cases per surgeon are sufficient.

In the Aberdeen centre discussion of surgical volumes has resulted in an agreement that surgical referral, surgical planning meetings and dual operating will be implemented in such a way to ensure there is a more even distribution of surgery between surgeons.

In Inverness, the target would have been met for both surgeons if all patients having pancreatic resections were included within figures, rather than only counting those with a diagnosis of pancreatic, duodenal or distal biliary tract cancer.

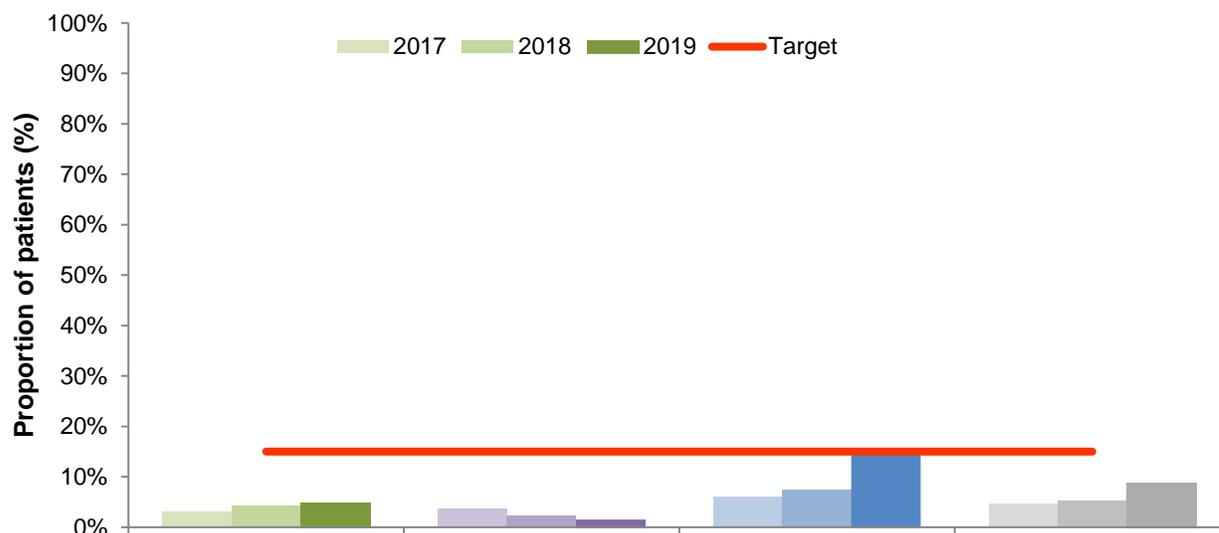
QPI 13: Clinical Trials and Research Study Access

Clinical trials are necessary to demonstrate the efficacy of new therapies and other interventions. Evidence suggests improved patient outcomes when hospitals are actively recruiting patients into clinical trials. Clinicians are therefore encouraged to enter patients into well designed trials and to collect long term follow up data¹.

The clinical trials QPI is measured utilising Scottish Cancer Research Network (SCRN) data and ISD incidence data, as is the methodology currently utilised by the Chief Scientist Office (CSO) and the National Cancer Research Institute (NCRI). The principal benefit of this approach is that this data is already collected utilising a robust mechanism².

QPI 13:	All patients should be considered for participation in available clinical trials/research studies, wherever eligible.
Description:	Proportion of patients diagnosed with HPB cancer who are consented for a clinical trial/research study.
Numerator:	Number of patients diagnosed with HPB cancer consented for a clinical trial/research study.
Denominator:	All patients diagnosed with HPB cancer.
Exclusions:	<ul style="list-style-type: none"> No exclusions
Target:	15%

Across Scotland 8.7% of patients were consented for clinical trials or research studies in 2019, below the target of 15% but an improvement on performance in previous years. No individual regions met the QPI, although WoSCAN only narrowly missed the target with 14.7% of patients consented.



2019 data	NCA	SCAN	WoSCAN	Scotland
Numerator	21	7	117	145
Denominator	424	445	794	1663
Performance (%)	5.0%	1.6%	14.7%	8.7%

HPB Clinical Trials and Research Studies open to recruitment in Scotland in 2019

ABC08: Ph Ib Acelarin + cisplatin in advanced biliary tract cancer
ACELARATE
ACTICCA-1
AFPc332T Cell Therapy in Advanced Hepatocellular Carcinoma (HCC)
An exploratory biomarker analysis in blood and urine of patients with malignant disease
Artist 1
BALLAD
CA025-006: Phase 2 Cabiralizumab & Nivolumab in Pancreatic Cancer
CANC 4818
CANC 5631
E7080-J081-116 Lenvatinib Plus Pembrolizumab in Subjects with HCC
ENeRgy Trial
FAK-PD1 v1
Familiarisation Project
FIGHT-302
FT-2102 in Patients with Advanced Solid Tumours and Gliomas
LEAP-002
MEDIVIR MIV-818-101/201
NUC-3373 in Advanced Solid Tumours (NuTide: 301)
PHITT
PIONEER
PrecisionPanc
PRIMUS 001
PRIMUS 002
RTL Advanced Study
SCALOP-2: Systemic therapy and Chemoradiation in Advanced Localised Pancreatic cancer - 2
TOFFEE Trial

Accessibility of clinical trials and research studies to patients depends on whether trials are open for patients locally and whether they are eligible for entry into these trials. The majority of HPB trials in Scotland are undertaken at surgical centres, although NHS Borders have indicated an interest in opening trials within their NHS Board. The SHPBN website⁸ provides information on the clinical trials currently open across the 5 surgical centres in Scotland, as does the biannual SHPBN newsletter; this helps promote awareness of trial availability to clinical staff from across Scotland.

Performance in WoSCAN was very close to the 15% target, almost doubling since the previous year. The academic profile of the HPB unit in Glasgow, and in particular the PrecisionPanc trial, should continue to drive up performance against this QPI in coming years.

Although performance was lower in other regions some new HPB trials are in the process of being opened in Edinburgh while a new research collaborative has been initiated in the Aberdeen unit. In addition PrecisionPanc and PRIMUS have been opened to recruitment in Inverness in 2020 and the NCA is keeping a list of open studies which is disseminated throughout the region to improve the awareness of all currently open studies. All these developments are likely to result in improved performance against this QPI in future for the NHS Boards concerned.

QPI 17: 30 / 90 Day Mortality following Treatment for Colorectal Liver Metastases

Over 50% of patients with primary colorectal cancer will develop liver metastases. Liver resection has now been widely accepted as the treatment of choice for primary colorectal liver metastases (CRLM), providing the only potential curative treatment with 5 year survival rates of 40 – 60% reported¹. This QPI is intended to ensure treatment is given appropriately, and the outcome reported on and reviewed.

QPI 17:	30 and 90 day mortality following treatment for Colorectal liver metastases (CRLM) with curative intent.
Description:	Proportion of patients with CRLM undergoing curative treatment (resection / ablation) who die within 30 or 90 days of treatment.
Numerator:	All patients with CRLM undergoing curative treatment (resection / ablation) who die within 30/90 days of treatment.
Denominator:	All patients with CRLM undergoing curative treatment (resection / ablation).
Exclusions:	No exclusions.
Target:	30 days <5% 90 days <7.5%

Across Scotland no patients with colorectal liver mets died within 30 days or resection or ablation and no patients died within 90 days of treatment with ablation. One patient died within 90 days of resection, 1.1% of patients having surgery, well within the target of less that 7.5% of patients. This is the first year of reporting for this QPI and as such there are no previous years of data with which to compare the performance in 2019.

Resection	2019 data	Aberdeen	Inverness	Dundee	Edinburgh	Glasgow	Scotland
30 day mortality Target < 5%	Numerator	0	-	0	0	-	0
	Denominator	22	-	5	59	-	93
	Performance (%)	0%	-	0%	0%	-	0%
90 day mortality Target < 7.5%	Numerator	1	-	0	0	-	1
	Denominator	22	-	5	59	-	93
	Performance (%)	4.5%	-	0%	0%	-	1.1%

Ablation	2019 data	Aberdeen	Inverness	Dundee	Edinburgh	Glasgow	Scotland
30 day mortality Target < 7.5%	Numerator	0	0	0	0	0	0
	Denominator	0	0	10	5	17	32
	Performance (%)	*	*	0%	0%	0%	0%
90 day mortality Target < 5%	Numerator	0	0	0	0	0	0
	Denominator	0	0	10	5	17	32
	Performance (%)	*	*	0%	0%	0%	0%

Patients that die following treatment are reviewed at the monthly centre mortality and morbidity reviews and the annual NMCN mortality and morbidity review.

5. Next Steps

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

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

Acknowledgement

This report has been prepared using clinical audit data provided by each of the fourteen NHS Boards in Scotland. We would like to thank colleagues in the Clinical Effectiveness departments throughout Scotland for gathering, submitting and verifying these data. We would also like to thank the clinicians, nurses and others involved in the management of HPB cancer for their contribution to the clinical audit process.

Abbreviations

AA	NHS Ayrshire & Arran
ACaDMe	Acute Cancer Deaths and Mental Health
ARI	Aberdeen Royal Infirmary
BWoSCC	Beatson West of Scotland Cancer Centre
CBD	Common Bile Duct
CEL(-06)	Chief Executive Letter (-06)
CT	Computerised tomography
D&G	NHS Dumfries & Galloway
eCASE	Electronic Cancer Audit Support Environment
FV	NHS Forth Valley
GGC	NHS Greater Glasgow and Clyde
GGH	Gartnavel General Hospital
GRI	Glasgow Royal Infirmary
HCC	Hepatocellular Carcinoma
HIS	Healthcare Improvement Scotland
HPB	HepatoPancreatoBiliary
ISD	Information Services Division
Lan	NHS Lanarkshire
MCN	Managed Clinical Network
MDT	Multidisciplinary Team
M&M	Morbidity and Mortality
MRI	Magnetic Resonance Imaging
NCQSG	National Cancer Quality Steering Group
NHSBT	NHS Blood and Transplant
NHSGGC	NHS Greater Glasgow and Clyde
NMCN	National Managed Clinical Network
NCA	North Cancer Alliance
QEUH	Queen Elizabeth University Hospital
QPI(s)	Quality Performance Indicator(s)
RCAG(s)	Regional Cancer Advisory Group(s)
RIE	Royal Infirmary of Edinburgh
SACT	Systemic Anti-Cancer Therapy
SCAN	South East Scotland Cancer Network
SHPNB	Scottish Hepatopancreatobiliary Network
SLTU	Scottish Liver Transplant Unit
TACE	Trans-arterial chemoembolisation

TNM	Tumour, Nodes, Metastases (staging system)
WGH	Western General Hospital
WoSCAN	West of Scotland Cancer Network

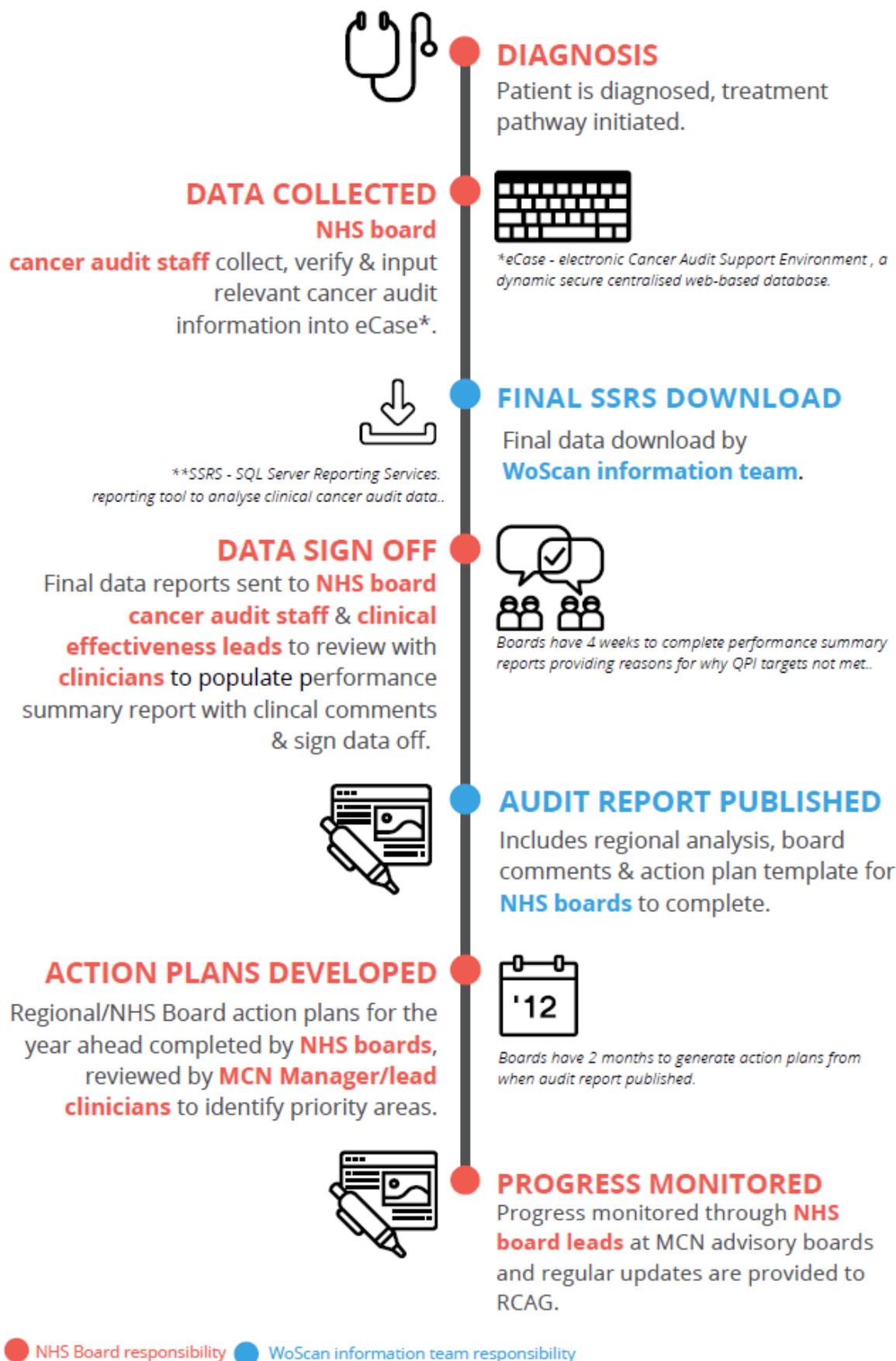
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7. Healthcare Improvement Scotland. Clinical Trial and Research Study Access Cancer Quality Performance Indicators, July 2014 (updated October 2017 v2.0).
http://www.healthcareimprovementscotland.org/our_work/cancer_care_improvement/cancer_qpis/quality_performance_indicators.aspx
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Appendix 1: Meta Data

Report Title	Audit Report: HPB Cancer Quality Performance Indicators																						
Time Period	Patients diagnosed between 01 January 2019 to 31 December 2019																						
Data Source	Electronic Cancer Audit Support Environment (eCASE). A secure centralised web-based database which holds cancer audit information in Scotland.																						
Data extraction date	2200 hrs on 11 November 2020																						
Methodology	<p>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.</p> <p>Initial results were provided to Boards to check for inaccuracies, inconsistencies or obvious gaps and a subsequent download taken upon which final analysis was carried out.</p> <p>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.</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 ISD, National Services Division), this is known as case ascertainment. Figures should only be used as a guide as it is not possible to compare the same exact cohort from each data source. Note that a 5 year average is taken for cancer registry cases to take account of annual fluctuations in incidence within NHS Boards.</p> <table border="1" data-bbox="399 1283 1321 1549"> <thead> <tr> <th>Health Board of diagnosis</th> <th>2019 Audit Data</th> <th>Cases from Cancer registry (2014-2018)</th> <th>Case Ascertainment</th> </tr> </thead> <tbody> <tr> <td>NCA</td> <td>395</td> <td>424</td> <td>93.2%</td> </tr> <tr> <td>SCAN</td> <td>522</td> <td>445</td> <td>117.3%</td> </tr> <tr> <td>WoSCAN</td> <td>752</td> <td>795</td> <td>94.6%</td> </tr> <tr> <td>Scotland Total</td> <td>1669</td> <td>1664</td> <td>100.3%</td> </tr> </tbody> </table>			Health Board of diagnosis	2019 Audit Data	Cases from Cancer registry (2014-2018)	Case Ascertainment	NCA	395	424	93.2%	SCAN	522	445	117.3%	WoSCAN	752	795	94.6%	Scotland Total	1669	1664	100.3%
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NCA	395	424	93.2%																				
SCAN	522	445	117.3%																				
WoSCAN	752	795	94.6%																				
Scotland Total	1669	1664	100.3%																				

Appendix 2: WoSCAN QPI Reporting Process



Appendix 3: NHS Board Action Plans

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

Action / Improvement Plan

Area:	Aberdeen Centre/ NHS Grampian, NHS Orkney and NHS Shetland
Action Plan Lead:	
Date:	

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

QPI No.	Action Required	Health Board Action Taken	Timescales		Lead	Progress/Action Status	Status (see Key)
			Start	End			
	<i>Ensure actions mirror those detailed in Audit Report.</i>	<i>Detail specific actions that will be taken by the NHS Board.</i>	<i>Insert date</i>	<i>Insert date</i>	<i>Insert name of responsible lead for each specific action.</i>	<i>Provide detail of action in progress, change in practices, problems encountered or reasons why no action taken.</i>	<i>Insert No. from key above.</i>
1	All NHS Boards to undertake further analysis of the patients not discussed at MDT prior to definitive treatment and share findings at a regional level.						
2	All NHS Boards to ensure that they use the latest HCC referral form when referring patients to the MDT and complete all fields.						

Action / Improvement Plan

Area:	Inverness Centre/ NHS Highland and NHS Western Isles
Action Plan Lead:	
Date:	

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

QPI No.	Action Required	Health Board Action Taken	Timescales		Lead	Progress/Action Status	Status (see Key)
			Start	End			
	<i>Ensure actions mirror those detailed in Audit Report.</i>	<i>Detail specific actions that will be taken by the NHS Board.</i>	<i>Insert date</i>	<i>Insert date</i>	<i>Insert name of responsible lead for each specific action.</i>	<i>Provide detail of action in progress, change in practices, problems encountered or reasons why no action taken.</i>	<i>Insert No. from key above.</i>
1	All NHS Boards to undertake further analysis of the patients not discussed at MDT prior to definitive treatment and share findings at a regional level.						
2	All NHS Boards to ensure that they use the latest HCC referral form when referring patients to the MDT and complete all fields.						

Action / Improvement Plan

Area:	Dundee Centre/ NHS Tayside
Action Plan Lead:	
Date:	

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

QPI No.	Action Required	Health Board Action Taken	Timescales		Lead	Progress/Action Status	Status (see Key)
			Start	End			
	<i>Ensure actions mirror those detailed in Audit Report.</i>	<i>Detail specific actions that will be taken by the NHS Board.</i>	<i>Insert date</i>	<i>Insert date</i>	<i>Insert name of responsible lead for each specific action.</i>	<i>Provide detail of action in progress, change in practices, problems encountered or reasons why no action taken.</i>	<i>Insert No. from key above.</i>
1	All NHS Boards to undertake further analysis of the patients not discussed at MDT prior to definitive treatment and share findings at a regional level.						
2	All NHS Boards to ensure that they use the latest HCC referral form when referring patients to the MDT and complete all fields.						

Action / Improvement Plan

Area:	Edinburgh Centre/ NHS Borders, NHS Dumfries & Galloway, NHS Fife, NHS Forth Valley and NHS Lothian
Action Plan Lead:	
Date:	

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

QPI No.	Action Required	Health Board Action Taken	Timescales		Lead	Progress/Action Status	Status (see Key)
			Start	End			
	<i>Ensure actions mirror those detailed in Audit Report.</i>	<i>Detail specific actions that will be taken by the NHS Board.</i>	<i>Insert date</i>	<i>Insert date</i>	<i>Insert name of responsible lead for each specific action.</i>	<i>Provide detail of action in progress, change in practices, problems encountered or reasons why no action taken.</i>	<i>Insert No. from key above.</i>
1	All NHS Boards to undertake further analysis of the patients not discussed at MDT prior to definitive treatment and share findings at a regional level.						
2	All NHS Boards to ensure that they use the latest HCC referral form when referring patients to the MDT and complete all fields.						

Action / Improvement Plan

Area:	Glasgow Centre/ NHS Ayrshire & Arran, NHS Greater Glasgow & Clyde, 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)

QPI No.	Action Required	Health Board Action Taken	Timescales		Lead	Progress/Action Status	Status (see Key)
			Start	End			
	<i>Ensure actions mirror those detailed in Audit Report.</i>	<i>Detail specific actions that will be taken by the NHS Board.</i>	<i>Insert date</i>	<i>Insert date</i>	<i>Insert name of responsible lead for each specific action.</i>	<i>Provide detail of action in progress, change in practices, problems encountered or reasons why no action taken.</i>	<i>Insert No. from key above.</i>
1	All NHS Boards to undertake further analysis of the patients not discussed at MDT prior to definitive treatment and share findings at a regional level.						
2	All NHS Boards to ensure that they use the latest HCC referral form when referring patients to the MDT and complete all fields.						
3	NHS Glasgow Greater and Clyde to ensure that SLTU are informed of all patients meeting the radiological criteria for a liver transplant, even where they are considered unfit for surgery.						

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