Scottish Cancer Network

NHS SCOTLAND

HepatoPancreatoBiliary Clinical Audit Report

Quality Performance Indicators
01 January – 31 December 2022

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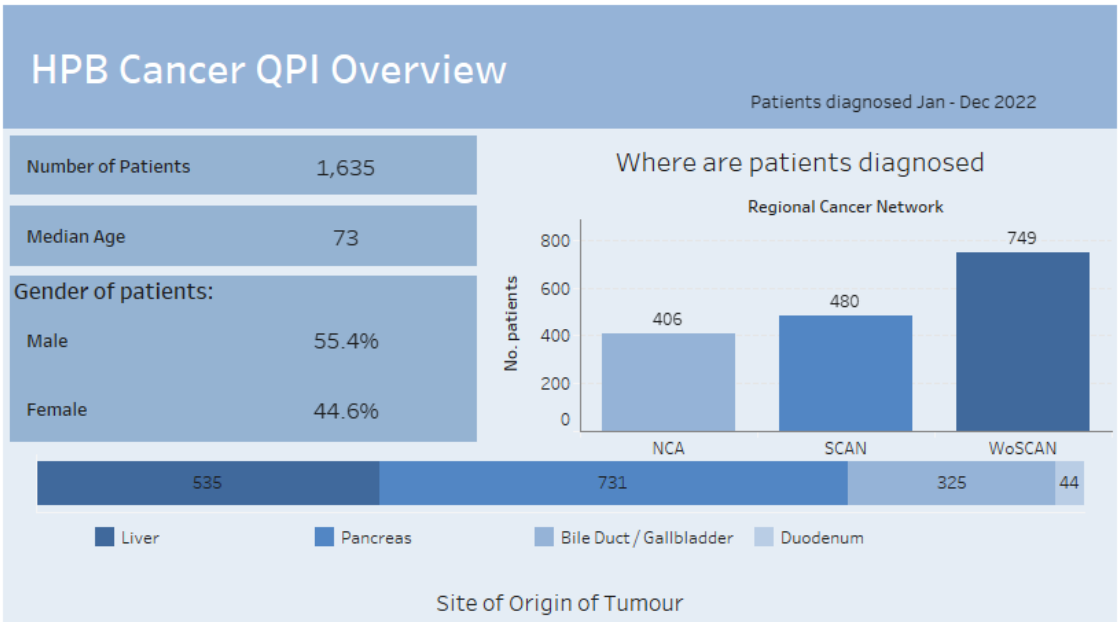
HPB Cancer QPI Overview

Patients diagnosed Jan – Dec 2022



Performance (%)

	Target Performance 2022				Target Performance 2022	
QPI 1: MDT meeting	95% 94%			QPI 7: Pathological Diagnosis of Pancreatic, Duodenal or Biliary Tract Cancer	90% 90%	
QPI 2: Diagnosis and Staging of HCC	90% 98%	90% 82%	90% 75%	QPI 10: Lymph Node Yield	15 22	
QPI 3: Referral to Scottish Liver Transplant Unit	90% 89%			QPI 11: 30 & 90 Day Mortality following Resection for Pancreatic, Duodenal or Biliary Tract Cancer	< 5% 1%	< 7.5% 1%
QPI 4: Palliative Treatment for HCC	40% 44%			QPI 12: Volume of Cases per Centre / Surgeon	11 2 of 5 centres	4 14 of 23 surgeons
QPI 5: 30 Day Mortality after Curative Treatment for HCC	< 5% 0%	< 5% 0%	< 5% 0%	QPI 15: Access to Oncology Services for Inoperable Pancreatic, Duodenal or Biliary Tract Cancer	50% 21%	
QPI 5: 90 Day Mortality after Curative Treatment for HCC	< 7.5% 0%	< 7.5% 0%	< 7.5% 0%	QPI 16: Key Worker	95% 44%	
QPI 5: 30 Day Mortality after Palliative TACE for HCC	< 10% 0%			QPI 17: 30 Day Mortality following treatment for Colorectal Cancer Liver Metastases	< 5% 0%	< 5% 0%
QPI 6: Radiological Diagnosis of Pancreatic, Duodenal or Biliary Tract Cancer	95% 97%			QPI 17: 90 Day Mortality following treatment for Colorectal Cancer Liver Metastases	< 7.5% 0%	< 7.5% 2%

Key achievement

- Zero mortality rates for HCC cancer patients within 30- and 90-days of disease-specific treatment, whether liver transplant, resection, ablation or TACE across all regions, exceeding targets

Key areas for improvement

- Access to a key worker
- Timely access to oncology services for those eligible
- Urgent review of surgeons operating patient numbers per year

Executive Summary

Introduction

This report contains an assessment of performance of HepatoPancreatoBiliary (HPB) Cancer Services relating to patients diagnosed across Scotland during 2022. To ensure the success of the Cancer Quality Performance Indicators (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.

Methodology

Further detail on the audit and analysis methodology and data quality is available in the meta data within Appendix 2.

Results

A summary of the HPB cancer QPI performance for the 2022 audit period is presented on the following page, 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.

It is recognised that some QPIs present continued challenges; QPI 12 surgical and centre volume is notably low, surgeons need to operate on a minimum of 4 patients per year. There are regions who are failing to meet this target and urgent review is required.

Access to oncological services require improvement and the data interrogated to understand reasons for delays and lack of key worker support in some regions. While some of this may be due to recording it is worth noting the need to audit how many HPB specialist nurses are in post in each area and how their jobs answer this need for support.

Summary of QPI Results

Colour Key	
	Above QPI target
	Below QPI target
-	No patients in QPI /comparable measure from previous year
†	Analysed by treatment centre (surgery or oncology)

QPI	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%	2022	96.1% (371/386)	93.5% (435/465)	92.7% (675/728)	93.8% (1481/1579)
		2021	96.0%	90.5%	90.6%	91.8%
		2020	94.6%	94.0%	90.8%	92.7%
QPI 2 (i) Proportion of patients with HCC who have undergone computerised tomography (CT) or Magnetic Resonance Imaging (MRI).	90%	2022	97.1% (67/69)	96.5% (111/115)	99.5% (198/199)	98.2% (376/383)
		2021	100.0%	96.6%	98.8%	98.3%
		2020	100.0%	91.5%	98.4%	96.6%
QPI 2 (ii) Proportion of patients with HCC who have undergone computerised tomography (CT) or Magnetic Resonance Imaging (MRI) with full information recorded.	90%	2022	94.1% (64/68)	63.5% (73/115)	87.9% (175/199)	81.7% (312/382)
		2021	92.0%	54.2%	83.4%	75.7%
		2020	78.1%	57.5%	77.6%	71.7%
QPI 2 (iii) Proportion of patients with HCC who have undergone computerised tomography (CT) or Magnetic Resonance Imaging (MRI) who are assigned a BCLC Score.	90%	2022	97.1% (66/68)	41.7% (48/115)	87.4% (174/199)	75.4% (288/382)
		2021	86.7%	30.5%	80.5%	65.5%
		2020	73.4%	20.8%	76.0%	58.9%

QPI	QPI target	Year	NCA	SCAN	WoSCAN	Scotland
*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%	2022	60.0% (3/5)	100.0% (42/42)	85.5% (65/76)	89.4% (110/123)
		2021	100.0%	95.7%	93.4%	94.9%
		2020	100.0%	100.0%	78.2%	87.8%
*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%	2022	40.4% (21/52)	37.0% (30/81)	50.8% (64/126)	44.4% (115/259)
		2021	43.9%	28.9%	40.5%	37.3%
		2020	44.9%	45.1%	38.2%	41.4%
*†QPI 5a: Proportion of patients with HCC undergoing disease specific treatment who die within 30 days of liver transplant.	< 5%	2022	-	0.0% (0/11)	-	0.0% (0/11)
		2021	-	0.0%	-	0.0%
		2020	-	14.3%	-	14.3%
*†QPI 5a: Proportion of patients with HCC undergoing disease specific treatment who die within 90 days of liver transplant.	< 7.5%	2022	-	0.0% (0/11)	-	0.0% (0/11)
		2021	-	0.0%	-	0.0%
		2020	-	16.7%	-	16.7%
*†QPI 5b: Proportion of patients with HCC undergoing disease specific treatment who die within 30 days of resection.	< 5%	2022	-	0.0% (0/7)	-	0.0% (0/9)
		2021	0.0%	0.0%	-	0.0%
		2020	0.0%	0.0%	-	0.0%
*†QPI 5b: Proportion of patients with HCC undergoing disease specific treatment who die within 90 days of resection.	< 7.5%	2022	-	0.0% (0/7)	-	0.0% (0/9)
		2021	0.0%	0.0%	-	0.0%
		2020	0.0%	0.0%	-	0.0%

QPI	QPI target	Year	NCA	SCAN	WoSCAN	Scotland
*†QPI 5c: Proportion of patients with HCC undergoing disease specific treatment who die within 30 days of ablation.	< 5%	2022	-	0.0% (0/14)	0.0% (0/39)	0.0% (0/53)
		2021	0.0%	0.0%	0.0%	0.0%
		2020	0.0%	0.0%	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%	2022	-	0.0% (0/14)	0.0% (0/36)	0.0% (0/50)
		2021	0.0%	0.0%	0.0%	0.0%
		2020	0.0%	5.3%	0.0%	2.7%
*†QPI 5d: Proportion of patients with HCC undergoing disease specific treatment who die within 30 days of TACE.	< 10%	2022	0.0% (0/12)	0.0% (0/39)	0.0% (0/31)	0.0% (0/82)
		2021	0.0%	0.0%	3.8%	1.4%
		2020	9.1%	0.0%	0.0%	1.2%
QPI 6: Proportion of patients with pancreatic, duodenal or biliary tract cancer who undergo CT of the abdomen prior to first treatment.	95%	2022	97.3% (285/293)	94.4% (285/302)	98.2% (495/504)	96.9% (1065/1099)
		2021	98.4%	93.4%	98.0%	96.7%
		2020	94.7%	96.8%	98.5%	97.0%
*QPI 7: Proportion of patients with pancreatic, duodenal or biliary tract cancers undergoing non-surgical treatment who have a cytological or histological diagnosis.	90%	2022	90.7% (39/43)	94.0% (47/50)	87.7% (64/73)	90.4% (150/166)
		2021	78.4%	89.7%	91.3%	87.1%
		2020	93.6%	88.6%	90.0%	90.8%

QPI	QPI target	Year	NCA	SCAN	WoSCAN	Scotland
*†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	2022	20.0 (360/18)	20.5 (450/22)	24.8 (546/22)	21.9 (1356/62)
		2021	19.1	22.4	24.0	22.3
		2020	19.8	20.5	23.9	21.7
*†QPI 11 (i): 30 day mortality after surgical resection for pancreatic, duodenal or distal biliary tract cancer.	< 5%	2022	4.5% (1/22)	0.0% (0/27)	0.0% (0/24)	1.4% (1/73)
		2021	0.0%	0.0%	0.0%	0.0%
		2020	9.7%	4.5%	0.0%	4.3%
*†QPI 11(i): 90 day mortality after surgical resection for pancreatic, duodenal or distal biliary tract cancer.	< 7.5%	2022	4.5% (1/22)	0.0% (0/27)	0.0% (0/22)	1.4% (1/71)
		2021	5.9%	2.5%	3.4%	3.5%
		2020	9.7%	4.5%	7.7%	7.6%
*†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	2022	3 not met	27	24	2 met 3 not met
		2021	3 not met	43	33	2 met 3 not met
		2020	2 met 1 not met	22	39	4 met 1 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	2022	5 met 3 not met	4 met 6 not met	5 met	14 met 9 not met
		2021	3 met 5 not met	6 met 4 not met	5 met	14 met 9 not met
		2020	3 met 5 not met	3 met 6 not met	5 met 1 not met	11 met 12 not met
QPI 15: Proportion of patients with pancreatic, duodenal or biliary tract cancer not undergoing surgery who are seen by an oncologist (or offered an oncology clinic appointment) within 6 weeks of initial diagnostic CT scan.	50%	2022	16.7% (37/221)	36.4% (79/217)	14.4% (56/390)	20.8% (172/828)
		2021	24.5%	30.7%	12.9%	20.9%
		2020	29.0%	34.4%	18.7%	25.6%

QPI	QPI target	Year	NCA	SCAN	WoSCAN	Scotland
QPI 16: Proportion of patients with HCC who have an identified key worker at the time of referral to the MDT.	95%	2022	92.9% (65/70)	33.0% (38/115)	33.2% (66/199)	44.0% (169/384)
		2021	90.7%	38.1%	40.2%	50.0%
		2020	86.6%	44.3%	24.6%	42.1%
*†QPI 17a: Proportion of patients with CRLM undergoing curative treatment (resection) who die within 30 days of treatment	< 5%	2022	0.0% (0/29)	0.0% (0/45)	0.0% (0/19)	0.0% (0/93)
		2021	0.0%	1.8%	0.0%	1.1%
		2020	0.0%	1.9%	0.0%	1.4%
*†QPI 17b: Proportion of patients with CRLM undergoing curative treatment (resection) who die within 90 days of treatment	< 7.5%	2022	0.0% (0/29)	0.0% (0/45)	0.0% (0/19)	0.0% (0/93)
		2021	3.8%	1.8%	0.0%	2.3%
		2020	0.0%	7.7%	0.0%	5.6%
*†QPI 17a: Proportion of patients with CRLM undergoing curative treatment (ablation) who die within 30 days of treatment	< 5%	2022	0.0% (0/7)	0.0% (0/13)	0.0% (0/21)	0.0% (0/41)
		2021	0.0%	0.0%	0.0%	0.0%
		2020	0.0%	10.0%	0.0%	3.4%
*†QPI 17b: Proportion of patients with CRLM undergoing curative treatment (ablation) who die within 90 days of treatment	< 7.5%	2022	0.0% (0/7)	0.0% (0/13)	4.8% (1/21)	2.4% (1/41)
		2021	14.3%	0.0%	0.0%	3.3%
		2020	0.0%	10.0%	0.0%	3.4%

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

† QPIs reported by Board of surgery / Non-surgical treatment

Conclusions

Cancer audit data underpins much of the development and service improvement work of the National Managed Clinical Network (NMCN) and regular reporting of activity and performance is a fundamental requirement of a Managed Clinical Network (MCN) to assure the quality of care delivered. The Scottish HepatoPancreatoBiliary Cancer NMCN (SHPBN) 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.

We continue to reach the targets for many of the QPIs each year, which is testament to all the teams hard work in developing a consistent service for our patients across the country despite the challenges faced. Targets for both 30 day and 90 day mortality rates for patients with Hepatocellular Carcinoma (HCC), pancreatic, duodenal or distal biliary tract cancer and Colorectal Liver Metastases (CRLM) have been consistently achieved nationally and regionally. Specifically, 30 day and 90 day mortality rates for HCC patients undergoing disease specific treatment, whether liver transplant, resection, ablation or TACE has remained at zero across all regions. National and regional targets have also been reached for 30 day and 90 day mortality for pancreatic, duodenal or distal biliary tract cancer surgical resection. There were no patients who received resection for CLRM who died within 30 day and 90 day. Palliative interventions for patients with Hepatocellular Carcinoma (HCC) who are not eligible for curative treatment have consistently achieved the target for the last 3 years. The percentage of patients discussed in Multi-Disciplinary Team (MDT) meetings, whilst the target has not yet been reached, has continued to improve both nationally and regionally.

It is recognised that some QPIs present continued challenges:

QPI 12 surgical and centre volume is low, lots of surgeons in NCA and SCAN are operating on less than 4 patients per year. Urgent review required and action plan from owning health boards.

QPI 15 (access to oncological services) fails across the board badly. An action plan should be put in place to interrogate the data to understand reasons for delays.

QPI 16 — while some of this may be due to recording, an action plan is required to audit how many HPB specialist nurses are in post in each area and how their jobs answer this need for key worker support in SCAN and WOSCAN

QPI 2(ii) (recording full information for Computerised Tomography (CT) or Magnetic Resonance Imaging (MRI)), 2(iii) (recording of BLCL score).

The QPI results have highlighted recording issues (principally BLCL), minimum operating standards not being reached by many surgeons, a lack of key worker resource across all regions, particularly in some NHS Boards, and oncological

referral delays for some NHS Boards, in addition to limitations of the pathway. These issues have been discussed within each region and over the next few years it is hoped that there will be improvements in these areas. Additionally, full information recorded for CT or MRI, and assignment of a BCLC score, is continuing to improve, despite not yet reaching the target. A Scottish Government funded improvement project to coordinate HPB cancer patient care is currently underway and is showing early signs of improvement in 2023.

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

Action Required:

QPI 1: Continue efforts to discuss all patients at MDT meeting before definitive treatment. MDTs that have discussed deceased patients should report reasons to provide clarity whether there were delays in access to diagnosis or treatment

QPI 2: Improvement in recording processes for patients undergoing CT and MRI, with particular focus on Child Pugh and BCLC score

QPI 3: Improve appropriate documentation for patients not referred to SLTU and maintain communication with SLTU on a case-by-case basis to ensure current guidelines are employed

QPI 4: NHS Boards with patients who received curative treatment or who opted for no palliative treatment could examine documenting processes as these patients should be excluded from this dataset

QPI 12: Surgeons should be operating on a minimum of 4 patients per year – urgent review required by owning health boards

QPI 15: Further, more detailed, review of patients given an oncological appointment or treatment outwith the 6-week period is sought to help identify factors causing delays. Action plans required to interrogate the data to understand what delays are due to. Additionally, the QPI denominator should be considered for revision at the next HPB QPI Formal Review (4th cycle due 2025)

QPI 16: The ongoing shortage, or absence of key workers in some NHS Boards/specialties creates inequity of access and standards of care. Specific units and health boards should attempt to ensure there is a dedicated key worker in every Health Board and Specialty unit as a key worker is tantamount to improving patient care. An action plan is required to understand and

address the need to audit how many HPB specialist nurses are in post in each area and how their jobs answer this need for support.

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 the Regional Cancer Networks within two months of publication of this report. Please note actions have been categorised into groupings (for example surgery, oncology, pathology or data capture) for internal management purposes to allow regional trends to be identified and coordination of regional actions across multiple tumour groups where appropriate. Progress against these plans will be monitored and any service or clinical issue considered to have not been adequately addressed will be escalated in line with governance processes as set out in CEL 06 (2012).

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Introduction

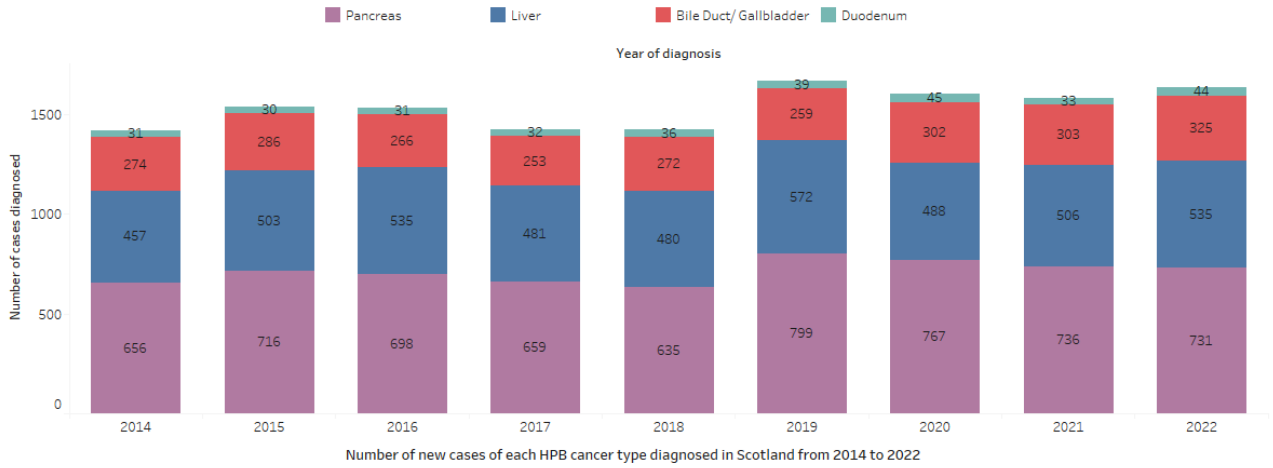
The NMCN for HepatoPancreatoBiliary (HPB) Cancers launched in 2005 with the aim of providing quality and equitable care for all patients in Scotland. The purpose of this report is to present an assessment of performance of HPB Cancer Services relating to patients diagnosed across Scotland during 2022 through clinical audit data and to provide a summary of performance against the HPB cancer Quality Performance Indicators (QPIs). Regular reporting of activity and performance is a fundamental requirement of an NMCN to assure the quality of care delivered across the country and these audit data underpin much of the regional and national service improvement and development work of the network.

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 were undertaken in 2017, 2020 and 2022 with the revised QPIs (v5.0) published in January 2023. Performance reported within this report was measured against v5.0 of the HPB cancer QPIs.[1]

Background

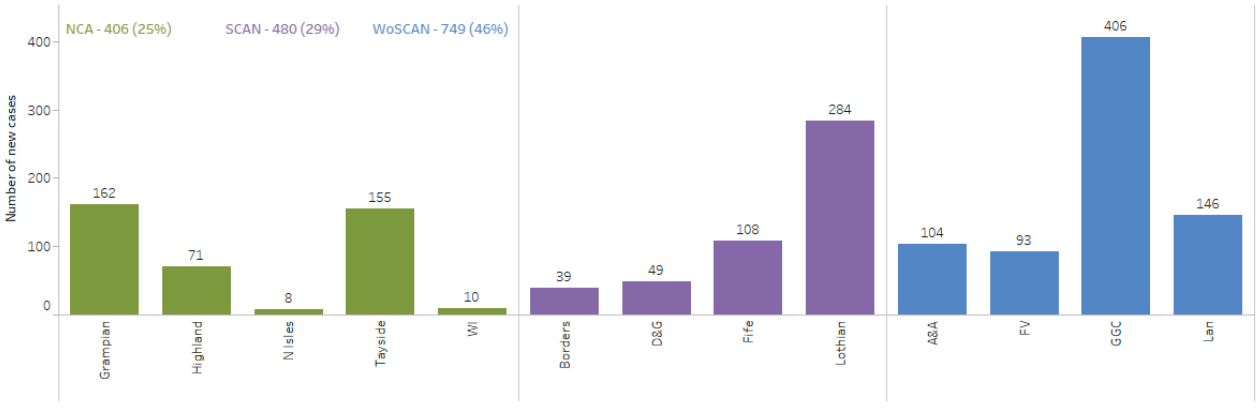
National Context

HPB cancers are a rare group of cancers. In 2022, the audit identified 1,635 patients diagnosed with a new primary cancer of the liver, pancreas, bile duct, gallbladder or duodenum in Scotland. Of all HPB cancer diagnoses, pancreatic cancer accounted for almost half (44.7%), liver cancer accounted for almost a third (32.7%) and bile duct, gallbladder and duodenum cancers represented just under one quarter (22.6%). The figure below illustrates the proportion of new cases of each HPB cancer type diagnosed in Scotland over the last nine years.



Number of new cases of each HPB cancer type diagnosed in Scotland from 2014 to 2022

The distribution of the 1,635 patients diagnosed in 2022 across the fourteen Scottish NHS Boards is presented below. The West of Scotland Cancer Network (WoSCAN) is the most populous of the three Regional Cancer Networks in Scotland and, with 749 patients diagnosed in 2022, represents almost half of all HPB cancer diagnoses in Scotland (45.8%). The North Cancer Alliance (NCA) accounts for 24.8%, and the South-East Cancer Alliance Network (SCAN) comprises 29.4%. NHS Greater Glasgow and Clyde had 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 Boards.[2]



Number of new cases diagnosed with HPB cancer within each NHS Board across Scotland 2022

HPB Cancer Treatment Centres

The table below details the five HPB Cancer Centres in Scotland. These are considered the centres for specialist treatment, which includes surgery, interventional radiology (ablation and trans-arterial chemoembolisation (TACE)) and

systemic anti-cancer therapy (SACT). 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), located in the Royal Infirmary of Edinburgh (RIE) are referred all liver transplant cases in Scotland, this being one of the treatment options in the management of patients with primary liver cancer.

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

* NB as well as patients diagnosed in SCAN, patients diagnosed in NHS Forth Valley (WoSCAN) are also referred to the Edinburgh HPB MDT

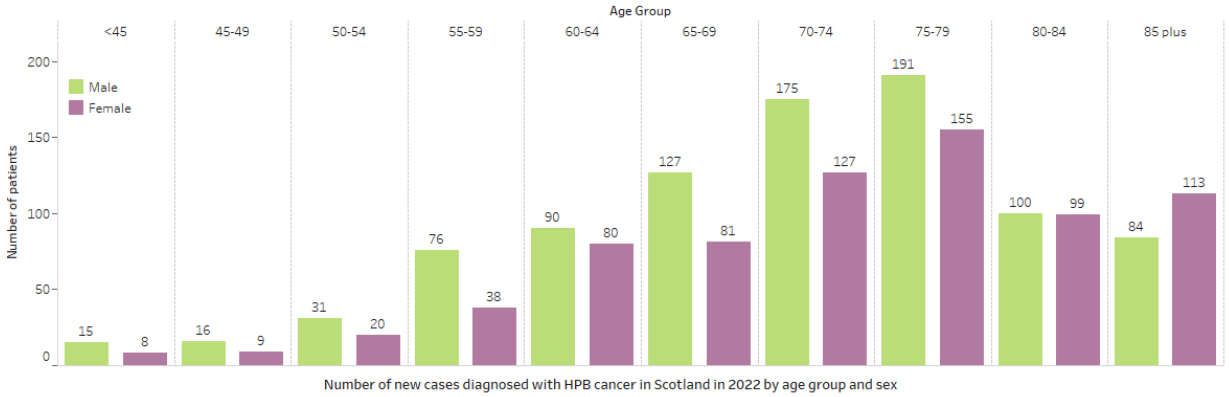
Incidence and Survival

Liver and intrahepatic bile duct cancers have been listed in the top twenty most common cancers in Scotland, ranking fourteenth in 2021.[3] The rate of new diagnoses of liver cancer fell during the pandemic and in 2021 returned to levels that would have been expected if the pandemic had not occurred, with liver cancer ranking as tenth/eleventh most common cancer in males in 2021 and the incidence in females showing a 12% increase in 2021.3 Indicating the trend observed in females over the decade up to 2019 is set to continue.[4] The percentage frequency of liver cancer is however relatively low at 1.9% of all cancer types.3 Liver cancer was ranked as the ninth most common cause of death from cancer in 2021, and the 10-year percentage change in mortality rates show considerable increases of 23% and 28% for males and females, respectively. However, the increases in mortality are largely driven by increased occurrence as there have been some improvements in outcomes over time.[4]

Pancreatic cancer has been identified as the tenth/eleventh most common cancer in all persons and males and the eighth/ninth most common in females in Scotland in 2021.3 Whilst pancreatic cancer is relatively rare (approximately 2.5% of all cancers diagnosed in 2021), it was the sixth most common cause of death from cancer in Scotland in 2021.4 Increases in mortality from pancreatic cancer – which were very

small in men – may reflect a complex mixture of increasing incidence, but improving survival.4 Pancreatic cancers tend to present at an advanced stage and are less amenable to treatment, result in poor survival.[1]

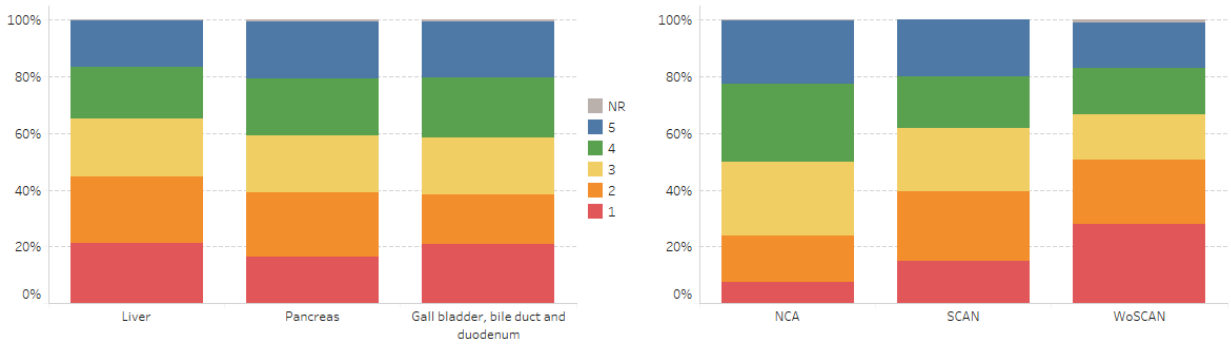
HPB cancers occur most frequently later in life. The figure below illustrates the number of new cases in 2022 by age group and sex. The incidence of HPB cancers is higher in males in most age groups; however, as women live longer than men, the total number of cases diagnosed in women aged 85 years or more is greater than for males. Although most cases occur in older individuals for both sexes, it is noted that approximately one quarter of HPB cancers were diagnosed in individuals under 65 years of age (23.4%).



Number of new cases diagnosed with HPB cancer in Scotland in 2022 by age group and sex.

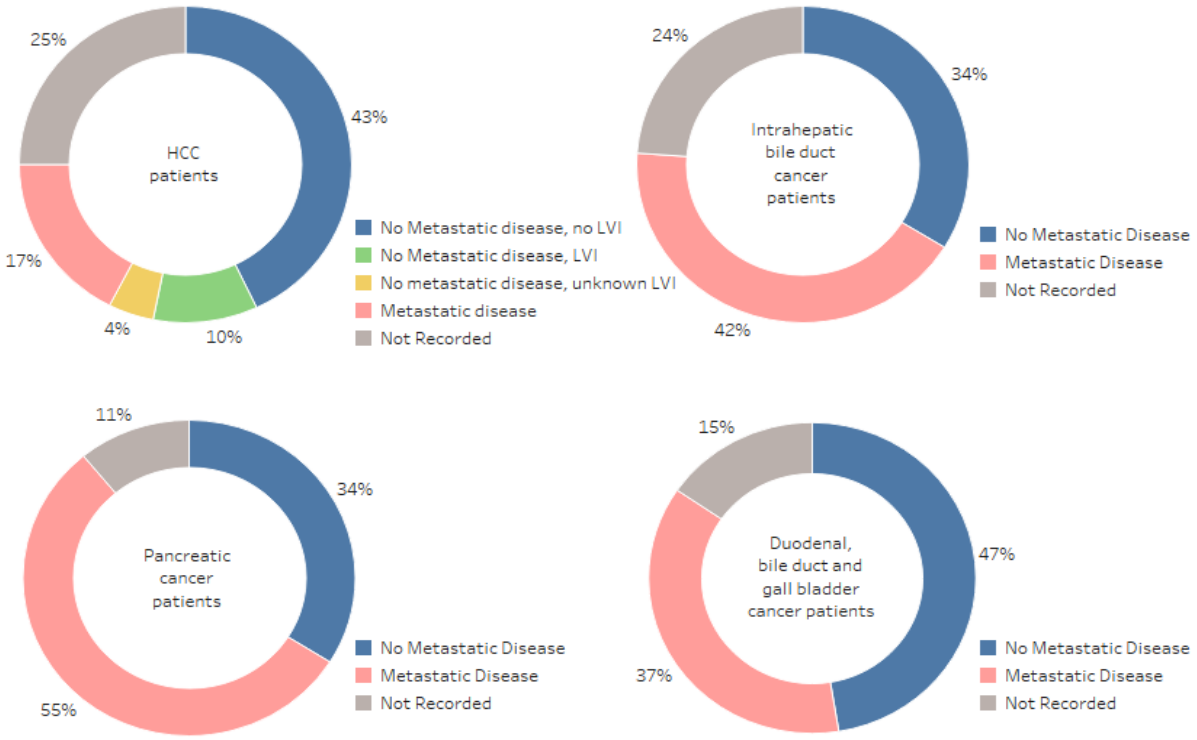
Deprivation

The figures below show the spread across the Scottish Index of Multiple Deprivation (SIMD) 2020 quintiles for patients diagnosed with HPB cancer by site of disease and region of diagnosis; 1 represents the most deprived areas and 5 represents the least deprived.

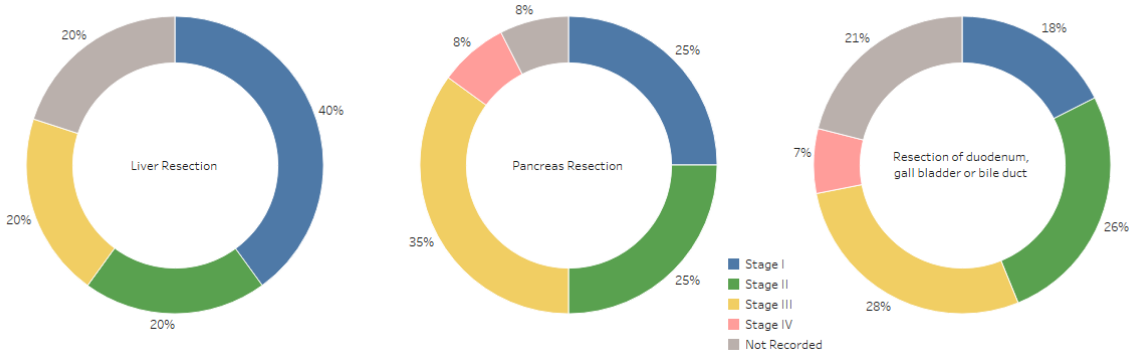


Stage

The proportion of patients that had metastatic disease is shown in the following charts; for HCC information on lymphovascular invasion is also included where available. Across all tumours the recording of information has improved compared to last year when the percentage of patients without recorded information was 31% (HCC), 26% (intrahepatic biliary ducts), 13% (pancreas) and 19% (duodenal). There is continued variation between NHS Boards in the amount of information 'not recorded', however there is an overall marked improvement observed.

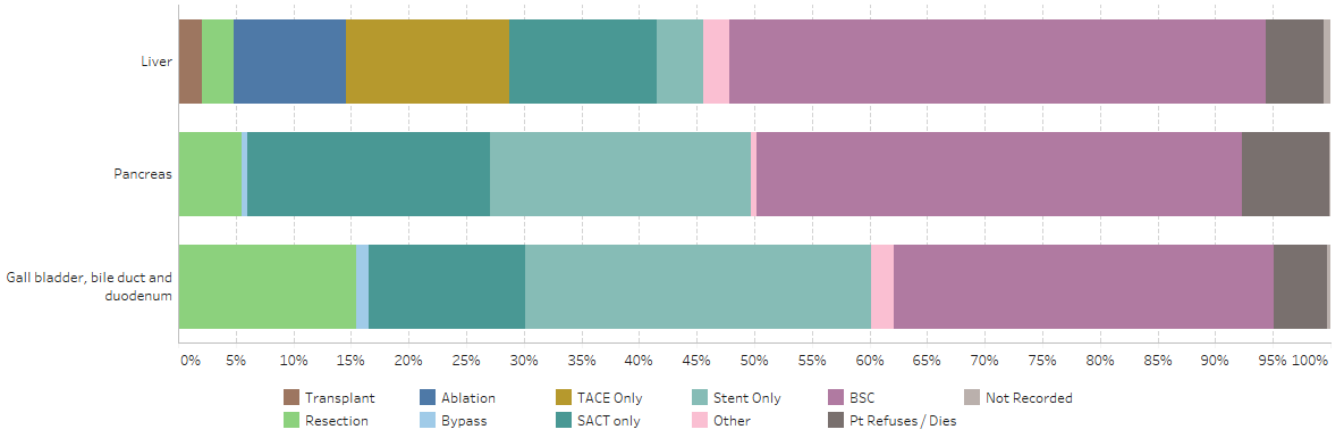


TNM staging for surgical resection patients is shown below. Whilst there is no clear pattern of the staging that is 'not recorded', there is a notable improvement in recording compared to last year. Staging 'not recorded' has reduced from 31% to 25% for HCC patients, from 26% to 24% for intrahepatic bile duct cancer patients, from 13% to 11% for pancreatic cancer patients and from 19% to 15% for duodenal, bile duct and gallbladder cancer patients.



Treatment

Figure 5 shows the type of treatment HPB cancer patients receive across Scotland during their first episode of care following diagnosis. Overall, 10.7% of all patients received treatment with curative intent (transplant, resection or ablation), 41.4% received palliative treatment while a further 47.6% received no active treatment.



Methodology

Further detail on the audit and analysis methodology and data quality is available in the meta data within Appendix 2.

Results and Action Required

Results, for each QPI, are shown in detail in the following sections. Data are by location of diagnosis, or treatment, and illustrate NHS Board or treatment centre performance against each target and overall regional performance for each performance indicator. Where the number of cases meeting the denominator criteria

for any indicator is less than five, the percentage calculation is restricted in associated charts and tables to avoid unwarranted variation associated with small numbers and to minimise the risk of disclosure. A dash (-) denotes restricted data and an asterisk (*) denotes a denominator of zero. Any commentary provided by NHS Boards relating to restricted indicators will is included to record efforts of continuous improvement. Issues highlighted by the data analysis can be used to identify and develop specific actions within regions and NHS Boards.

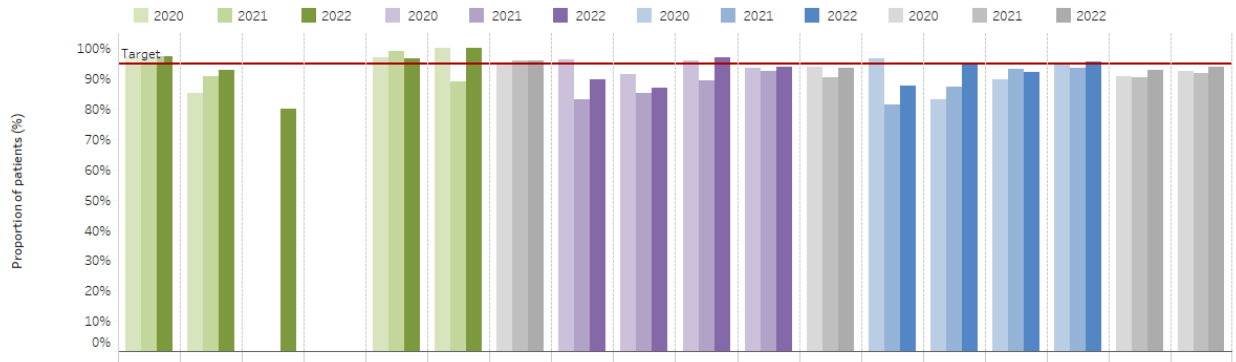
QPI 1

MultiDisciplinary 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. The tolerance within the target allows for patients who need urgent treatment.[1]

QPI Title:	**Patients with HPB cancer should be discussed by an MDT prior to 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%**

Six NHS Boards met the 95% target across the three regions. However, the target was not met at a national level and NCA was the only region to meet the target. The overall national performance is akin to previous years with 93.8% of patients discussed at MDT before definitive treatment. The overall national performance is close to meeting the target and it is expected that a focussed effort in SCAN and WoSCAN would lead to this QPI being achieved in future years.



2022 Data	Grampian	Highland	Orkney	Shetland	Tayside	W Isles	NCA	Borders	D&G	Fife	Lothian	SCAN	A&A	Forth Valley	GGC	Lanarkshire	WoSCAN	Scotland
Numerator	147	66	4	-	142	10	371	35	40	98	262	435	86	84	370	135	675	1481
Denominator	151	71	5	-	147	10	386	39	46	101	279	465	98	88	401	141	728	1579
Performance (%)	97.4%	93%	80%	-	96.6%	100%	96.1%	89.7%	87%	97%	93.9%	93.5%	87.8%	95.5%	92.3%	95.7%	92.7%	93.8%

Two NHS Boards that didn't achieve the target reviewed their patients not discussed at MDT before definitive treatment. The main reason for not meeting the QPI was the number of patients with supportive care only treatment plan. These patients either did not require MDT discussion or had stent insertion to relieve symptoms prior to MDT discussions. Additional patients did not meet the QPI due to dying shortly after diagnosis, this pattern was observed in six NHS Boards performing below the target. A few boards identified cases where HPB cancer was an incidental finding following surgery or where patients required emergency treatment prior to MDT discussion.

It is encouraging that the majority of patients undergoing active treatment are discussed and considered by the MDT. While it is recognised that there are times when, due to urgent treatment need or incidental diagnosis during surgery, it is not appropriate or possible for patients to be discussed before treatment, NHS Boards should continue to encourage clinicians to refer all patients to the MDT in a timely manner, even where no active treatment is being pursued.

Action required:

Continue efforts to discuss all patients at MDT meeting before definitive treatment. MDTs that have discussed deceased patients should report reasons to provide clarity whether there were delays in access to diagnosis or treatment. Identifying the time between diagnosis and requiring emergency treatment and/or MDT discussion would help provide clarity.

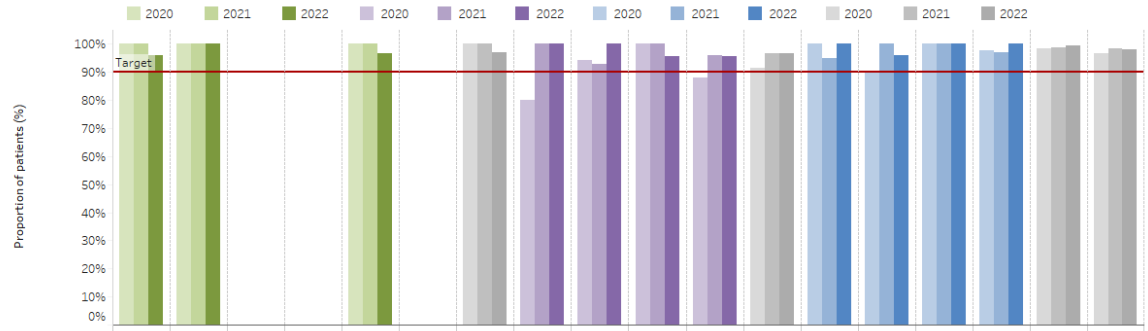
QPI 2

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 disease.1 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 treatment.[1]

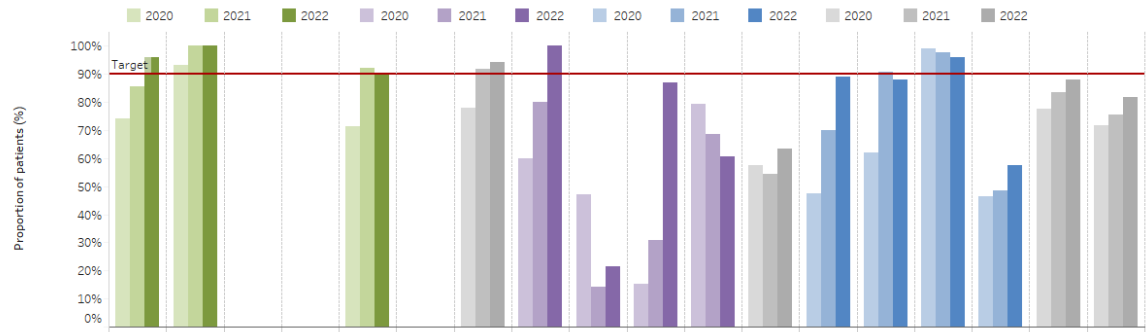
QPI Title:	**Patients with Hepatocellular Carcinoma (HCC) should be appropriately diagnosed and staged**
Numerator:	**(i) Number of patients with HCC undergoing either CT or MRI** **(ii) Number of patients with HCC undergoing either CT or MRI with full information recorded** **(iii) Number of patients with HCC undergoing either CT or MRI prior to first treatment who are assigned a BCLC Score**
Denominator:	**All patients with HCC**
Exclusions:	**No exclusions**
Target:	**90%**

Across Scotland 98.2% of patients with HCC had either a CT or MRI, meeting the 90% target. All NHS Boards with patients diagnosed with HCC in 2022 met this target as did all three regions.



2022 Data	Grampian	Highland	Orkney	Shetland	Tayside	W Isles	NCA	Borders	D&G	Fife	Lothian	SCAN	A&A	Forth Valley	GGC	Lanarkshire	WoSCAN	Scotland
Numerator	23	14	0	0	30	0	67	7	14	22	68	111	18	24	123	33	198	376
Denominator	24	14	0	0	31	0	69	7	14	23	71	115	18	25	123	33	199	383
Performance (%)	95.8%	100%	*	*	96.8%	*	97.1%	100%	100%	95.7%	95.8%	96.5%	100%	96%	100%	100%	99.5%	98.2%

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 81.7% of patients with HCC had CT or MRI imaging where all required information was included within the report, below the target of 90%. Four of the eleven Boards with patients with HCC cancer met this target, as did one region, NCA.

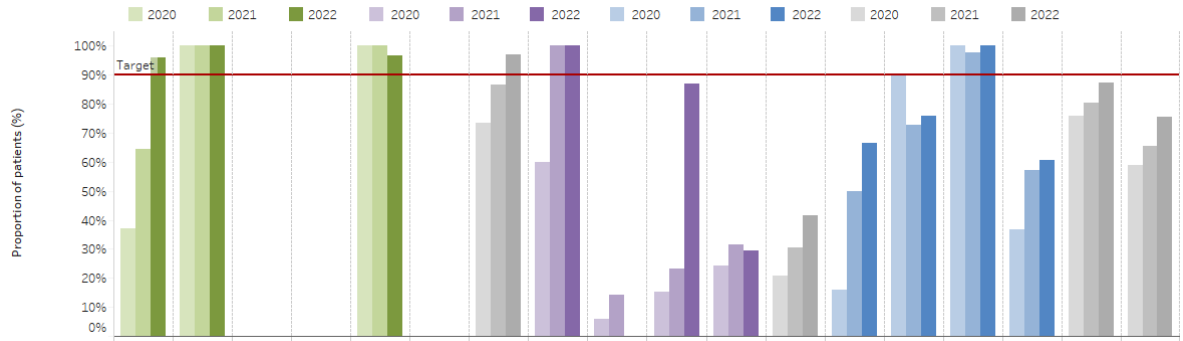


2022 Data	Grampian	Highland	Orkney	Shetland	Tayside	W Isles	NCA	Borders	D&G	Fife	Lothian	SCAN	A&A	Forth Valley	GGC	Lanarkshire	WoSCAN	Scotland
Numerator	23	14	0	0	27	0	64	7	3	20	43	73	16	22	118	19	175	312
Denominator	24	14	0	0	30	0	68	7	14	23	71	115	18	25	123	33	199	382
Performance (%)	95.8%	100%	*	*	90%	*	94.1%	100%	21.4%	87%	60.6%	63.5%	88.9%	88%	95.9%	57.6%	87.9%	81.7%

Review of patients not meeting specification (ii) indicates that the primary reason for health boards not meeting this QPI was the frequent omission of Child-Pugh scores or the absence of recorded vascular invasion, though there are several criteria that must be met, to meet the QPI. This QPI has improved over the past three years on a national scale and across the three regions, with several efforts, including incorporating essential data in HCC referral forms and using Specialist Radiologist input at MDT to calculate Child Pugh score and vascular invasion. While there has been progress, the QPI remains challenging. Ongoing efforts are dedicated to

enhancing the MDT referral process, including the Scottish Government funded pathway improvement programme currently underway.

Specification (iii) considers the proportion of patients that have a CT or MRI imaging prior to first treatment who are assigned a BCLC Score. Across Scotland 75.4% of patients were assigned a BCLC Score, below the target of 90%. Five of the eleven Boards with HCC cancer patients met this target. NCA was the only region to achieve the QPI target. Performance in SCAN continues to be considerably lower than in other regions. There has, however, been a positive trend over the past three years. It is encouraging that NHS Lothian plan to include BCLC score into the MDT referral form.



2022 Data	Grampian	Highland	Orkney	Shetland	Tayside	W Isles	NCA	Borders	D&G	Fife	Lothian	SCAN	A&A	Forth Valley	GGC	Lanarkshire	WoSCAN	Scotland
Numerator	23	14	0	0	29	0	66	7	0	20	21	48	12	19	123	20	174	288
Denominator	24	14	0	0	30	0	68	7	14	23	71	115	18	25	123	33	199	382
Performance (%)	95.8%	100%	*	*	96.7%	*	97.1%	100%	0%	87%	29.6%	41.7%	66.7%	76%	100%	60.6%	87.4%	75.4%

This is the third year this specification has been reported on and modest improvements in performance are observed across many NHS Boards and all regions. BCLC score was incorporated into HCC referral forms by all centres in 2020, however Child Pugh score is required to calculate BCLC. Recording of Child Pugh score (required to meet specification (ii)) therefore impacts on the performance against this specification. As for specification (ii), early signs of improvement are indicated for HPB cancer patients within the pathway improvement programme.

Action Required:

All NHS Boards to continue their efforts to clearly record the extent of metastatic disease for all patients and to ensure it is accessible to cancer audit staff

SCAN: NHS Boards should be encouraged to record BCLC score where possible and BCLC score should be added as a field to all MDT referral forms where HCC cancer patients are likely to be discussed

WoSCAN: Discussions between local MDTs and specialist centre MDT to clarify responsibility and capability for recording Child Pugh and BCLC score is suggested

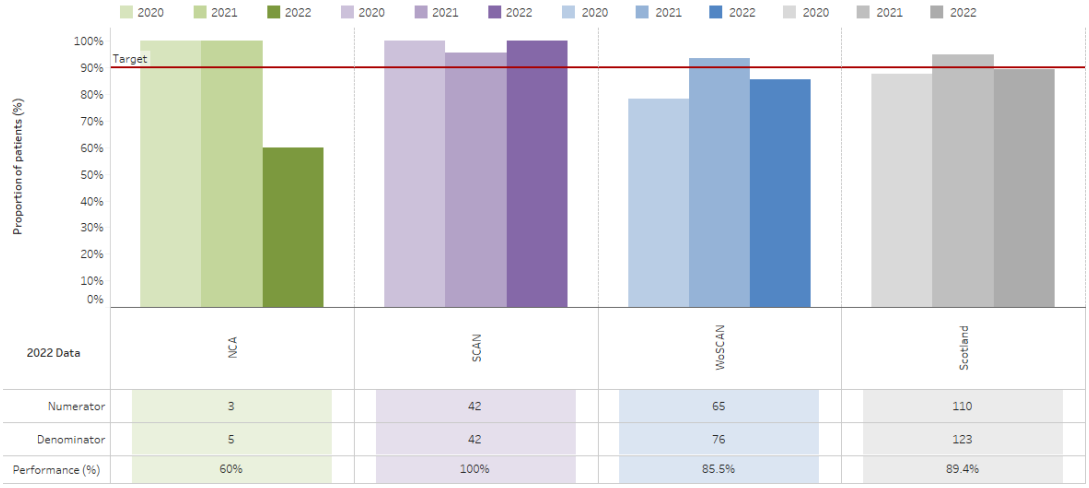
QPI 3

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 HCC. All patients with early HCC should be considered for liver transplantation and there should be equity of access to liver transplantation across Scotland. The current UK listing criteria are well validated selection criteria based on tumour number and size.

QPI Title:	**Patients with early HCC should be referred 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 criteria1 (as defined by NHS Blood and Transplant)**
Exclusions:	**Patients who refuse treatment** **Patients with evidence of vascular invasion** **Patients with extrahepatic disease**
Target:	**90%**

Across Scotland 89.4% of HCC patients who met the UK listing criteria were referred to SLTU, narrowly missing the 90% target. Graphical representation overstates performance decline in NCA as a very small number of cases are involved. Two patients not referred for liver transplant underwent resection with curative intent. The NHS Board plans to monitor trends in this QPI. One NHS Board in WoSCAN failed this target in 2022. Comments noted that the key challenge lies in the fact that numerous patients do not qualify for transplantation due to reasons beyond the Milan criteria and state this adversely impacts the QPI. Results are reported by region rather than NHS Board due to the small numbers of patients involved.



2022 Data	NCA	SCAN	WoSCAN	Scotland
Numerator	3	42	65	110
Denominator	5	42	76	123
Performance (%)	60%	100%	85.5%	89.4%

Action required:

NHS Boards should improve documentation for patients not referred to SLTU and maintain communication with SLTU on a case-by-case basis to ensure current guidelines are employed.

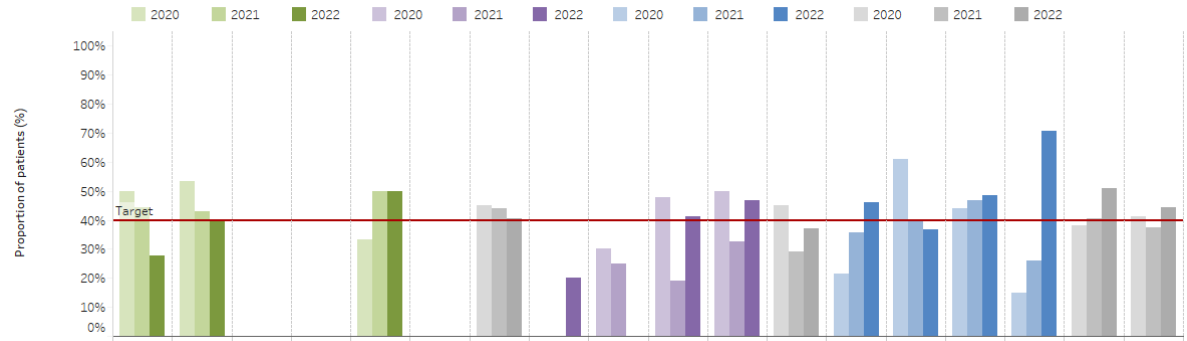
QPI 4

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 that are not suitable for treatments with curative intent.1 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 HCC.6 The target for this QPI is 40% to account for the fact that some patients will have significant co-morbidities or a fitness level which means that TACE, SACT or radiotherapy are not appropriate.[1]

QPI Title:	**Patients with Hepatocellular Carcinoma (HCC) who are not suitable for curative treatment should receive palliative treatment**
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:	**Patients who refuse treatment** **Patients with decompensated chronic liver disease (Child-Pugh Grade C)**
Target:	**40%**

Of the 259 patients diagnosed with HCC and not undergoing treatment with curative intent across Scotland in 2022, 115 (44.4%) received palliative treatment, achieving the national 40% target. SCAN is the only region not meeting the QPI with the target missed by NHS Borders and NHS Dumfries and Galloway.



2022 Data	Grampian	Highland	Orkney	Shetland	Tayside	W Isles	NCA	Borders	D&G	Fife	Lothian	SCAN	A&A	Forth Valley	GGC	Lanarkshire	WoSCAN	Scotland
Numerator	5	4	0	0	12	0	21	1	0	7	22	30	6	7	34	17	64	115
Denominator	18	10	0	0	24	0	52	5	12	17	47	81	13	19	70	24	126	259
Performance (%)	27.8%	40%	*	*	50%	*	40.4%	20%	0%	41.2%	46.8%	37%	46.2%	36.8%	48.6%	70.8%	50.8%	44.4%

Cases were reviewed by NHS Boards that did not meet the target. Reviewed patients had been discussed by the MDT and, for the vast majority, palliative treatment was not considered appropriate due to patient frailty and comorbidities. A small number of patients died before treatment. There is tolerance within the QPI to accommodate for high levels of comorbidities in this patient group. Due to late presentation of the disease, affecting the proportion of patients being suitable for treatment, both curative and palliative, and the small numbers involved there can be variation around meeting this QPI target at NHS Board level. Improvements in some NHS Boards have been noted and performance against this QPI will continue to be reviewed.

Action required:

NHS Boards with patients who received curative treatment or who opted for no palliative treatment could examine documenting processes as these are valid exclusions from the denominator.

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 situations.[1]

QPI Title:	**30 day and 90 day mortality following treatment for Hepatocellular Carcinoma (HCC) with curative or palliative intent**
Numerator:	**Number of patients with HCC not undergoing treatment with curative intent who receive TACE, SACT or radiotherapy**
Denominator:	**All patients with HCC undergoing disease specific treatment (liver transplant, resection, ablation or TACE)**
Exclusions:	**No exclusions**
Target:	**Curative: 30 days <5%** **90 days <7.5%** **Palliative: 30 days <10%**

National mortality figures by treatment type for 2020 to 2022 are shown in the table below. Due to the small numbers of patients involved, data for the surgical centres in the North of Scotland (Aberdeen, Inverness and Dundee) are aggregated. No patients died within 30 or 90 days of curative treatment or within 30 days of palliative treatment, in 2022, clearly meeting all three targets for this QPI.

Liver Transplant		Aberdeen, Inverness and Dundee 2022	Edinburgh 2022	Glasgow 2022	Scotland 2022	Scotland 2021	Scotland 2020
30 day mortality	Numerator	0	0	0	0	0	1
	Denominator	0	11	0	11	7	7
Target < 5%	Performance (%)	*	0%	*	0%	0.0%	14.3%
90 day mortality	Numerator	0	0	0	0	0	1
	Denominator	0	11	0	11	7	6
Target < 7.5%	Performance (%)	*	0%	*	0%	0.0%	16.7%

Resection		Aberdeen, Inverness and Dundee 2022	Edinburgh 2022	Glasgow 2022	Scotland 2022	Scotland 2021	Scotland 2020
30 day mortality	Numerator	-	0	0	0	0	0
	Denominator	-	7	0	9	13	8
Target < 5%	Performance (%)	-	0%	*	0%	0.0%	0.0%
90 day mortality	Numerator	-	0	0	0	0	0
	Denominator	-	7	0	9	13	8
Target < 7.5%	Performance (%)	-	0%	*	0%	0.0%	0.0%

Ablation		Aberdeen, Inverness and Dundee 2022	Edinburgh 2022	Glasgow 2022	Scotland 2022	Scotland 2021	Scotland 2020
30 day mortality	Numerator	0	0	0	0	0	0
	Denominator	0	14	39	53	58	38
Target < 5%	Performance (%)	*	0%	0%	0%	0.0%	0.0%
90 day mortality	Numerator	0	0	0	0	0	1
	Denominator	0	14	36	50	56	37
Target < 7.5%	Performance (%)	*	0%	0%	0%	0.0%	2.7%

TACE		Aberdeen, Inverness and Dundee 2022	Edinburgh 2022	Glasgow 2022	Scotland 2022	Scotland 2021	Scotland 2020
30 day mortality	Numerator	0	0	0	0	1	1
	Denominator	12	39	31	82	69	84
Target < 5%	Performance (%)	0.00%	0.00%	0.00%	0.00%	1.4%	1.2%

There will be continued review of any patient that dies following treatment at the monthly centre mortality and morbidity reviews and the annual morbidity and mortality review.

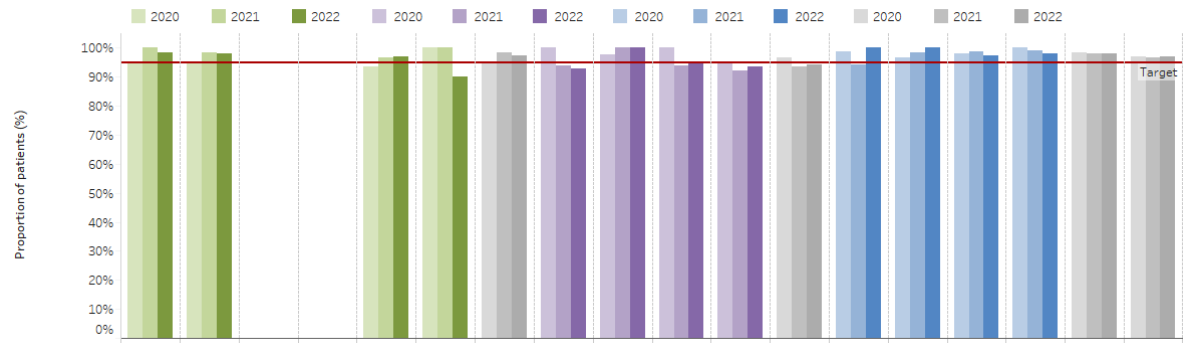
QPI 6

Radiological Diagnosis of Pancreatic, Duodenal or Biliary Tract Cancer

Accurate staging is important to ensure appropriate treatment is delivered and futile interventions avoided. The primary tumour and its local extent should be defined, and the presence or absence of metastatic disease assessed. CT is recommended for the diagnosis of pancreatic cancer as it will accurately delineate tumour size, infiltration, and the presence of metastatic disease.

QPI Title:	**Patients with pancreatic, duodenal or biliary tract cancers should undergo computerised tomography (CT) of the abdomen to evaluate the extent of disease**
Numerator:	**Number of patients with pancreatic, duodenal or biliary tract cancer who undergo CT of the abdomen prior to first treatment**
Denominator:	**All patients with pancreatic, duodenal or biliary tract cancer**
Exclusions:	**No exclusions**
Target:	**95%**

Of the 1099 patients diagnosed with pancreatic, duodenal or biliary tract cancer in Scotland in 2022, 1065 (96.9%) had a CT of the abdomen prior to first treatment. The QPI target of 95% was met at a national level. SCAN narrowly missed reaching this target as did four NHS Boards.



2022 Data	Grampian	Highland	Orkney	Shetland	Tayside	W Isles	NCA	Borders	D&G	Fife	Lothian	SCAN	A&A	Forth Valley	GGC	Lanarkshire	WoSCAN	Scotland
Numerator	126	52	-	-	94	9	285	26	31	55	173	285	74	62	255	104	495	1065
Denominator	128	53	-	-	97	10	293	28	31	58	185	302	74	62	262	106	504	1099
Performance (%)	98.4%	98.1%	-	-	96.9%	90%	97.3%	92.9%	100%	94.8%	93.5%	94.4%	100%	100%	97.3%	98.1%	98.2%	96.9%

A review of the patients not meeting this measure in SCAN and all four NHS Boards identified that some patients had a stent insertion prior to CT, a number had another investigation (CT in other anatomical region, ultrasound or x-ray and magnetic resonance cholangiopancreatography (MRCP) or MRI) and were subsequently for palliative or best supportive care, a very small number were incidental findings following elective surgery, declined investigations or had follow-up outwith Scotland.

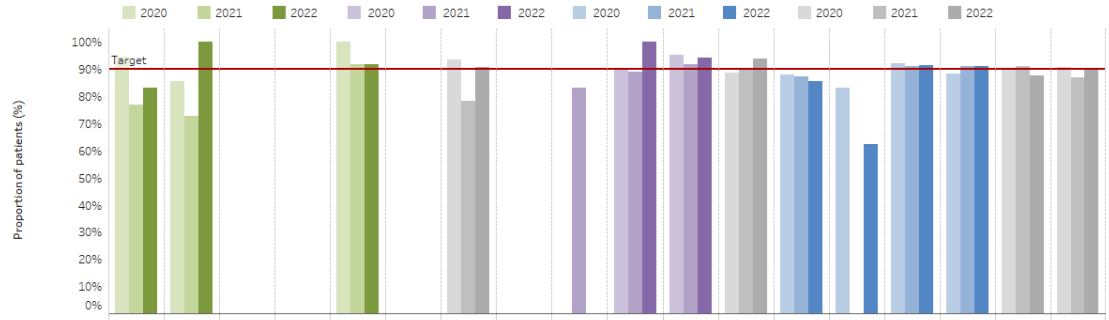
QPI 7

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 offered. 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 prognosis.[1] 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. This is reflected in the 90% target, as is patient choice.

QPI Title:	**Patients with pancreatic, duodenal or biliary tract cancers having non-surgical treatment should 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:	**90%**

Of the 166 patients diagnosed with pancreatic, duodenal or distal biliary tract and undergoing non-surgical treatment, in Scotland in 2022, 90.4% had a cytological or histological diagnosis, meeting the target. The QPI was met by 7 NHS Boards, although 3 Boards did not have any cases.



2022 Data	Grampian	Highland	Orkney	Shetland	Tayside	W Isles	NCA	Borders	D&G	Fife	Lothian	SCAN	A&A	Forth Valley	GGC	Lanarkshire	WoSCAN	Scotland
Numerator	10	6	0	0	23	0	39	-	-	10	32	47	6	5	32	21	64	150
Denominator	12	6	0	0	25	0	43	-	-	10	34	50	7	8	35	23	73	166
Performance (%)	83.3%	100%	*	*	92%	*	90.7%	-	-	100%	94.1%	94%	85.7%	62.5%	91.4%	91.3%	87.7%	90.4%

In various boards and regions, patients' pathology reports were highly suspicious of cancer, but non-diagnostic. Efforts have been made to obtain histological diagnoses where appropriate. In some cases, patients with strong radiological findings and supporting CA 19-9 results were considered for oncological treatment even in the absence of a definitive histological or cytological diagnosis. Attainment of this QPI target is susceptible to fluctuation due to the very small numbers involved.

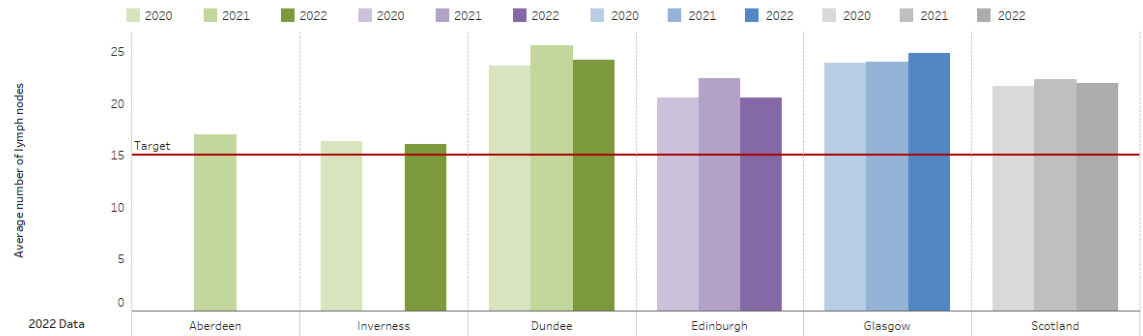
QPI 10

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 pathologist. Evidence suggests that pancreatoduodenectomy should yield a minimum of 15 lymph nodes from the principal specimen.[1]

QPI Title:	**In patients undergoing surgery for pancreatic, duodenal or distal biliary tract cancer the number of lymph nodes examined should be maximised**
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**
Exclusions:	**No exclusions**
Target:	**Average of 15 nodes per patient per centre**

In 2022, 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 21.9 lymph nodes resected and pathologically examined.



2022 Data	Aberdeen	Inverness	Dundee	Edinburgh	Glasgow	Scotland
No. nodes examined	-	129	145	450	546	1356
No. surgeries	-	8	6	22	22	62
Average no. nodes	-	16.1	24.2	20.5	24.8	21.9

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 MDT.

QPI Title:	**30 day and 90 day mortality surgical resection for pancreatic, duodenal or distal biliary tract cancer**
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%**

Across Scotland, one patient died within 30 and 90 days of surgical resection, such that the targets (<5% and <7.5%, respectively) were met nationally (1.37% and 1.41%, respectively). The targets were also met by region with 4.55% mortality in NCA, 0% in Edinburgh and 0% in Glasgow for both 30 and 90 day mortality following surgical resection. Analysis by surgical centre indicates that this target was met in 4 of the 5 surgical centres. Any interpretation of these outcomes should be exercised with extreme caution due to the exceptionally small numbers of patients involved.

Resection		Aberdeen, Inverness and Dundee 2022	Edinburgh 2022	Glasgow 2022	Scotland 2022	Scotland 2021	Scotland 2020
30 day mortality	Numerator	1	0	0	1	0	4
	Denominator	22	27	24	73	93	92
Target < 5%	Performance (%)	4.55%	0.00%	0.00%	1.37%	0.0%	4.3%
90 day mortality	Numerator	1	0	0	1	3	7
	Denominator	22	27	22	71	86	92
Target < 7.5%	Performance (%)	4.55%	0.00%	0.00%	1.41%	3.2%	7.6%

Any patient that dies following treatment are reviewed at the monthly centre morbidity and mortality reviews and the annual national morbidity and mortality review.

QPI 12

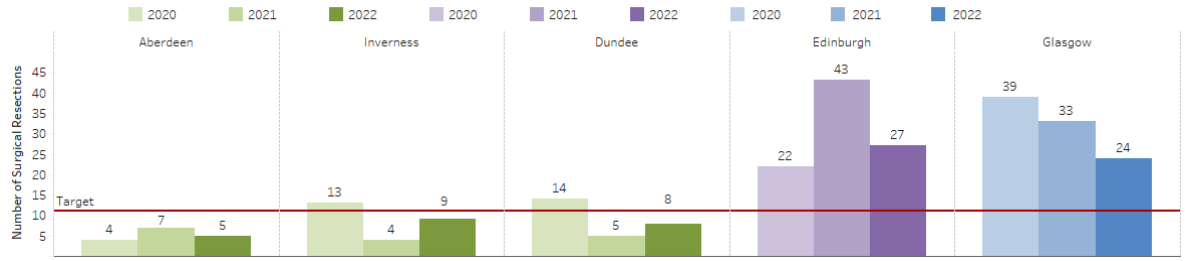
Volume of Cases per Centre/Surgeon

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 nationally. 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 Title:	**HPB resectional surgery should be performed in hospitals where there is an appropriate annual volume of such cases**
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

Across Scotland, one patient died within 30 and 90 days of surgical resection, such that the targets (<5% and <7.5%, respectively) were met nationally (1.37% and 1.41%, respectively). The targets were also met by region with 4.55% mortality in NCA, 0% in Edinburgh and 0% in Glasgow for both 30 and 90 day mortality following surgical resection. Analysis by surgical centre indicates that this target was met in 4 of the 5 surgical centres. Any interpretation of these outcomes should be exercised with extreme caution due to the exceptionally small numbers of patients involved.

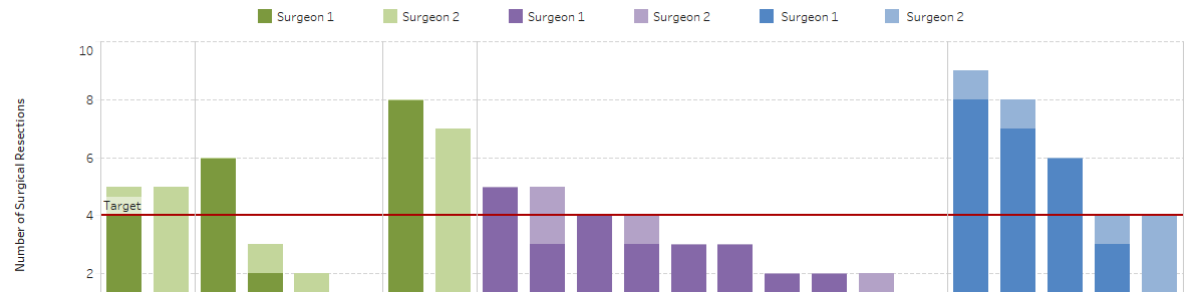


The Aberdeen Centre note that low patient numbers are indicative of patients being referred to other centres due to capacity pressures, and note that these have since recovered, with patients now offered treatment within their home board with enhanced capacity and scheduling on recovery. The Dundee Centre noted that additional pancreatic resections were conducted, but were excluded from analysis due to pathology criteria. Other comments include highlighting the ongoing efforts to address the issue through the 'Getting It Right for The North Programme' which is focused on service redesign for HPB cancer, recognising the significance of case

volume and supporting the proposal for a single cancer centre for low-volume complex cancer surgery within the region.

Number of surgical resections per surgeon

Of the 23 surgeons undertaking surgical resection in 2022, 14 undertook four or more surgeries within the year, meeting the QPI target. Of the 9 surgeons performing less than four surgeries in the year, 3 were from surgical centres in the North of Scotland and 6 were from Edinburgh.



	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	4	1	6	2	1	0	8	0	5	3	4	3	3	3	2	2	1	0	8	7	6	3	0
Performed as surgeon 2	1	4	0	1	1	1	0	7	0	2	0	1	0	0	0	0	1	1	1	1	0	1	4
Total	5	5	6	3	2	1	8	7	5	5	4	4	3	3	2	2	2	1	9	8	6	4	4

Performance against this QPI can be affected by the circumstance of individual surgeons and staffing changes throughout the year. Edinburgh noted that a new surgeon was now performing resections and another was stepping back from cancer resectional work. Dundee noted that a new surgeon had started in October 2022, which resulted in lower volumes for that year, and report plans to distribute the pancreatic resection equitably among all three surgeons to ensure minimum case volume per annum is met. Inverness noted that the outcome of the Getting it Right for the North programme advancing in NCA with the full collaboration of the surgical centres, is likely to impact on the volumes of surgery undertaken by individual surgeons as well as by surgical centres.

While it is acknowledged that, like surgical volumes per surgical centre, this measure does not encompass all resections undertaken by surgeons, it is hoped that the changes outlined above will result in improvement in performance.

Action Required:

An urgent review is required to examine why some surgeons are not conducting a minimum of 4 operations per year.

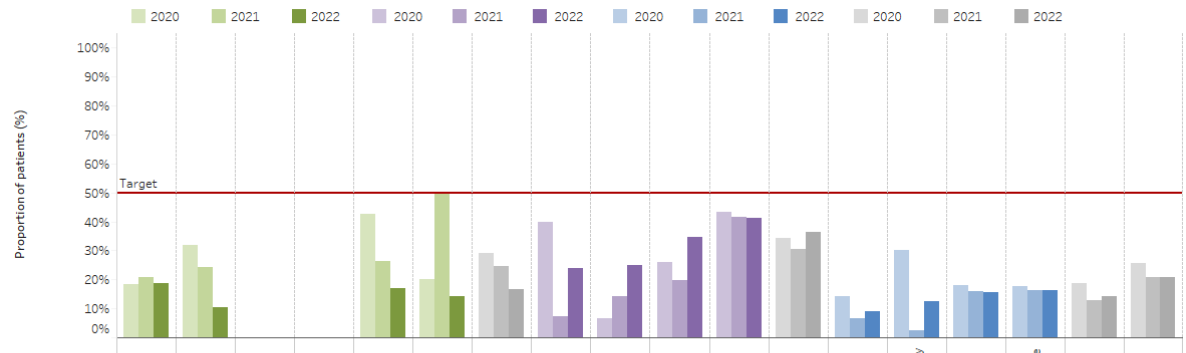
Further, more detailed, review of patients with an oncological appointment or treatment outwith the 6-week target is sought to help identify factors causing delays.

QPI 15

Access to Oncology Services for Inoperable Pancreatic, Duodenal or Biliary Tract Cancer

Approximately 80% of patients with pancreatic, duodenal or biliary tract cancer will not be suitable for potentially curative surgical resection due to fitness or advanced disease at presentation. Palliative treatment options have increased in recent years, however rapid disease progression can result in potentially fit patients becoming unsuitable for treatment; therefore timely assessment is important.

QPI Title:	**Patients with inoperable pancreatic, duodenal or biliary tract cancer should be seen by an oncologist to assess suitability for systemic treatment**
Numerator:	**Number of patients with pancreatic, duodenal or biliary tract cancer not undergoing surgery who are seen by an oncologist (or offered an oncology clinic appointment) within 6 weeks of initial diagnostic CT scan**
Denominator:	**All patients with pancreatic, duodenal or biliary tract cancer not undergoing surgery**
Exclusions:	**No exclusions**
Target:	**50%**



2022 Data	Grampian	Highland	Orkney	Shetland	Tayside	W Isles	NCA	Borders	D&G	Fife	Lothian	SCAN	A&A	Forth Valley	GGC	Lanarkshire	WoSCAN	Scotland
Numerator	18	4	-	-	13	1	37	5	6	16	52	79	5	6	31	14	56	172
Denominator	96	38	-	-	76	7	221	21	24	46	126	217	56	48	200	86	390	828
Performance (%)	18.80%	10.5%	-	-	17.1%	14.3%	16.7%	23.8%	25%	34.8%	41.3%	36.4%	8.9%	12.5%	15.5%	16.3%	14.4%	20.8%

Of the 828 patients diagnosed with pancreatic, duodenal or distal biliary tract and not undergoing surgery, in Scotland in 2022, 20.8% were seen by an oncologist (or offered an oncology clinic appointment) within 6 weeks of diagnosis, below the target of 50%, a similar rate as measured in 2021, and a decline in performance since 2020.

This QPI has continued to present challenges across the whole of Scotland. NHS Boards review of patients identified a high proportion of patients for best supportive care (BSC) at the outset, for stent only, with rapid deterioration of fitness or comorbidities meaning they were not considered fit for oncological treatment precluding referral to oncological services. Across all three regions it has been noted that there are increasing numbers of advanced presentation, including patients that die shortly after diagnosis. Some patients also decline investigations or treatment. Regional comments suggest that these factors make the attainment of this QPI, as it currently stands, aspirational. Consideration should be given to the denominator of this QPI at the next formal review.

Whilst the challenges outlined above are recognised, it is of note that there are patients referred for oncological treatment in every NHS Board who wait more than 6 weeks to be seen by or offered an appointment with an oncologist. The scale of the issue varies across Boards, indicative of inequitable access dependent on patient location. There are circumstances where small patient numbers may impact the interpretation of the data or requirement for further investigations can impact the timeline, however it is likely that a variety of factors result in significant delays. Further review of patients who had an appointment outwith the 6-week target would help elucidate existing challenges and identify the point where delays in the pathway occur, whether lack of diagnostic modalities, delays in accessing required investigations or other issues, or timeliness of referral to oncology services. Early signs of improvement in referral to oncology timelines has been observed for patients included in the patient improvement programme underway across Scotland.

Action Required:

It is noted that due to the increase in presentation at advanced stage of disease the QPI denominator should be considered for revision at the next HPB QPI Formal Review (4th cycle due 2025)

Further, more detailed, review of patients with an oncological appointment or treatment outwith the 6-week target is sought to help identify factors causing delays

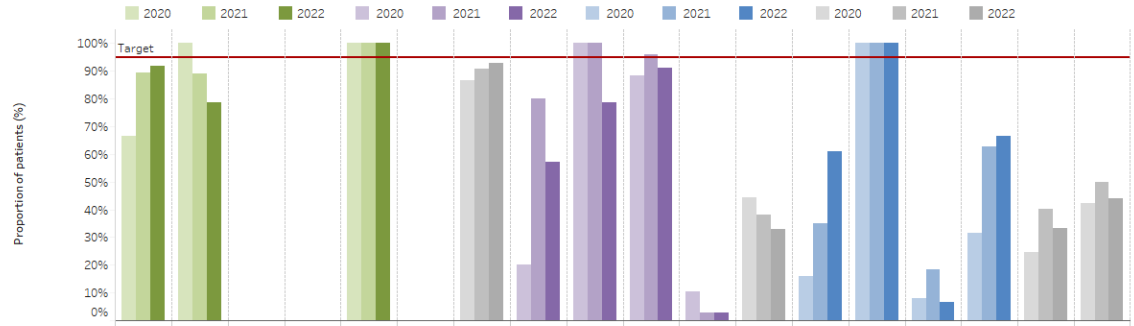
QPI 16

Key Worker

Primary liver cancer is a complex cancer to treat with various management options requiring input from multiple specialties, and as a result can require treatment across multiple health boards. Communication and continuity of care is vital for these patients to allow a co-ordinated, patient-centred approach to their care. Mechanisms should be developed to promote continuity of care which may include the nomination of a person to take on the role of a key worker. This role will include communication with regards to care plans to all involved in a patient's care, ensuring patients know who to contact, and managing transition of care.

QPI Title:	**Patients with hepatocellular cancer (HCC) should have an identified key worker to co-ordinate care across the patient pathway**
Numerator:	**Number of patients with HCC who have an identified key worker at the time of referral to the MDT**
Denominator:	**All patients with HCC**
Exclusions:	**No exclusions**
Target:	**95%**

Of the 384 patients diagnosed with Hepatocellular cancer (HCC) in Scotland in 2022, only 44% had an identified keyworker at the time of referral to the MDT. There was extensive variation in performance across Scotland, both between regions and NHS Boards. All HCC cancer patients within NHS Tayside and NHS Forth Valley had a key worker assigned, NHS Grampian (91.7%) and NHS Fife (91.3%) were close to reaching the target. Of the regions, NCA (92.9%) is very close to reaching the target, whereas performance in SCAN (33%) and WoSCAN (44%) has deteriorated compared to 2021. The largest boards in these regions, NHS Lothian (2.8%) and NHS GGC (6.5%) were instrumental in the failure to meet this target. A few NHS Boards noted that small numbers of patients died shortly after diagnosis, before being assigned a CNS, or were referred to a larger NHS Board for treatment.



2022 Data	Grampian	Highland	Orkney	Shetland	Tayside	W Isles	NCA	Borders	D&G	Fife	Lothian	SCAN	A&A	Forth Valley	GGC	Lanarkshire	WoSCAN	Scotland
Numerator	22	11	0	0	32	0	65	4	11	21	2	38	11	25	8	22	66	169
Denominator	24	14	0	0	32	0	70	7	14	23	71	115	18	25	123	33	199	384
Performance (%)	91.7%	78.6%	*	*	100%	*	92.9%	57.1%	78.6%	91.3%	2.8%	33%	61.1%	100%	6.5%	66.7%	33.2%	44%

There is an unmet need for Cancer Nurse Specialist (CNS) involvement in the care of HCC cancer patients. NHS Lothian have proposed to monitor this QPI going forward and NHS GGC continue to seek resource for a CNS for HCC patients. The ongoing shortage, or absence of key workers in some NHS Boards creates inequitable access and standards of care.

Action required

Specific units and NHS boards should attempt to ensure there is a dedicated key worker in every board and specialty unit as a key worker is tantamount to improving patient care

As the target for this QPI has been met and improved in many areas over the last few years, whilst worsening in others suggests that escalation of this issue regionally and/or nationally should be considered

QPI 17

30 and 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% reported.[1] This QPI is intended to ensure treatment is given appropriately, and the outcome reported on and reviewed.

QPI Title:	**30 and 90 day mortality following treatment for Colorectal liver metastases (CRLM) with curative intent**
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 metastases died within 30 or 90 days of resection, meeting and exceeding the target at a national level and by all five surgical centres.

Resection		Aberdeen 2022	Inverness 2022	Dundee 2022	Edinburgh and Fife 2022	Glasgow 2022	Scotland 2022	Scotland 2021	Scotland 2020
30 day mortality	Numerator	0	0	0	0	0	0	1	1
	Denominator	6	10	13	45	19	93	87	72
Target < 5%	Performance (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.1%	1.4%
90 day mortality	Numerator	0	0	0	0	0	0	2	4
	Denominator	6	10	13	45	19	93	87	72
Target < 7.5%	Performance (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.3%	5.6%

No patients with colorectal liver metastases died within 30 days of ablative treatment and one patient died within 90 days of ablation, ensuring the target was met for both measures at a national level and by all five surgical centres.

Ablation		Aberdeen 2022	Inverness 2022	Dundee 2022	Edinburgh 2022	Glasgow 2022	Scotland 2022	Scotland 2021	Scotland 2020
30 day mortality	Numerator	0	0	0	0	0	0	0	1
	Denominator	0	0	7	13	21	41	30	29
Target < 5%	Performance (%)	*	*	0%	0%	0%	0%	0.0%	3.4%
90 day mortality	Numerator	0	0	0	0	1	1	1	1
	Denominator	0	0	7	13	21	41	30	29
Target < 7.5%	Performance (%)	*	*	0%	0%	4.8%	2.4%	3.3%	3.4%

Next Steps

Progress against these plans will be monitored and any service or clinical issue considered not to have been adequately addressed will be escalated. Progress will be reported annually by 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.

Appendix 1

Abbreviations

AA	NHS Ayrshire & Arran	NHSGGC	NHS Greater Glasgow and Clyde
ARI	Aberdeen Royal Infirmary	NMCN	National Managed Clinical Network
BWoSCC	Beatson West of Scotland Cancer Centre	NCA	North Cancer Alliance
CEL(-06)	Chief Executive Letter (-06)	PHS	Public Health Scotland
CT	Computerised tomography	QEUH	Queen Elizabeth University Hospital
D&G	NHS Dumfries & Galloway	QPI(s)	Quality Performance Indicator(s)
eCASE	Electronic Cancer Audit Support Environment	RCAG(s)	Regional Cancer Advisory Group(s)
FV	NHS Forth Valley	RIE	Royal Infirmary of Edinburgh
GGC	NHS Greater Glasgow and Clyde	SCN-SG	Scottish Cancer Network Steering Group
GGH	Gartnavel General Hospital	SACT	Systemic Anti-Cancer Therapy
GRI	Glasgow Royal Infirmary	SCAN	South-East Scotland Cancer Network
HCC	Hepatocellular Carcinoma	SHPBN	Scottish Hepatopancreatobiliary Network
HPB	HepatoPancreatoBiliary	SLTU	Scottish Liver Transplant Unit
Lan	NHS Lanarkshire	TACE	Trans-arterial chemoembolisation
MDT	Multidisciplinary Team	TNM	Tumour, Nodes, Metastases (staging system)
M&M	Morbidity and Mortality	WGH	Western General Hospital
MRI	Magnetic Resonance Imaging	WoSCAN	West of Scotland Cancer Network
NCQSG	National Cancer Quality Steering Group		
NHSBT	NHS Blood and Transplant		

Appendix 2

Meta Data

Report Title	Cancer Audit Report: HepatoPancreatoBiliary Quality Performance Indicators
Time Period	Patients diagnosed between 01 January 2022 and 31 December 2023
Data Source	Electronic Cancer Audit Support Environment (eCASE). A secure centralised web-based database which holds cancer audit information in Scotland
Data extraction date	27 September 2023
Methodology	Analysis was performed centrally by the NSS Information Management Service (nss/imsrequests). The timescales agreed took into account the patient pathway to ensure that a complete treatment record was available for the majority of patients. Initial results were provided to Boards to check for inaccuracies, inconsistencies or obvious gaps and a subsequent download taken upon which final analysis was carried out. The final data analysis was disseminated for NHS Board verification in line with the regional audit governance process to ensure that the data was an accurate representation of service in each area.

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