North, South East and West of Scotland Cancer Networks

HepatoPancreatoBiliary Cancers National Managed Clinical Network

Audit Report

Report of the 2016 Clinical Audit Data

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CONTENTS

Executive Summary

Introduction

The purpose of this report is to present an assessment of performance of HepatoPancreatoBiliary (HPB) Cancer Services relating to patients diagnosed across Scotland during 2016 through clinical audit data. Results are measured against the HPB Cancer Quality Performance Indicators[1] (QPIs) which were implemented for patients diagnosed on or after 1st January 2013.

The National Cancer Quality Steering Group (NCQSG) completed a programme of work to develop national QPIs for all cancer types to enable national comparative reporting and drive continuous improvement for patients in 2014. In collaboration with the National Managed Clinical Network (NMCN) for HPB Cancers and Information Services Division (ISD), the HPB Cancer QPIs[1] were published by Healthcare Improvement Scotland (HIS) in August 2012 and implemented for patients diagnosed on or after 1st January 2013. Data definitions and measurability criteria to accompany the HPB Cancer QPIs are available from the ISD website[2].

Twelve months of data were measured against the HPB Cancer QPIs for the fourth consecutive year. Following reporting of Year 1 data, a process of baseline review was undertaken to ensure QPIs were fit for purpose and truly driving quality improvement in patient care. A process of formal review was then undertaken after the reporting of Year 3 data. This is performed to assess the effectiveness of existing QPIs, to add or remove QPIs and to make adjustments to measurability or definitions. Where significant changes have taken place, either at baseline or formal review, data may not be comparable across years measured. As such, only data comparable with the current year's reporting is shown in the graphs displayed in this report.

In order to ensure the success of the National Cancer QPIs in driving quality improvement in cancer care across NHS Scotland, QPIs will continue to be assessed for clinical effectiveness and relevance.

Background

HPB cancers are a rare group of cancers. In 2016 the audit identified 1530 patients diagnosed with a new primary cancer of the liver, pancreas, bile ducts, gallbladder or duodenum in Scotland, of which pancreatic cancer is the largest single group accounting for 698 cases (45.6%). Survival rates for pancreatic cancer remain poor and it was the sixth most common cause of death from cancer in Scotland in 2016[6]. The incidence of liver cancer is increasing and mortality has significantly increased in both sexes over the past 10 years[4]. Although the percentage frequency of liver cancer remains relatively low at 1.9% of all cancers, it is now the seventh most common cause of death from cancer in Scotland[5].

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), Gartnavel General Hospital (GGH – ablation and TACE), Queen Elizabeth University Hospital (QEUH - TACE) and Beatson West of Scotland Cancer Centre (BWoSCC – SACT and radiotherapy)
Inverness	Raigmore Hospital

The table above details the five centres carrying out HPB cancer treatment 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 in their local hospital where appropriate however the majority of 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, is responsible for management of all liver transplant cases in Scotland, a treatment which can be indicated for some patients with primary liver cancer.

Methodology

The clinical audit data presented in this report was collected by clinical audit staff in each NHS Board in accordance with an agreed dataset and definitions. The data was entered locally into the electronic Cancer Audit Support Environment (eCASE): a secure centralised web-based database (with the exception of NHS Lothian). Data relating to patients diagnosed between 1st January 2016 and 31st December 2016 was downloaded from eCASE on 2ndAugust 2016.

Analysis was performed centrally by the West of Scotland Cancer Network (WoSCAN) Information Team and the timescales agreed took into account the patient pathway to ensure that a complete treatment record was available for each case. Initial results of the analysis were provided to local Boards to check for inaccuracies or obvious gaps before final analysis was carried out. Final results were 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.

Once all NHS Boards had been given the opportunity to verify their data, further analyses were carried out at a regional and national level to provide an overall assessment of the quality of HPB cancer services in Scotland. NHS Lothian utilise pre-populated TrakCare data to aid the completion of treatment records and submit analysed Board-level QPI data to WoSCAN for inclusion in regional and national results.

Results

The overall estimated case ascertainment across Scotland is 98.5% which indicates excellent data capture for 2016. Data quality has shown continuous improvement across all NHS Boards; however there remain some data fields where completeness is below the requirement for accurate reporting.

Results for each QPI are shown in detail in the main report and illustrate NHS Board/Regional performance against each target and overall national performance for each performance indicator. Results are presented graphically and the accompanying tabular format also highlights any missing data and its possible effect on any of the measured outcomes for the current year of analysis. Where Year 1 data has not remained comparable due to changes agreed at baseline review, results have been removed from graphs.

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

Where any NHS Board has either restricted data (-) or a denominator of zero (*) for all four years (2013 to 2016), the Board is not included in the graph. Any commentary provided by NHS Boards relating to the impacted indicators will however be included as a record of continuous improvement.

The summary of results on the following page shows the national percentage performance against each QPI target and performance by NHS Region or treatment centre for 2016.

Summary of QPI Results

Colour Key		Symbol Key	
	Above QPI target	>	Indicates increase on previous year's figure
	Below QPI target	<	Indicates decrease from previous year's figure
		=	Indicates no change from previous year
			Indicates no comparable measure from previous year

Region/Centre	
%	
N	D

N: Numerator **D**: Denominator

A dash (-) denotes restricted data where the denominator is less than 5. An asterisk (*) denotes data where the denominator is zero.

Quality Performance Indicator (QPI)	Performance by NHS Region of diagnosis								
	QPI target	NOSCAN		SCAN		WoSCAN		Scotland	
Section 1: Analysed by Board of diagnosis (QPIs 1 – 4, 6, 7 and 9)									
QPI 1: Patients with newly diagnosed HPB cancer should be discussed by a multidisciplinary team prior to definitive treatment.	**95%**	**91.2%>**		**88.4%>**		**89.2%>**		**89.5%>**	
		323	354	367	415	612	686	1302	1455
QPI 2: (i) Patients with Hepatocellular Carcinoma (HCC) should be appropriately diagnosed and staged.	**90%**	**94.7%**		**60.4%**		**96.4%**		**85.6%**	
		71	75	67	111	188	195	326	381
QPI 2: (ii) Patients with Hepatocellular Carcinoma (HCC) should be appropriately diagnosed and staged.	**90%**	**53.4%**		**40.6%**		**75.9%**		**61.5%**	
		39	73	43	106	148	195	230	374
***QPI 3: Patients with early Hepatocellular Carcinoma (HCC) should be referred for consideration of liver transplantation.**	**90%**	**76.9%<**		**100%>**		**77.2%<**		**84.8%>**	
		10	13	35	35	44	57	89	105
***QPI 4: Patients with Hepatocellular Carcinoma (HCC) who are not suitable for curative treatment should receive palliative treatment.**	**40%**	**26.2%>**		**52.5%>**		**38.9%>**		**41.1%>**	
		11	42	42	80	51	131	104	253
***QPI 6: Patients with pancreatic, duodenal or biliary tract cancers should undergo a computerised tomography (CT) of the chest, abdomen and pelvis to evaluate the extent of disease.**	**80%**	**82.4%>**		**85.1%>**		**90.5%>**		**86.9%>**	
		98	119	103	121	190	210	391	450
***QPI 7: Patients with pancreatic, duodenal or biliary**	**75%**	**68.9%>**		**81.8%<**		**98.8%>**		**87.0%>**	

Quality Performance Indicator (QPI)	Performance by NHS Region of diagnosis								
	QPI target	NOSCAN		SCAN		WoSCAN		Scotland	
tract cancers having non-surgical treatment should have a cytological or histological diagnosis.		31	45	27	33	83	84	141	162
***QPI 9: Patients with localised pancreatic, distal biliary tract or duodenal cancer should have surgical resection.**	**15%**	**8.0%<**		**11.3%<**		**8.6%<**		**9.2%<**	
		17	212	26	231	33	385	76	828

Quality Performance Indicator (QPI)	Performance by treatment centre													
	QPI target	Aberdeen		Inverness		Dundee		Edinburgh		Glasgow		Other		Scotland	
Section 2: Analysed by Board of treatment (QPIs 5a – 5e, 8, 10, 11 and 12)															
QPI 5a: 30 day mortality following treatment for Hepatocellular Carcinoma (HCC) with curative intent.	**< 5%**	*****		*****		*****		**0.0%<**		*****		*****		**0.0%<**	
Liver Transplant		*	*	*	*	*	*	0	18	*	*	*	*	0	18
QPI 5a: 90 day mortality following treatment for Hepatocellular Carcinoma (HCC) with curative intent.	**< 7.5%**	*****		*****		*****		**0.0%<**		*****		*****		**0.0%<**	
Liver Transplant		*	*	*	*	*	*	0	18	*	*	*	*	0	18
***QPI 5b: 30 day mortality following treatment for Hepatocellular Carcinoma (HCC) with curative intent.**	**< 5%**	**-**		**-**		*****		**0.0% =**		**-**		*****		**6.3%>**	
Resection		-	-	-	-	*	*	0	9	-	-	*	*	1	16
***QPI 5b: 90 day mortality following treatment for Hepatocellular Carcinoma (HCC) with curative intent.**	**< 7.5%**	**-**		**-**		*****		**0.0% =**		**-**		*****		**6.3%>**	
Resection		-	-	-	-	*	*	0	9	-	-	*	*	1	16
***QPI 5c: 30 day mortality following treatment for Hepatocellular Carcinoma (HCC) with curative intent.**	**< 5%**	*****		*****		**-**		**0.0% =**		**0.0% =**		*****		**0.0% =**	
Ablation		*	*	*	*	-	-	0	11	0	17	*	*	0	32

Quality Performance Indicator (QPI)	Performance by treatment centre													
	QPI target	Aberdeen		Inverness		Dundee		Edinburgh		Glasgow		Other		Scotland	
***QPI 5c: 90 day mortality following treatment for Hepatocellular Carcinoma (HCC) with curative intent.** Ablation	**< 7.5%**	*****		*****		**-**		**0.0% =**		**0.0% =**		*****		**0.0% =**	
		*	*	*	*	-	-	0	10	0	16	*	*	0	30
***QPI 5d: 30 day mortality following treatment for Hepatocellular Carcinoma (HCC) with palliative intent.** TACE	**< 10%**	**-**		*****		**0.0%**		**0.0% =**		**0.0% =**		*****		**0.0% =**	
		-	-	*	*	0	6	0	46	0	23	*	*	0	79
Quality Performance Indicator (QPI)	**Performance by treatment centre**													
	QPI target	**Aberdeen**		**Inverness**		**Dundee**		**Edinburgh**		**Glasgow**		**Other**		**Scotland**	
***QPI 5e: 30 day mortality following treatment for Hepatocellular Carcinoma (HCC) with palliative intent.** SACT	**< 10%**	**-**		**-**		**-**		**0.0% =**		**3.7%>**		*****		**2.5%>**	
		-	-	-	-	-	-	0	7	1	27	*	*	1	40
***QPI 8: Patients undergoing resection for pancreatic cancer should receive adjuvant chemotherapy, where appropriate.**	**50%**	**-**		*****		**-**		**70.6%<**		**100%>**		*****		**75.0%<**	
		-	-	*	*	-	-	12	17	10	10	*	*	24	32
***QPI 10: In patients undergoing surgery for pancreatic cancer the number of lymph nodes examined should be maximised (≥ 15 lymph nodes).**	**Average of 15 nodes per patient**	**21 Nodes**		**-**		**-**		**20 Nodes**		**25 Nodes**		*****		**22 Nodes**	
		212	10	-	-	-	-	652	32	490	20	*	*	1445	66
***†QPI 11(i): 30-day mortality after treatment with curative intent for pancreatic, duodenal or distal biliary tract cancer.** SURGICAL RESECTION	**< 5%**	**23.1%**		**-**		**-**		**3.7%**		**0.0%**		*****		**6.0%**	
		3	13	-	-	-	-	1	27	0	23	*	*	4	67
***†QPI 11(i): 90-day mortality after treatment with curative intent for pancreatic, duodenal or distal biliary tract cancer.**	**<7.5%**	**30.8%**		**-**		**-**		**7.4%**		**23.8%**		*****		**16.9%**	
		4	13	-	-	-	-	2	27	5	21	*	*	11	65

Quality Performance Indicator (QPI)	Performance by treatment centre															
	QPI target	Aberdeen		Inverness		Dundee		Edinburgh		Glasgow		Other		Scotland	
SURGICAL RESECTION															
***†QPI 11(i): 30-day mortality after treatment with curative intent for pancreatic, duodenal or distal biliary tract cancer.** NEOADJUVANT CHEMO	**< 5%**	**-**		**-**		**-**		*****		**0.0%**		*****		**0.0%**	
		-	-	-	-	-	-	*	*	0	30	*	*	0	36
***†QPI 11(i): 90-day mortality after treatment with curative intent for pancreatic, duodenal or distal biliary tract cancer.** NEOADJUVANT CHEMO	**<7.5%**	**-**		**-**		**-**		*****		**3.3%**		*****		**5.6%**	
		-	-	-	-	-	-	*	*	1	30	*	*	2	36
***†QPI 11(i): 30-day mortality after treatment with curative intent for pancreatic, duodenal or distal biliary tract cancer.** ADJUVANT CHEMO	**< 5%**	**-**		*****		**-**		**0.0%**		**0.0%**		**-**		**0.0%**	
		-	-	*	*	-	-	0	10	0	15	-	-	0	31
***†QPI 11(i): 90-day mortality after treatment with curative intent for pancreatic, duodenal or distal biliary tract cancer.** ADJUVANT CHEMO	**<7.5%**	**-**		*****		**-**		**-**		**20.0%**		**-**		**10.3%**	
		-	-	*	*	-	-	-	-	3	15	-	-	3	29
***†QPI 11(i): 30-day mortality after treatment with curative intent for pancreatic, duodenal or distal biliary tract cancer.** CHEMORADIOTHERAPY	**< 5%**	*****		*****		**-**		*****		**0.0%**		*****		**0.0%**	
		*	*	*	*	-	-	*	*	0	28	*	*	0	31
***†QPI 11(i): 90-day mortality after treatment with curative intent for pancreatic, duodenal or distal biliary tract cancer.** CHEMORADIOTHERAPY	**<7.5%**	*****		*****		**-**		*****		**4.3%**		*****		**3.8%**	
		*	*	*	*	-	-	*	*	0	23	*	*	1	26
***†QPI 11(ii): 30-day mortality after treatment with palliative intent for**	**< 10%**	**15.4%**		**10.0%**		**0.0%**		**8.8%**		**7.2%**		**0.0%**		**7.7%**	

Quality Performance Indicator (QPI)	Performance by treatment centre															
	QPI target	Aberdeen		Inverness		Dundee		Edinburgh		Glasgow		Other		Scotland	
pancreatic, duodenal or distal biliary tract cancer. PALLIATIVE CHEMO		2	13	1	10	0	8	3	34	5	69	0	9	11	143
QPI 12a: Pancreatic resectional surgery should be performed in hospitals where there is an appropriate annual volume of such cases.	**11 per centre per year**	**13<**		**2<**		**2<**		**35<**		**23<**		**NA**		**75**	
QPI 12b: Pancreatic resectional surgery should be performed in hospitals where there is an appropriate annual volume of such cases.	**4 per surgeon per year**	**3 x NOT MET>**		**1 x NOT MET<**		**2 x NOT MET>**		**2 x NOT MET =**		**1 x NOT MET>**		**NA**		**9 x NOT MET>**	

Conclusions and Action Required

The development of national QPIs for HPB cancer has helped drive continuous quality improvement in the care of patients with HPB cancer whilst ensuring that activity at NHS Board/treatment centre level is focussed on those areas that are most important in terms of improving survival and patient outcomes. Results presented in this and previous reports demonstrate that patients with HPB cancer receive an equitable and consistent standard of care across NHS Scotland; however it is evident that many of the QPI targets set have been challenging for NHS Boards to achieve and a number of areas for improvement have been highlighted. It should be noted that the majority of QPIs demonstrate improved performance from 2015.

This audit report has identified areas where data capture must improve to enable more meaningful analysis of performance against QPIs, specifically with regards to the number of lesions detected radiologically and Child-Pugh score for patients with hepatocellular carcinoma (HCC). Case ascertainment and data capture is however of a high standard overall and it is evident that many NHS Boards have already initiated changes to improve data recording.

Areas for service improvement have been identified relating to variation in palliative treatment rates and the proportion of patients discussed at MDT.

NHS Boards are asked to develop local Action/Improvement Plans in response to the findings presented in the report.

Action Required:

QPI 1: Multi-Disciplinary Team (MDT) Meeting

- NHS boards should aim to discuss all definite and suspected cases at a specialist MDT prior to definitive treatment, where this is clinically appropriate.
- Boards to ensure patients are discussed, even if they are for supportive care only.
- NHS GGC to ensure that all patients discussed at local Clyde meeting are discussed at GGC MDT.
- NHS Highland and NHS Western Isles to review cases not meeting the target and provide formal feedback.

QPI 2: Diagnosis and Staging of HCC

- Boards within SCAN region to ensure full completion of referral forms for calculation of Child Pugh score.
- All boards to assess how data can be recorded more consistently.
- All boards to ensure comprehensive staging is performed where appropriate.
- NHS Highland and NHS Western Isles to review cases not meeting the target and provide formal feedback.

QPI 3: Referral to Scottish Liver Transplant Unit

- NHS Grampian to improve documentation to record reasons for non-referral.
- NHS GGC to encourage colleagues to refer all HCC patients to MDT.

QPI 4: Palliative Treatment for HCC

- All boards to commence suitable patients on palliative therapy where appropriate.
- NHS Highland and NHS Western Isles to review cases not meeting the target and provide formal feedback.

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

- NHS Grampian to implement actions agreed from root cause analysis.

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

- NHS Highland to review cases not meeting the target and provide formal feedback.
- NHS Lothian to ensure patients undergo both CT chest and abdomen when indicated.

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

- NHS Borders to independently review cases and provide feedback.
- NHS Highland and NHS Western Isles to review cases not meeting the target and provide formal feedback.

QPI 9: Resection Rate for Pancreatic, Duodenal or Biliary Tract Cancers

- Boards to assess ways to improve patient fitness for surgery.
- NHS GGC to explore how multidisciplinary colleagues and resources (i.e. clinics) can help improve results. Results to be shared and discussed at NMCN.
- NHS Orkney to await all investigation results before setting “decision to treat” date.
- NHS Highland and NHS Western Isles to review cases not meeting the target and provide formal feedback.

QPI 11a/b: 30 and 90-day Mortality after Treatment with Curative Intent

- NHSGGC to monitor and report the ongoing impact of changes implemented.
- Learning from NHS GGC and NHS Grampian to be shared across Centres via the National MCN.
- NHS Grampian to implement practice programme developed from root cause analysis.

QPI 12: Volume of Cases per Centre/Surgeon

- Tayside to investigate and improve how surgical data is recorded.
- NHS Highland to review cases not meeting the target and provide formal feedback.

A summary of actions for each NHS Board has been included within the Action Plan templates in the Appendix.

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 SHPBN and any service or clinical issue which the SHPBN 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).

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 2016 through clinical audit data and to provide a summary of the first four years of QPI analysis. 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 MCN to assure the quality of care delivered across the country.

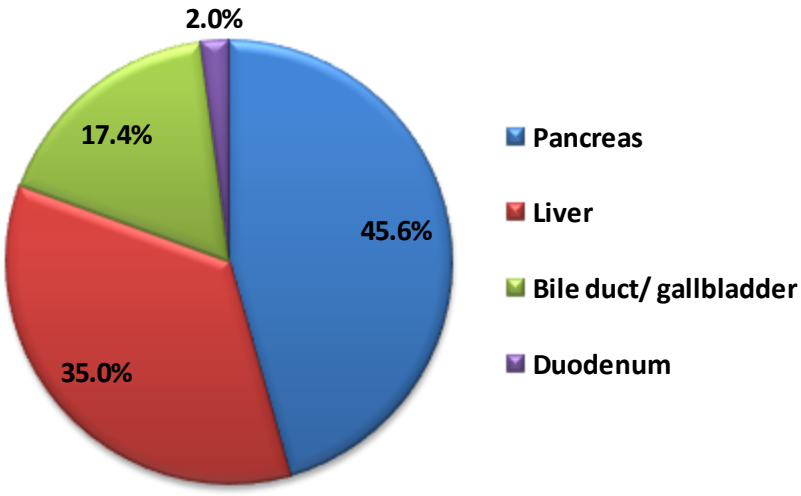
The National Cancer Quality Steering Group (NCQSG) completed a programme of work to develop national QPIs for all cancer types to enable national comparative reporting and drive continuous improvement for patients in 2014. In collaboration with the NMCN for HPB Cancers and Information Services Division (ISD) the HPB Cancer QPIs[1] were published by Healthcare Improvement Scotland (HIS) in August 2012 and implemented for patients diagnosed on or after 1st January 2013. Data definitions and measurability criteria to accompany the HPB Cancer QPIs are available from the ISD website[2].

Twelve months of data were measured against the HPB Cancer QPIs for the fourth consecutive year. Following reporting of Year 1 data (2013), a process of baseline review was undertaken to ensure QPIs were fit for purpose and truly driving quality improvement in patient care. This review process resulted in measurability changes to some QPIs and therefore Year 1 data is only presented where comparable with subsequent year's data. Formal review of the HPB Cancer QPIs commenced in October 2016, with the revised QPIs published at the start of 2017. Some QPIs have undergone major changes after formal review and so the data for 2016 may not be comparable with data from previous years. Other QPIs have undergone minor changes where data is still comparable. QPI changes will be detailed in the performance section of each QPI. Future reports will continue to compare clinical audit data in successive years to further illustrate trends.

2. Background

HPB cancers are a rare group of cancers. In 2016 the audit identified 1530 patients diagnosed with a new primary cancer of the liver, pancreas, bile duct, gallbladder or duodenum in Scotland. Pancreatic cancer accounts for almost half of all HPB cancer diagnoses (45.6%). Figure 1 illustrates the proportion of new cases of each HPB cancer type diagnosed in Scotland for 2016.

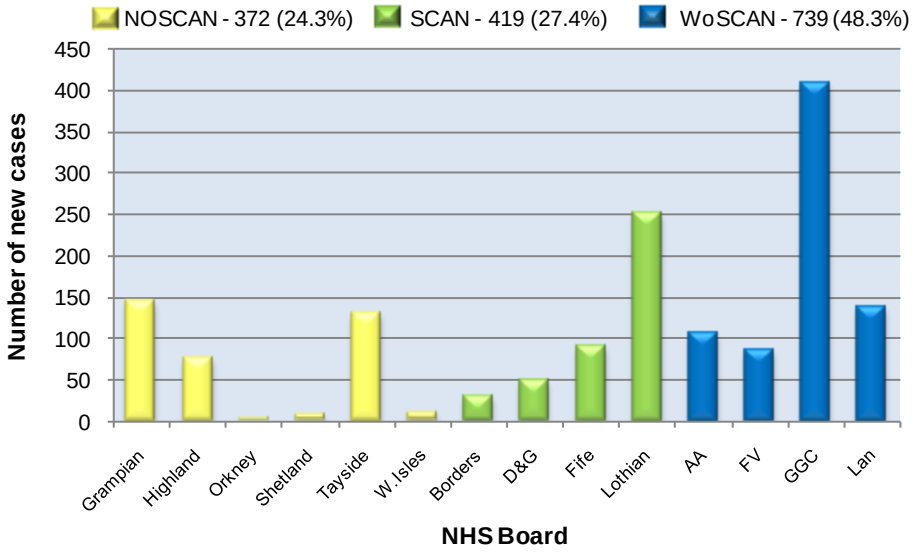
Figure 1: Proportion of new cases of HPB cancers in 2016 by site of tumour



	2011	2012	2013	2014	2015	2016
Pancreas	649	653	636	656	716	698
Liver	347	358	446	457	503	535
Bile duct/ GB	160	192	266	274	286	266
Duodenum	28	29	38	31	30	31
Total	**1184**	**1232**	**1386**	**1418**	**1535**	**1530**

The distribution of the 1530 patients diagnosed in 2016 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 739 patients diagnosed in WoS in 2016; this represents almost half of all HPB cancer diagnoses in Scotland (48.3%). 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 Boards[3].

Figure 2: Number of patients diagnosed with HPB cancer across Scotland by NHS Board in 2016



NOSCAN						SCAN				WoSCAN			
Grampian	Highland	Orkney	Shetland	Tayside	W.Isles	Borders	D&G	Fife	Lothian	AA	FV	GGC	Lan
146	76	3	7	131	9	30	48	89	252	107	86	409	137

Table 1 details the five HPB cancer centres in Scotland. These are considered the centres for specialist treatment, which includes surgery, 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: Specialist centres for treatment of patients diagnosed with HPB cancer 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), Gartnavel General Hospital (GGH**

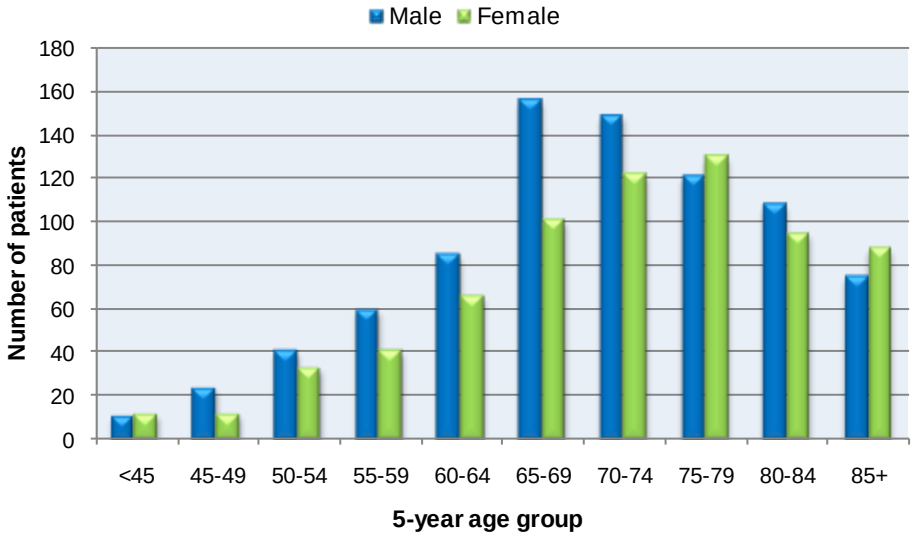
	– ablation and TACE), Queen Elizabeth University Hospital (QEUH - TACE) and Beatson West of Scotland Cancer Centre (BWoSCC – SACT and radiotherapy)
Inverness	**Raigmore Hospital**

In Scotland, liver cancer is the tenth most common cancer in males and sixteenth in females[4].The incidence of liver cancer is rising and the last decade has seen the overall incidence of liver cancer increase by 66.8% in Scotland[4], with increases in incidence of 67.0% and 66.3% in males and females respectively. The percentage frequency of liver cancer is however relatively low at 1.9% of all cancer types[4]. There has been an overall rise in mortality rates for cancer of the liver over the past ten years of 54.9%, showing a statistically significant increase in both males and females[5]. Liver cancer is now ranked as the seventh most common cause of death from cancer in 2016, and the 10-year percentage change in mortality rates show significant increases of 46.3% and 76.4% for males and females respectively[5].

Pancreatic cancer is the eleventh most common cancer in males and eighth in females[6]. The increase in incidence from 2005 to 2015 is significant in both males and females at 10.6% and 15.1% respectively[6]. Whilst pancreatic cancer is relatively rare (accounting for 2.6% of all cancers), it remains the sixth most common cause of death from cancer in Scotland[6]. 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 females[7]. 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 females[7].

HPB cancers occur most frequently later in life. Figure 3 illustrates the number of new cases in 2016 by age 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 just over a quarter of HPB cancers were diagnosed in individuals under the age of 65 years (25.2%).

Figure 3: Number of patients diagnosed with HPB cancer in Scotland in 2016 by age group and sex.



	<45	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+	Total
Male	11	24	41	60	85	156	149	121	108	75	830
Female	12	12	33	41	66	101	122	130	95	88	700

3. Methodology

The clinical audit data presented in this report was collected by clinical audit staff in each NHS Board in accordance with an agreed dataset and definitions. The data was recorded manually and entered locally into the electronic Cancer Audit Support Environment (eCASE): a secure centralised web-based database. Data relating to patients diagnosed between 1st January 2016 and 31st December 2016 was downloaded from eCASE at 2200 hrs on 2nd August 2017. Cancer audit is a dynamic process with patient data continually being revised and updated as more information becomes available. This means that apparently comparable reports for the same time period and cancer site may produce slightly different figures if extracted at different times.

Analysis was performed centrally by the WoSCAN Information Team on behalf of the NMCN and the timescales agreed took into account the patient pathway to ensure that a complete treatment record was available for each case. Initial results of the analysis were provided to local 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. This is with the exception of NHS Lothian who utilise pre-populated TrakCare data to aid the completion of treatment records and submit analysed Board-level QPI data to WoSCAN for inclusion in regional and national results.

Once all NHS Boards had been given the opportunity to verify their data, further analyses were carried out at a regional and national level to provide an overall assessment of the quality of HPB cancer services in Scotland. These treatment-centre-based results were provided to key regional clinicians/ clinical leads for comment ahead of publication.

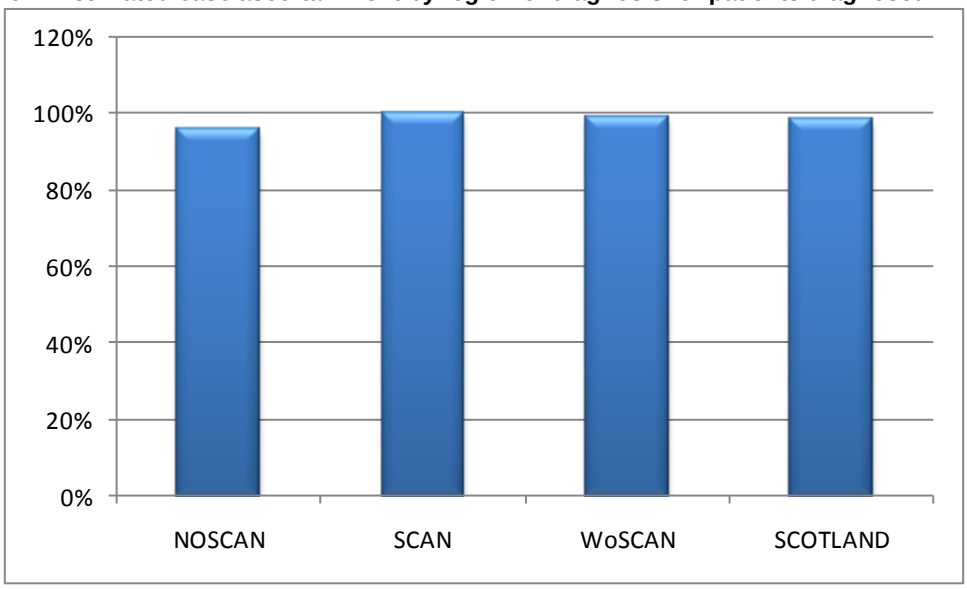
4. Results and Action Required

4.1 Data Quality

Audit data quality can be assessed in the first instance by estimating the proportion of expected patients that have been identified through audit. Case ascertainment is calculated as the number of new cases identified by the audit as a proportion of the number of cases reported by the National Cancer Registry (provided by ISD, National Services Scotland), by NHS Board of diagnosis. Cancer Registry figures were extracted from ACaDMe (Acute Cancer Deaths and Mental Health), a system provided by ISD. Cancer Registry figures are an average of the previous five years' figures to take account of annual fluctuations in incidence within NHS Boards.

Overall case ascertainment for HPB cancer in Scotland is high at 98.5% which indicates excellent data capture through audit. Case ascertainment figures however are provided for guidance and are not an exact measurement as it is not possible to compare directly with the same cohort. Case ascertainment for each NHS Board across Scotland is illustrated in Figure 4 and indicates good data capture across all NHS Boards in 2016. This level of data capture aids the interpretation of analysis based on cancer audit data, as more complete data will return more reliable results.

Figure 4: Estimated case ascertainment by region of diagnosis for patients diagnosed in 2016



	NOSCAN	SCAN	WoSCAN	SCOTLAND
Cases from audit	372	419	739	1530
Cancer Reg. (2010-2015)	388	418	747	1553
% Case ascertainment	95.9%	100.2%	98.9%	**98.5%**

As HPB services are based around specialist centres, some QPIs are analysed based upon the location of treatment rather than the board of diagnosis. Patients often move between NHS Boards for diagnosis and treatment and this requires that robust systems are in place to ensure good data quality and completeness where there is cross-boundary movement. Continued effort in this area is essential to ensure this level of data quality is maintained.

4.2 Performance against Quality Performance Indicators (QPIs)

Results of the analysis of HPB Cancer Quality Performance Indicators (QPIs 1 to 12) are set out in the following sections. Data are presented 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.

Results are presented graphically and the accompanying tables also highlight any missing data and its possible effect on any of the measured outcomes for the current year of analysis.

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

Where any NHS Board has either restricted data (-) or a denominator of zero (*) for all years (2013 to 2016), the Board is not included in the graph. Any commentary provided by NHS Boards relating to the impacted indicators will however be included as a record of continuous improvement.

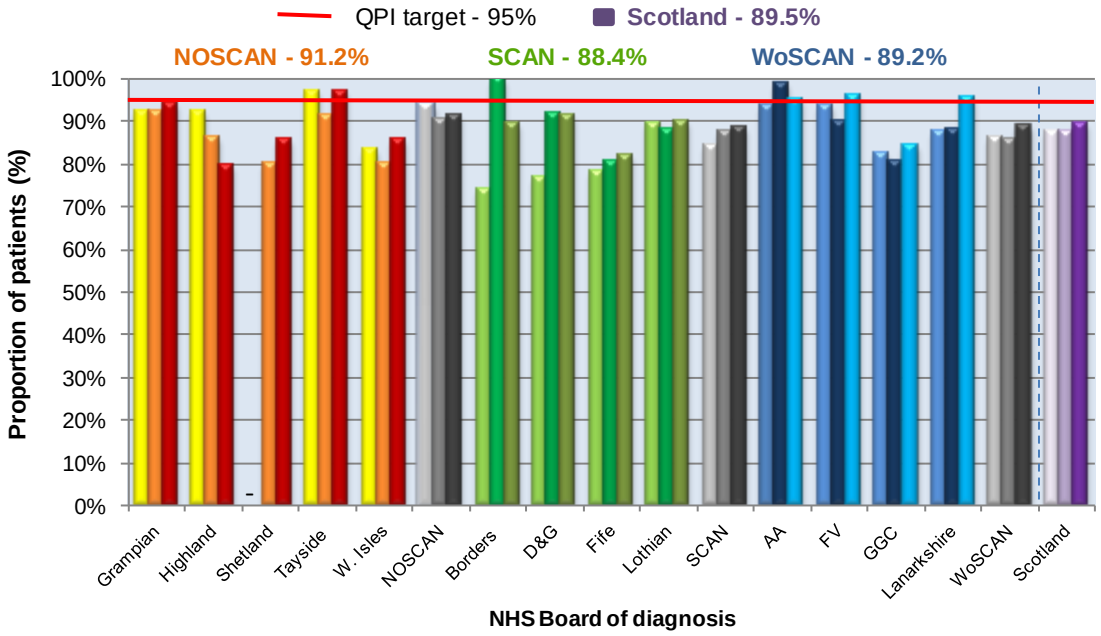
Specific regional and NHS Board actions have been identified to address issues highlighted through the data analysis.

QPI 1: Multi-Disciplinary Team (MDT) Meeting

Effective MDT working is considered integral to provision of high quality HPB cancer care, facilitating a cohesive treatment-planning function and ensuring treatment provision is individualised to patient needs[1]. QPI 1 states that 95% of patients should be discussed at the MDT prior to definitive treatment. The tolerance allows for patients who need treatment urgently.

QPI 1:	Patients with newly diagnosed 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%

Figure 5: Proportion of patients with HPB cancer who are discussed at MDT meeting before definitive treatment, by NHS Board of diagnosis 2014, 2015 and 2016.



QPI 1	2016 (%)	Numerator	Denominator	NR numerator	NR exclusions	NR denominator
Grampian	94.2%	130	138	0	0	0
Highland	79.7%	59	74	0	0	0
Orkney	-	-	-	0	0	0
Shetland	85.7%	6	7	0	0	0
Tayside	96.8%	121	125	0	0	0
W. Isles	85.7%	6	7	0	0	0
NOSCAN	**91.2%**	**323**	**354**	**0**	**0**	**0**
Borders	89.7%	26	29	0	0	0
D&G	91.3%	42	46	0	0	0
Fife	81.8%	72	88	0	0	0
Lothian	90.1%	227	252	0	0	0
SCAN	**88.4%**	**367**	**415**	**0**	**0**	**0**
AA	94.9%	94	99	0	0	0
Forth Valley	96.2%	75	78	0	0	0

GGC	84.4%	336	398	0	3	0
Lanarkshire	95.7%	112	117	0	0	0
WoSCAN	**89.2%**	**617**	**692**	**0**	**3**	**0**
Scotland	**89.5%**	**1302**	**1455**	**0**	**3**	**0**

Dash (-) denotes restricted data where the denominator is less than 5. Asterisk (*) denotes a denominator of zero.

Four of the fourteen boards met the 95% target. This is an increase on last year when two boards met the target. Overall performance in Scotland was 89.5% with 1302 of 1455 patients being discussed at an MDT meeting prior to definitive treatment; an improvement on the figures from 2014 and 2015 of 87.5% and 87.4% respectively. While no regions met the 95% target, all three regions (NOSCAN, SCAN and WoSCAN) showed overall improvement in 2016 on their result from 2015.

NHS Boards not meeting the target have reviewed cases and submitted comments. A large number of cases were not discussed as the patient was for supportive therapy only. Other patients received stenting prior to MDT discussion where this was clinically appropriate. A significant number of patients died prior to first treatment. A small number of cases were due to incidental findings during or after surgery (pathology).

NHS GGC identified some patients who had been discussed within the Clyde area only. In future it is anticipated that measures will be put in place to ensure that this group of patients is still discussed at the central GGC MDT.

NHS Fife commented that an HPB Clinical Nurse Specialist has been appointed. With this it is expected that the overall coordination of HPB cancer management will improve. As such, it is hoped that this will be reflected in QPI performance in the coming years.

Action:

- NHS boards should aim to discuss all definite and suspected cases at a specialist MDT prior to definitive treatment, where this is clinically appropriate.
- Boards to ensure patients are discussed, even if they are for supportive care only.
- NHS GGC to ensure that all patients discussed at local Clyde meeting are discussed at GGC MDT.
- NHS Highland and NHS Western Isles to review cases not meeting the target and provide formal feedback.

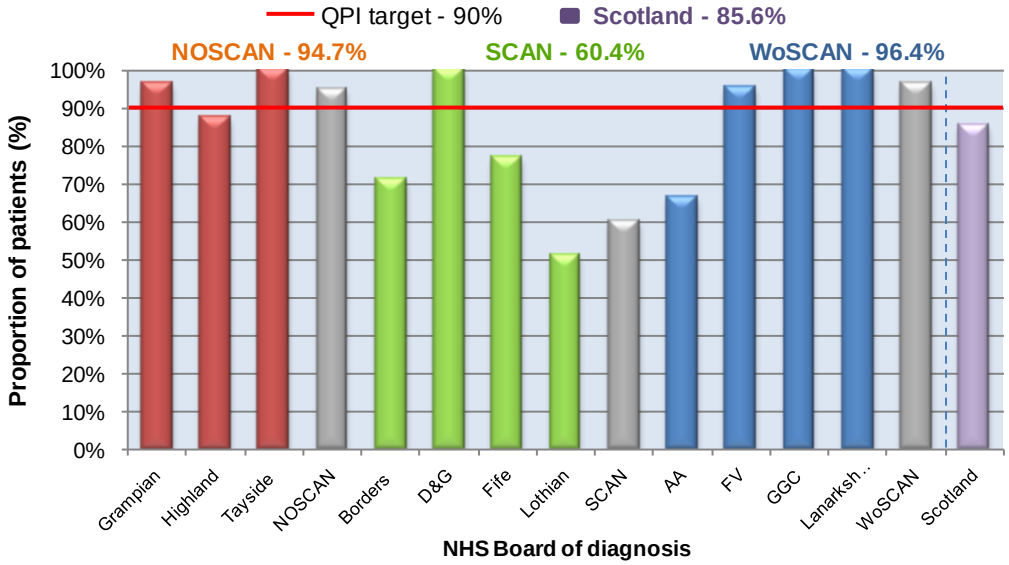
QPI 2: Diagnosis and Staging of HCC

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 multidisciplinary team (MDT), such as the location, number and size of tumours. A full list of the required information is published within the HPB QPI document[1]and shown in Appendix 1. 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 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%

QPI 2 underwent changes at formal review. It has been split into two parts. Part (i) looks at those undergoing CT or MRI; whilst part (ii) concerns those undergoing CT or MRI where complete staging information has been recorded. The detail of the information required is shown in Appendix 1 of this document. As a result of this change, the data for part (i) cannot be compared to data from previous years and so only 2016 data is shown for comparison between regions and boards. Part (ii) of the QPI remains comparable and is presented with figures from 2014 and 2015. Data from 2013 is excluded due to changes that occurred at baseline review.

Figure 6: Proportion of patients diagnosed with HCC in 2016 that have undergone CT or MRI recorded by NHS Board of diagnosis.



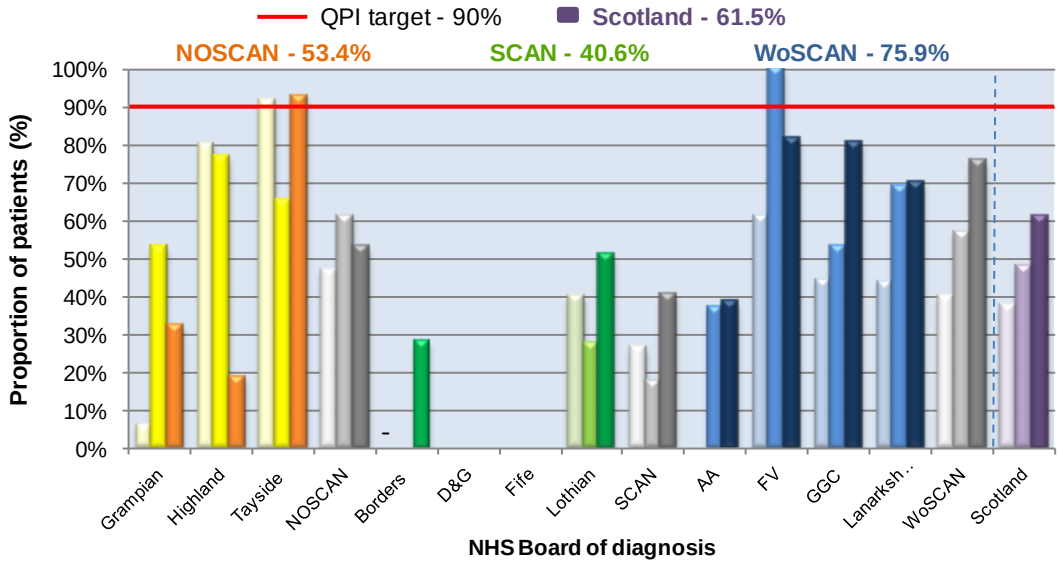
QPI 2(i)	2016 (%)	Numerator	Denominator	NR numerator	NR exclusions	NR denominator
Grampian	96.4%	27	28	0	0	0
Highland	84.6%	14	16	0	0	0
Orkney	*	*	*	0	0	0
Shetland	-	-	-	0	0	0

Tayside	100.0%	27	27	0	0	0
W. Isles	-	-	-	0	0	0
NOSCAN	**94.7%**	**71**	**75**	**0**	**0**	**0**
Borders	71.4%	5	7	0	0	0
D&G	100.0%	11	11	0	0	0
Fife	76.9%	10	13	0	0	0
Lothian	51.3%	41	80	0	0	0
SCAN	**60.4%**	**67**	**111**	**0**	**0**	**0**
AA	66.7%	12	18	0	0	0
Forth Valley	95.5%	21	22	0	0	0
GGC	100.0%	135	135	0	0	0
Lanarkshire	100.0%	20	20	0	0	0
WoSCAN	**96.4%**	**188**	**195**	**0**	**0**	**0**
Scotland	**85.6%**	**326**	**381**	**0**	**0**	**0**

Dash (-) denotes restricted data where the denominator is less than 5. Asterisk (*) denotes a denominator of zero.

Six of the eleven boards with shown data met the 90% target. NHS Tayside, NHS D&G, NHS GGC and NHS Lanarkshire achieved a performance of 100%. Both NOSCAN and WoSCAN regions achieved the QPI target. The overall Scotland figure fell a little short of the target with 85.6%.

Figure 7: Proportion of patients diagnosed with HCC between 2014 and 2016 that have undergone CT or MRI with full information recorded by NHS Board of diagnosis.



QPI 2(ii)	2016 (%)	Numerator	Denominator	NR numerator	NR exclusions	NR denominator
Grampian	32.1%	9	26	0	0	0
Highland	18.8%	3	16	0	0	0
Orkney	*	*	*	0	0	0
Shetland	-	-	-	0	0	0
Tayside	92.6%	25	27	0	0	0
W. Isles	-	-	-	0	0	0
NOSCAN	**53.4%**	**39**	**73**	**0**	**0**	**0**
Borders	28.6%	2	7	0	0	0
D&G	0.0%	0	6	0	0	0
Fife	0.0%	0	13	0	0	0
Lothian	51.3%	41	80	0	0	0
SCAN	**38.7%**	**43**	**106**	**0**	**0**	**0**
AA	38.9%	7	18	0	0	0
Forth Valley	81.8%	18	22	0	0	0
GGC	80.7%	109	135	0	0	0

Lanarkshire	70.0%	14	20	0	0	0
WoSCAN	**75.9%**	**148**	**195**	**0**	**0**	**0**
Scotland	**61.5%**	**230**	**374**	**0**	**0**	**0**

Dash (-) denotes restricted data where the denominator is less than 5. Asterisk (*) denotes a denominator of zero.

NHS Tayside was the only board to achieve the 90% target for QPI 2(ii) with 92.6%. Both NHS D&G and NHS Fife showed a performance of 0%. Of the three national regions, SCAN performed the poorest with 38.7%. However this is an improvement on last year's result. WoSCAN was the best performing region with 75.9% and has shown improvement each year. National performance was 61.5% and while this is significantly short of the target, the graph shows there has been a continual improvement in national performance from 2014.

Following last year's report, SCAN developed a crib sheet for the MDM Chair to ensure all key points are recorded. There was also the introduction of a common referral form to be used between SCAN and WoSCAN to help improve data capture. These changes seem to have contributed to an improved performance for SCAN, but it is still a long way short of the 90% target. SCAN noted that the majority of cases not meeting the criteria are due the absence of a measurement(s) required to calculate the Child Pugh score. This has been attributed in part to incomplete recording by the MDM Chair and partial completion of referral forms.

A number of boards stated that, in the case of patients receiving supportive therapy only and those in a frail state, it was not clinically appropriate to subject patients to tests.

NHS GGC and NHS Forth Valley stated that it is not appropriate to put elderly or frail patients with significant co-morbidities through the required diagnostic testing for procedures that are not required or suitable for the patient.

All fields required for this QPI are included in the NHS GGC MDT form which has helped improve performance. They also cited a lack of technological support to allow desired electronic recording of results.

Action:

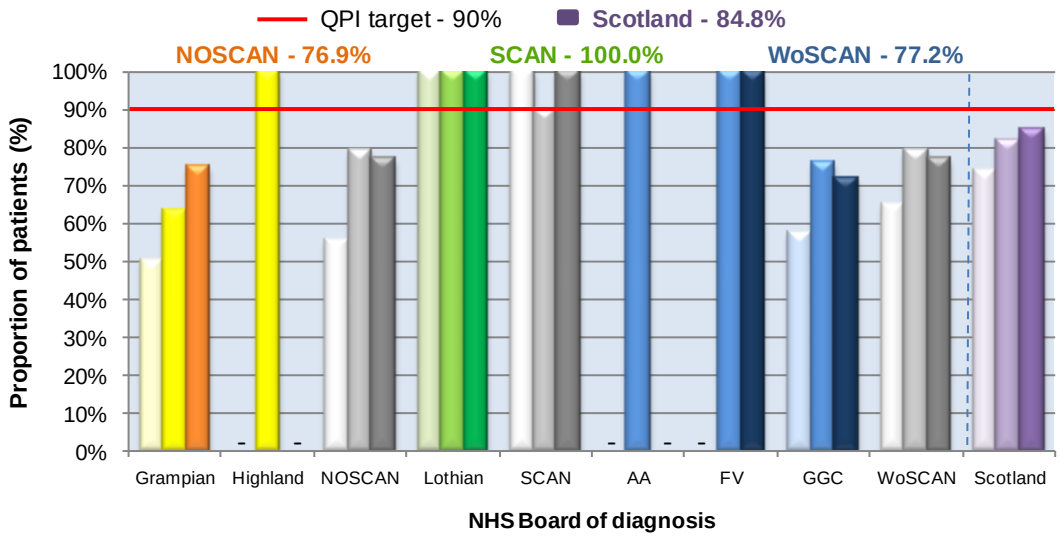
- Boards within SCAN region to ensure full completion of referral forms for calculation of Child Pugh score.
- All boards to assess how data can be recorded more consistently.
- All boards to ensure comprehensive staging investigations are performed where appropriate.
- NHS Highland and NHS Western Isles to review cases not meeting the target and provide formal feedback.

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[1]. All patients with early HCC should be considered for liver transplantation and there should be equity of access to liver transplantation across Scotland[1]. The current UK listing criteria are well validated selection criteria based on tumour number and size. Full details are published within the HPB QPI document[1].

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:	• Patients who refuse treatment. • Patients with evidence of vascular invasion. • Patients with extrahepatic disease.
Target:	90%

Figure 8: Proportion of patients diagnosed with HCC in 2014, 2015 and 2016who meet the UK listing criteria for orthotopic liver transplantation referred to the SLTU for consideration of liver transplant.



QPI 3	2016 (%)	Numerator	Denominator	NR numerator	NR exclusions	NR denominator
Grampian	75%	6	8	1	1	1
Highland	-	-	-	0	0	1
Orkney	*	*	*	0	0	0
Shetland	-	-	-	0	0	0
Tayside	-	-	-	0	1	0
W. Isles	*	*	*	0	0	1
NOSCAN	**76.9%**	**10**	**13**	**1**	**2**	**3**
Borders	-	-	-	0	0	0
D&G	-	-	-	0	0	4
Fife	*	*	*	0	0	0
Lothian	100%	33	33	0	41	6
SCAN	**100%**	**35**	**35**	**0**	**41**	**10**

AA	-	-	-	0	0	0
Forth Valley	100%	8	8	0	0	0
GGC	71.7%	33	46	0	4	5
Lanarkshire	*	*	*	0	0	0
WoSCAN	**77.2%**	**44**	**57**	**0**	**4**	**5**
Scotland	**84.8%**	**89**	**105**	**1**	**47**	**18**

Dash (-) denotes restricted data where the denominator is less than 5. Asterisk (*) denotes a denominator of zero.

Four of the fourteen boards did not have any cases meeting the denominator criteria in 2016. The results for six boards are not shown due to low numbers. Of the remaining four boards, two met the target with NHS Forth Valley and NHS Lothian both achieving 100% in 2016.

SCAN was the only region to achieve the target for this QPI and performed at 100%. The main volume of cases for the SCAN region came from NHS Lothian. Overall performance for Scotland in 2016 was 84.8%. This shows a continued improvement on national performance over the duration of QPI measurement.

NHS Grampian reviewed cases not making the QPI and concluded that improved documentation is required to record reasons for patient non-referral. This has been discussed with their hepatologists.

NHS GGC stated that many of the early HCC patients are not referred as they are clearly not fit candidates for transplantation. These patients tend to be elderly, frail and have significant comorbidities. They did state however that more patients are being discussed with SLTU via video link which has made referral/discussion much easier. NHS GGC commented that a number of frail and elderly patients are not referred to the MDT. They will make an effort to encourage colleagues to refer all patients to the MDT regardless of their status.

Actions:

- NHS Grampian to improve documentation to record reasons for non-referral.
- NHS GGC to encourage colleagues to refer all HCC patients to MDT.

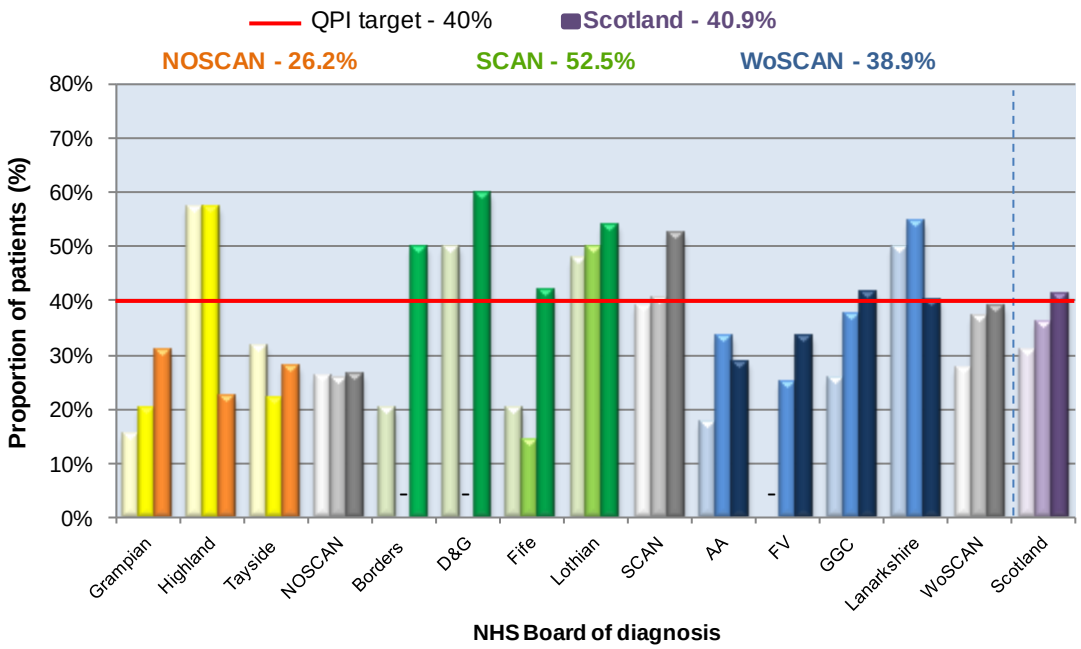
QPI 4: Palliative Treatment for HCC

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 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[8].

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 appropriate[1].

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:	• Patients who refuse treatment. • Patients with decompensated chronic liver disease (Child-Pugh Grade C).
Target:	40%

Figure 9: Proportion of patients diagnosed with HCC in 2014, 2015 and 2016 not suitable for treatment with curative intent that undergo specific treatment with palliative intent (TACE, SACT and radiotherapy) by NHS Board of diagnosis.



QPI 4	2016 (%)	Numerator	Denominator	NR numerator	NR exclusions	NR denominator
Grampian	30.8%	4	13	0	8	0
Highland	22.2%	2	9	0	2	0
Orkney	*	*	*	0	0	0
Shetland	-	-	-	0	0	0
Tayside	27.8%	5	18	0	0	1
W. Isles	-	-	-	0	1	0
NOSCAN	**26.2%**	**11**	**42**	**0**	**11**	**1**
Borders	50.0%	3	6	0	4	0
D&G	60.0%	6	10	0	7	0
Fife	41.7%	5	12	0	11	0
Lothian	53.8%	28	52	0	11	0
SCAN	**52.5%**	**42**	**80**	**0**	**33**	**0**
AA	28.6%	4	14	0	9	0
Forth Valley	33.3%	5	15	0	0	0
GGC	41.4%	36	87	0	17	3
Lanarkshire	40.0%	6	15	0	2	0
WoSCAN	**38.9%**	**51**	**131**	**0**	**28**	**3**
Scotland	**41.1%**	**104**	**253**	**0**	**72**	**4**

Dash (-) denotes restricted data where the denominator is less than 5. Asterisk (*) denotes a denominator of zero.

QPI 4 was adjusted for 2016 to include patients receiving palliative radiotherapy.

NHS Orkney did not have any cases that met the denominator for this QPI. The results for NHS Shetland and Western Isles are not included due to small numbers. Six of the remaining eleven Boards met the target of 40%. SCAN was the only region to achieve the target with 52.5%. All four NHS Boards within the SCAN region (NHS Borders, Dumfries and Galloway, Fife and Lothian) achieved the 40% target.

The overall performance for Scotland was 41.1%, an increase of 5.4 percentage points on last year. This also shows a continued improvement of national performance over the three years of measurement. In 2015 41.8% of cases in the denominator did not have Child-Pugh score recorded. This has decreased to 28.5% in 2016, showing significant improvement.

Whilst palliative radiotherapy has been included in this QPI for the first time, it has not significantly altered the figures and so this can be viewed as a “true” result and can reliably be compared with data from previous years.

Feedback from boards not reaching the target indicates that where patients had significant co-morbidities and were for supportive therapy only, it was not clinically appropriate to commence palliative treatment. For some boards, small numbers mean that comparison between boards should be made with caution.

Action:

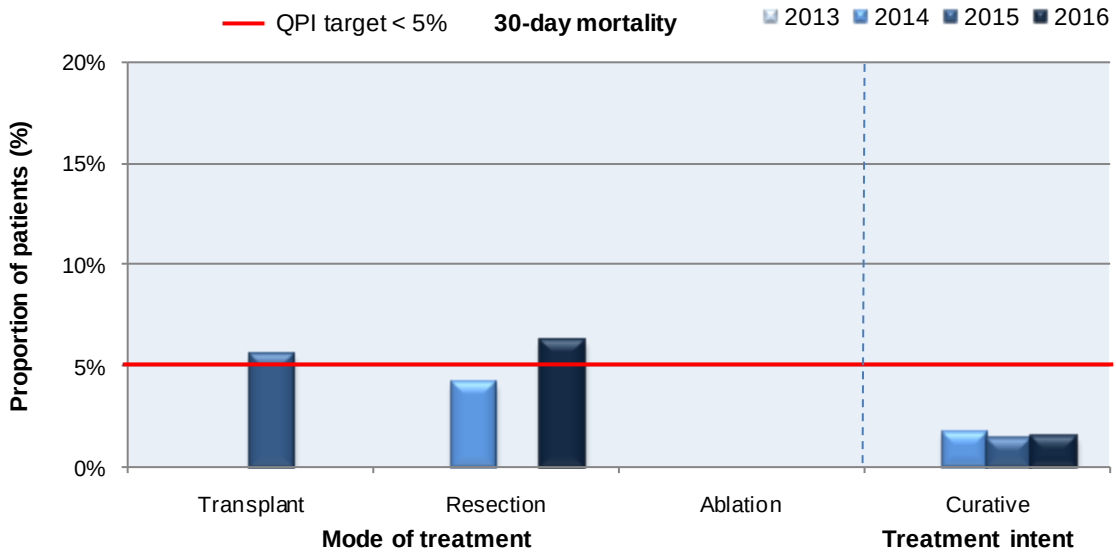
- All boards to commence suitable patients on palliative therapy where appropriate.
- NHS Highland and NHS Western Isles to review cases not meeting the target and provide formal feedback.

QPI 5a-e: 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, SACT) intent. In either case, treatments should be performed safely with low rates of mortality and should not be undertaken in futile situations[1]. Mortality figures by treatment type are presented graphically for Scotland as a whole, and the accompanying table illustrates figures by treatment type for each regional centre. Mortality rates should be less than 10% for both curative and palliative treatments.

QPI 5:	30-day and 90-day mortality following treatment for Hepatocellular Carcinoma (HCC) with curative (transplant, resection, ablation) or palliative (TACE, SACT) intent.
Description:	Proportion of patients with HCC undergoing disease specific treatment, either curative or palliative, who die within 30 or 90days 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:- **Curative:**(30 and 90-day mortality) a) Liver transplant b) Resection c) Ablation **Palliative:** (30-day mortality only) d) TACE e) SACT
Exclusions:	No exclusions
Target:	**Curative:** 30 days <5% 90 days <7.5% **Palliative:**< 10%

Figure 10: Proportion of patients in Scotland diagnosed with HCC 2013 to 2016 undergoing disease-specific treatment with curative intent that die within 30 days of definitive treatment.



QPI 5 30-day	Performance (%)	Numerator	Denominator	NR numerator	NR exclusions	NR denominator
Liver Transplant	**0%**	**0**	**18**	**0**	**0**	**2**

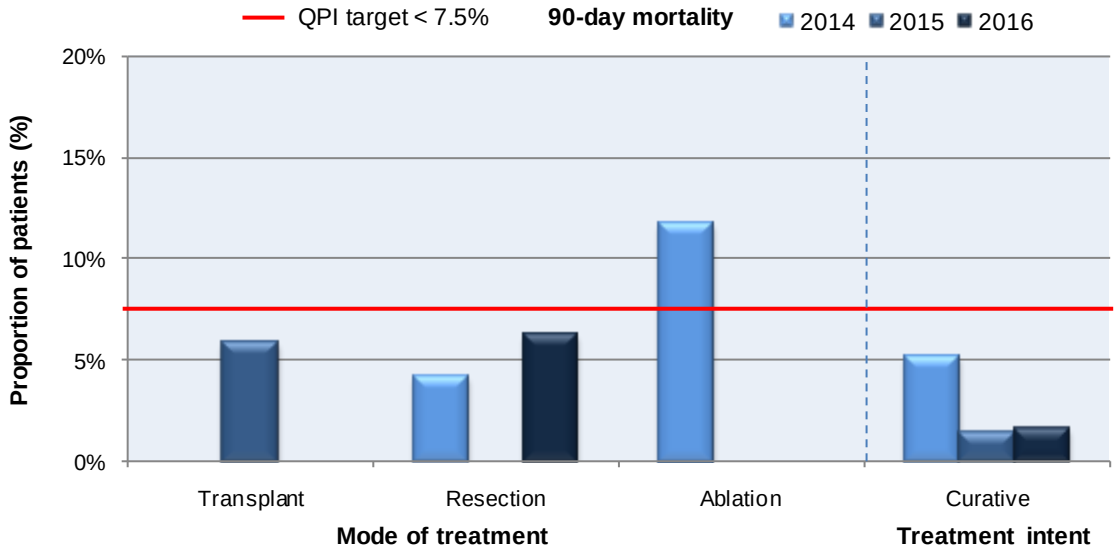
Liver Resection	**6.3%**	**1**	**16**	**0**	**0**	**2**
Ablation	**0%**	**0**	**32**	**0**	**0**	**2**
Curative	**1.5%**	**1**	**66**	**0**	**0**	**6**

Table 2 below shows the 30 day surgical mortality rate by treatment region over the last 4 years, highlighting the NOSCAN region as an outlier for 2016. The WoSCAN figures for 2016 cannot be shown due to small numbers.

Table 2: 30 day resection mortality by region from 2013 – 2016.

Resection 30 Day Mortality	2013		%	2014		%	2015		%	2016		%
	N	D		N	D		N	D		N	D	
NOSCAN	-	-	-	1	6	16.7%	0	6	0.0%	1	6	16.7%
SCAN	0	17	0.0%	0	17	0.0%	0	19	0.0%	0	9	0.0%
WoSCAN	-	-	-	-	-	-	*	*	*	-	-	-

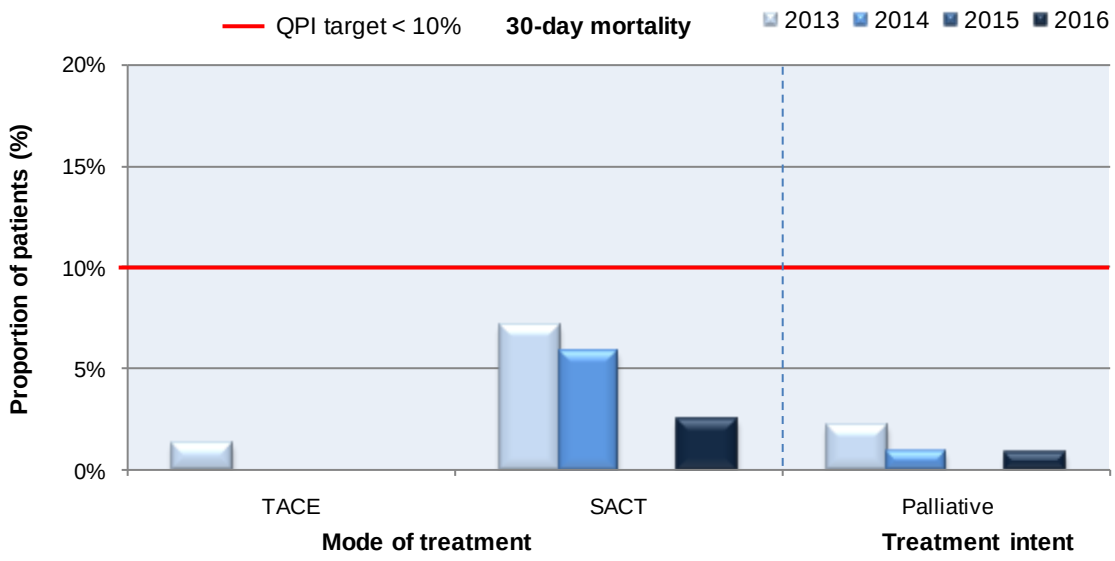
Figure 11: Proportion of patients in Scotland diagnosed with HCC from 2014 to 2016 undergoing disease-specific treatment that die within 90 days of definitive treatment (curative treatment only).



QPI 5 90-day	Performance (%)	Numerator	Denominator	NR numerator	NR exclusions	NR denominator
Liver Transplant	**0%**	**0**	**18**	**0**	**0**	**2**
Liver Resection	**6.3%**	**1**	**16**	**0**	**0**	**2**
Ablation	**0%**	**0**	**30**	**0**	**0**	**2**
Curative	**1.6%**	**1**	**64**	**0**	**0**	**6**

Asterisk (*) denotes a denominator of zero. 90 day mortality was not measured in 2013.

Figure 12: Proportion of patients in Scotland diagnosed with HCC 2013 to 2016 undergoing disease-specific treatment with palliative intent that die within 30 days of definitive treatment.



QPI 5 30-day	Performance (%)	Numerator	Denominator	NR numerator	NR exclusions	NR denominator
TACE	**0%**	**0**	**79**	**0**	**0**	**2**
SACT	**2.5%**	**1**	**40**	**0**	**0**	**0**
Palliative	**0.8%**	**1**	**119**	**0**	**0**	**2**

Targets for this QPI have been changed. Previously the target for all therapies at 30 and 90 days was <10%. After formal review, the targets for curative therapies (Liver transplant, resection and ablation) have been split into <5% for 30 day mortality and <7.5% for 90 day mortality. The target for palliative treatments (TACE and SACT) remains at <10%. Despite these target changes, all results for previous years have been included to allow for trend analysis. Results are analysed by mode of treatment, with data presented at a national level.

30 and 90 day mortality for curative treatments as a whole have met their respective targets, and are very similar to the performance of the previous two years. At 6.3%, Liver Resection was the only mode of treatment with curative intent to not make the target of <5%. The 30 day mortality for palliative therapy was 9.2 percentage points below the target at 0.8%. This shows little variance from the results for 2014 and 2015.

NHS Grampian has discussed their results and has carried out a root cause analysis, identifying a number of actions to be taken.

Action:

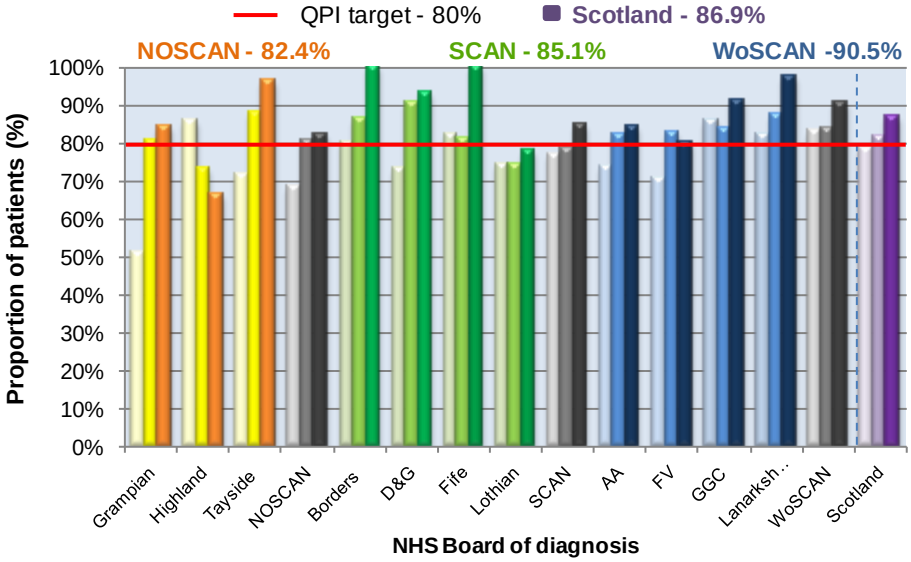
- NHS Grampian to implement actions agreed from root cause analysis process.

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[1]. 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[1]. Some patients may present with very advanced disease and may not be fit for investigation and/or treatment and the 80% target accounts for such patients.

QPI 6:	Patients with pancreatic, duodenal or biliary tract cancers should undergo a computerised tomography (CT) of the chest, abdomen and pelvis to evaluate the extent of disease.
Description:	Proportion of patients with pancreatic, duodenal or biliary tract cancer who undergo CT of the chest, abdomen and pelvis.
Numerator:	Number of patients with pancreatic, duodenal or biliary tract cancer who undergo CT of the chest, abdomen and pelvis.
Denominator:	All patients with pancreatic, duodenal or biliary tract cancer.
Exclusions:	Patients undergoing supportive care only.
Target:	80%

Figure 13: Proportion of patients diagnosed with pancreatic, duodenal or biliary tract cancer from 2013 to 2016 that underwent CT of the chest, abdomen and pelvis.



QPI 6	2016 (%)	Numerator	Denominator	NR numerator	NR exclusions	NR denominator
Grampian	84.6%	44	52	0	0	0
Highland	66.7%	20	30	0	0	0
Orkney	-	-	-	0	0	0
Shetland	-	-	-	0	0	0
Tayside	96.7%	29	30	0	0	0
W. Isles	-	-	-	0	0	0
NOSCAN	**82.4%**	**98**	**119**	**0**	**0**	**0**
Borders	100%	12	12	0	0	0
D&G	93.3%	14	15	0	0	0
Fife	100%	17	17	0	0	0
Lothian	77.9%	60	77	0	0	0
SCAN	**85.1%**	**103**	**121**	**0**	**0**	**0**
AA	84.6%	22	26	0	0	0

Forth Valley	80.0%	20	25	0	0	0
GGC	91.2%	104	114	0	1	0
Lanarkshire	97.8%	44	45	0	0	0
WoSCAN	**90.5%**	**190**	**210**	**0**	**1**	**0**
Scotland	**86.9%**	**391**	**450**	**0**	**1**	**0**

Dash (-) denotes restricted data where the denominator is less than 5. Asterisk (*) denotes a denominator of zero.

NHS Orkney, Shetland and Western Isles are not shown due to small numbers. Of the remaining eleven NHS Boards, nine achieved the target of 80%. NHS Highland and Lothian did not meet the target with performance of 66.7% and 77.9% respectively. This shows an improvement for NHS Lothian on their performance in previous years. However, the performance of NHS Highland has decreased over the last two years.

All three regions met the target and have shown year on year improvement. This is also the case nationally with Scotland achieving the best performance in 2016 with 86.9%.

NHS Lothian reviewed cases not meeting the target. The rationale for not making the target involved cases where CT chest-abdomen or CT abdomen-pelvis were performed instead of CT chest-abdomen-pelvis. Other patients refused treatment or were too infirm.

It is noted that CT pelvis is to be removed from the measurement of this QPI next reporting year, following review.

Action:

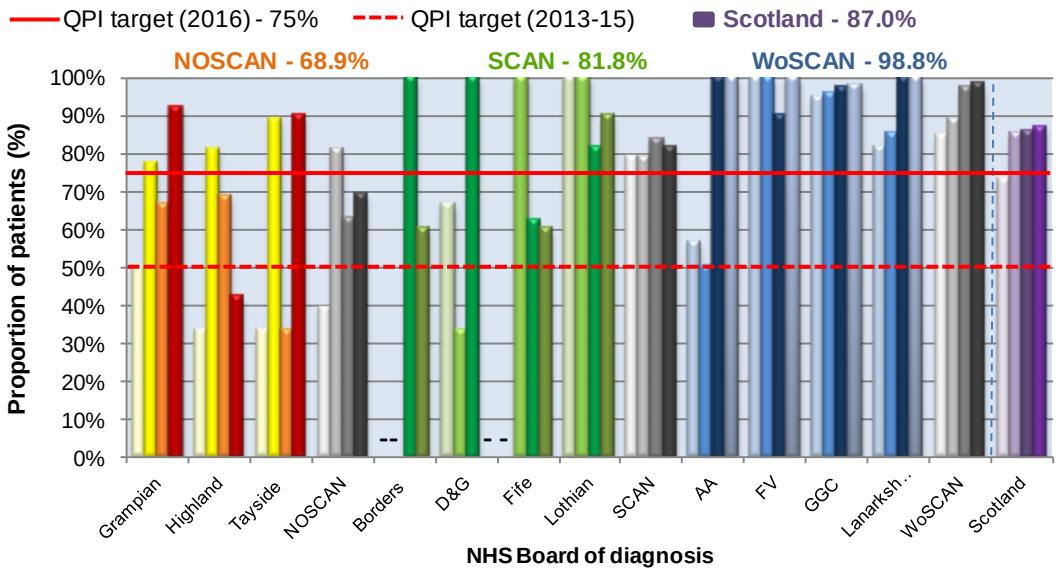
- NHS Highland to review cases not meeting the target and provide formal feedback.
- NHS Lothian to ensure patients undergo both CT chest and abdomen when indicated.

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[1]. 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 and the 75% target reflects this and also factors relating to patient choice.

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%

Figure 14: Proportion of patients diagnosed with pancreatic, duodenal or biliary tract cancer undergoing non-surgical treatment that have a cytological or histological diagnosis, 2013 to 2016.



QPI 7	2016 (%)	Numerator	Denominator	NR numerator	NR exclusions	NR denominator
Grampian	92.3%	12	13	0	0	0
Highland	42.1%	8	19	0	0	0
Orkney	*	*	*	0	0	0
Shetland	*	*	*	0	0	1
Tayside	90.0%	9	10	0	0	0
W. Isles	-	-	-	0	0	0
NOSCAN	**68.9%**	**31**	**45**	**0**	**0**	**1**
Borders	60.0%	3	5	0	0	0
D&G	-	-	-	0	0	0
Fife	60.0%	3	5	0	0	0

Lothian	90.0%	18	20	0	0	0
SCAN	**81.8%**	**27**	**33**	**0**	**0**	**0**
AA	100%	11	11	0	0	0
Forth Valley	100%	7	7	0	0	0
GGC	98.0%	50	51	0	0	2
Lanarkshire	100%	15	15	0	0	0
WoSCAN	**98.8%**	**83**	**84**	**0**	**0**	**1**
Scotland	**87.0%**	**141**	**162**	**0**	**0**	**1**

Dash (-) denotes restricted data where the denominator is less than 5. Asterisk (*) denotes a denominator of zero.

This year, the target for QPI 7 has been increased to 75% as NHS Boards were comfortably exceeding the previous target of 50%. Raising the target will ensure that this QPI continues to drive improvement. Even with the target raised, the overall performance across Scotland has improved from 86.0% in 2015 to 87.0% in 2016.

Two boards have been excluded from the graph due to small numbers, whilst two boards had no patients who made the QPI requirements. Seven of the ten boards with recordable data achieved the target of 75%. The three boards to not achieve the target were NHS Fife (60.0%), NHS Borders (60.0%) and NHS Highland (42.1%). Small numbers for some boards means that data should be compared with caution.

SCAN and WoSCAN achieved the target with 81.8% and 98.8% respectively. NOSCAN did not achieve the target result; however the performance of NHS Highland is the main contributory factor towards this.

Action

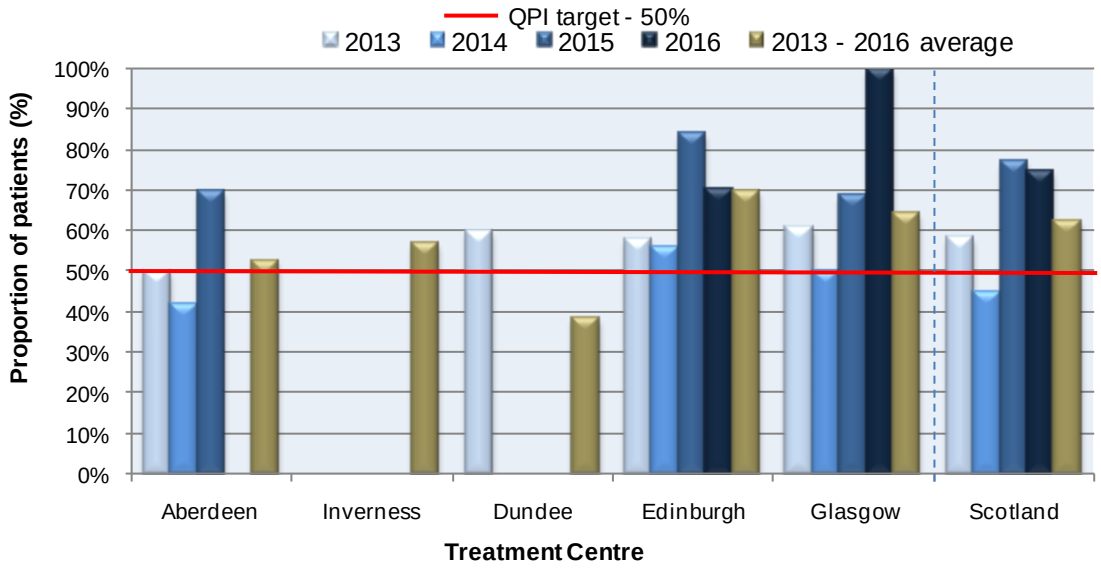
- NHS Borders to independently review cases and provide feedback.
- NHS Highland and NHS Western Isles to review cases not meeting the target and provide formal feedback.

QPI 8: Systemic Therapy for Pancreatic Cancer

Adjuvant chemotherapy is the accepted standard of care for patients with pancreatic cancer following surgical resection and is proven to have survival benefit[1]. The 50% target accounts for patients who may have post-operative complications that preclude consideration of adjuvant therapy.

QPI 8:	Patients undergoing resection for pancreatic cancer should receive neo-adjuvant or adjuvant chemotherapy, where appropriate
Description:	Proportion of patients undergoing resection for pancreatic cancer receiving neo-adjuvant or adjuvant chemotherapy
Numerator:	Number of patients undergoing pancreatic cancer resection who receive neo-adjuvant or adjuvant chemotherapy
Denominator:	All patients undergoing resection for pancreatic cancer
Exclusions:	• Patients who die post-operatively (within 60 days of surgery) • Patients who refuse chemotherapy
Target:	50%

Figure 15: Proportion of patients diagnosed with pancreatic cancer undergoing surgery that receive adjuvant chemotherapy, 2013 to 2016.



QPI 8	2016 (%)	Num	Den	NR numerator	NR exclusions	NR denominator
Aberdeen	-	-	-	0	0	0
Inverness	*	*	*	0	0	0
Dundee	-	-	-	0	0	0
Edinburgh	70.6%	12	17	0	0	0
Glasgow	100%	10	10	0	0	1
Other	*	*	*	0	0	0
SCOTLAND	**75.0%**	**24**	**32**	**0**	**0**	**1**

Dash (-) denotes restricted data where the denominator is less than 5. Asterisk (*) denotes a denominator of zero.

QPI 8 has been updated this year to include patients who receive neo-adjuvant chemotherapy. The performances of Aberdeen and Dundee cannot be displayed due to small numbers. Inverness had no patients who met the QPI criteria.

Both Edinburgh and Glasgow exceeded the target of 50%, with 70.6% and 100% respectively. The overall performance for Scotland was 75.0%. This meets the QPI target and is a slight decrease from last year's figure of 77.2%.

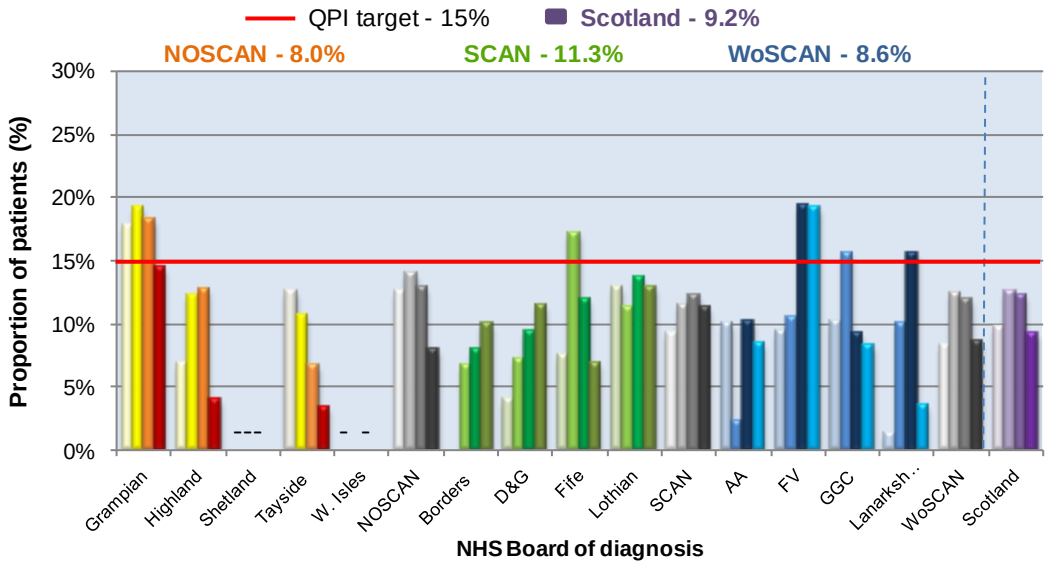
NHS Tayside stated that all patients with potentially resectable pathology are considered and reviewed by an HPB surgeon.

QPI 9: Resection Rate for Pancreatic, Duodenal or Biliary Tract Cancer

Surgical resection is the only potentially curative treatment for pancreatic cancer. Where surgical resection is not carried out, the reason(s) should be clearly documented by the MDT[1]. The 15% target for this QPI takes into consideration patient choice as well as patients who may develop complications during the pre-operative phase. The target recognises that the majority of patients will have advanced disease at presentation and will therefore not be suitable for curative surgery.

QPI 9:	Patients with pancreatic, distal biliary tract or duodenal cancer should have surgical resection.
Description:	Proportion of patients who undergo resection for pancreatic, distal biliary tract or duodenal cancer.
Numerator:	Number of patients with pancreatic, duodenal or distal biliary tract cancer who undergo resection.
Denominator:	All patients with pancreatic, duodenal or distal biliary tract cancer.
Exclusions:	No exclusions.
Target:	15%

Figure 16: Proportion of patients diagnosed with pancreatic, distal biliary tract or duodenal cancer that undergo resection, 2013 to 2016.



QPI 9	2016 (%)	Numerator	Denominator	NR numerator	NR exclusions	NR denominator
Grampian	14.4%	13	90	0	0	0
Highland	4.0%	2	50	0	0	0
Orkney	-	-	-	0	0	0
Shetland	0.0%	0	5	0	0	0
Tayside	3.4%	2	59	0	0	0
W. Isles	0.0%	0	6	0	0	0
NOSCAN	**8.0%**	**17**	**212**	**0**	**0**	**0**
Borders	10.0%	2	20	0	0	0
D&G	11.5%	3	26	0	0	0
Fife	6.8%	3	44	0	0	0
Lothian	12.8%	18	141	0	0	0
SCAN	**11.3%**	**26**	**231**	**0**	**0**	**0**
AA	8.5%	5	59	0	0	0
Forth Valley	19.1%	9	47	0	0	0
GGC	8.2%	16	195	0	0	0
Lanarkshire	3.6%	3	84	0	0	0
WoSCAN	**8.6%**	**33**	**385**	**0**	**0**	**0**
Scotland	**9.2%**	**76**	**828**	**0**	**0**	**0**

Dash (-) denotes restricted data where the denominator is less than 5. Asterisk (*) denotes a denominator of zero.

The 15% target for QPI 9 remains a challenge for all NHS Boards. NHS Forth Valley was the only board to achieve this with 19.1%. This is a reduction from 2015 when four NHS boards met the target. None of the three regions achieved the target, all with performance down on last year. The overall national performance has also decreased from 12.3% in 2015 to 9.2% in 2016.

NHS Lanarkshire and NHS Shetland reviewed cases that did not meet the target and found that the majority were due to poor performance status and presence of co-morbities. They have stated that the data will be fed back to the MDT who will continue to monitor and review through local reporting. From reviewing cases not meeting the target, NHS Orkney have decided to await all investigation results before setting a “decision to treat” date.

NHS Ayrshire and Arran commented that patients are reviewed in Glasgow and receive resection if appropriate. NHS Tayside stated that all potentially resectable patients are reviewed by an HPB surgeon.

Feedback from the SCAN region stated that as results are similar across all regions, they believe the target for this QPI is more aspirational than achievable. However, they will continue to monitor the situation.

NHS GGC agreed that the target is aspirational but provided comprehensive feedback as to why the target is not being met. Enhanced staging with MRI is identifying metastatic disease which would previously have been missed. Patients treated with neoadjuvant approach are prevented from advancing straight to resection as they normally would have done. Comorbidity and performance status was also cited. To tackle this, a prehab programme has been introduced to potentially increase the number of surgically fit patients. The high risk anaesthetic clinic may help identify modifiable risk factors to help increase surgical numbers.

Action:

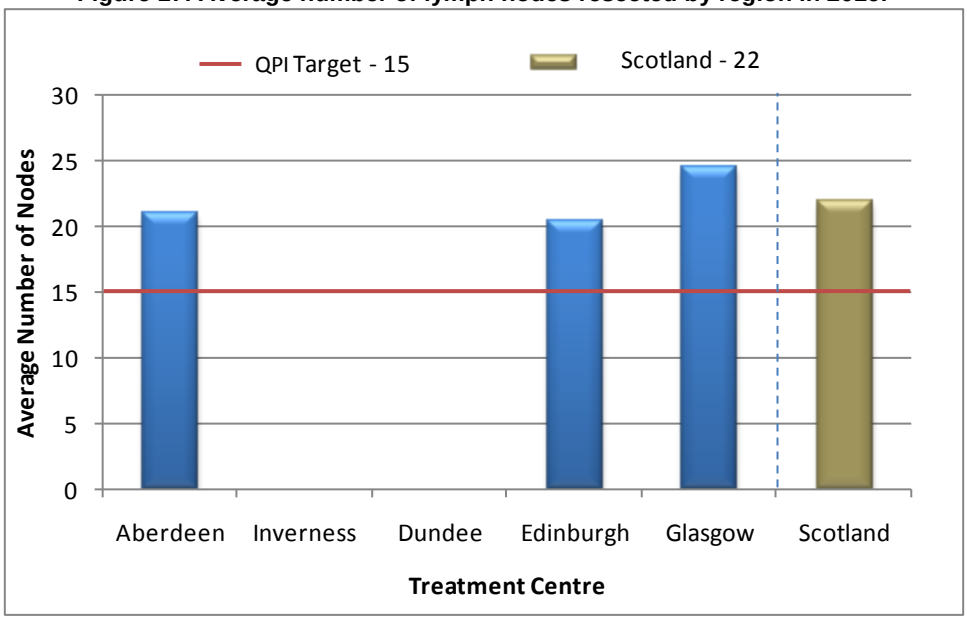
- Boards to assess ways to improve patient fitness for surgery.
- NHS GGC to explore how multidisciplinary colleagues and resources (i.e. clinics) can help improve results. Results to be shared and discussed at NMCN.
- NHS Orkney to await all investigation results before setting “decision to treat” date.
- NHS Highland and NHS Western Isles to review cases not meeting the target and provide formal feedback.

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[1]. Evidence suggests that pancreatoduodenectomy should yield a minimum of 15 lymph nodes from the principal specimen[1]. Within the measurement of this QPI, pancreatoduodenectomy is being utilised as a proxy measurement for all surgical resection to ensure consistent and comparable measurement across NHS Scotland. The baseline review group proposed that the QPI should be broadened to look at all patients undergoing pancreatoduodenectomy, rather than only patients diagnosed with pancreatic cancer, to ensure consistency between all surgical QPIs. The denominator was therefore updated to include duodenal and distal biliary tract cancers.

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.

Figure 17: Average number of lymph nodes resected by region in 2016.



QPI 10	2016 Avg	Numerator	Denomintator	NR numerator	NR exclusions	NR denominator
Aberdeen	21	212	10	0	0	0
Inverness	-	-	-	0	0	0
Dundee	-	-	-	0	0	0
Edinburgh	20	652	32	0	0	0
Glasgow	25	490	20	0	0	0
SCOTLAND	**22**	**1445**	**66**	**0**	**0**	**0**

Dash (-) denotes restricted data where the denominator is less than 5.

The criteria for this QPI have changed from last year. This year centre performance was measured by average number of nodes removed, with a target of 15 nodes average per centre. This is to fit with the Royal College of Pathologists dataset which states that an average (not a minimum) of 15 nodes should be resected as a marker of quality of pathology dissection. Previously QPI 10 was measured as proportion of cases where ≥ 15 nodes are resected. This revision of the QPI is seen as a fairer way of assessment.

Due to the revision, 2016 data is not comparable with data from previous years; and therefore only 2016 data has been presented above.

All shown centres achieved the QPI target. The performance of Inverness and Dundee is not shown due to small numbers. The national overall performance was an average of 22. Last year there were no centres who achieved the QPI target; however this year's changes to the QPI have resulted in all centres achieving the target.

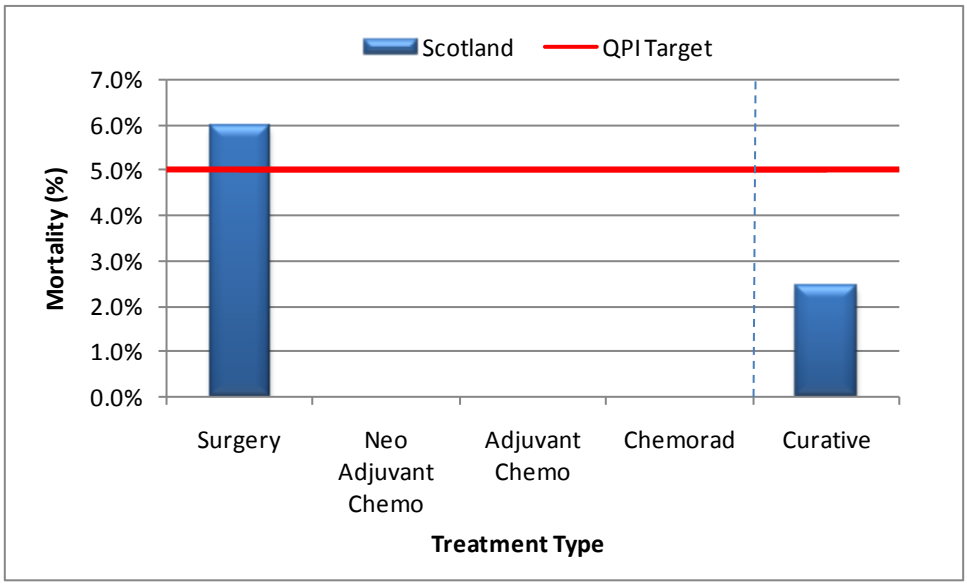
QPI 11: 30 and 90-day Mortality after Curative or Palliative treatment for Pancreatic, Duodenal or Distal Biliary Tract Cancer

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 11a/b:	30-day and 90-day mortality following treatment for pancreatic, duodenal or distal biliary tract cancer with either curative or palliative intent.	
Description:	Proportion of patients with pancreatic, duodenal or distal biliary tract cancer who die within 30/90 days of definitive treatment with either curative or palliative intent.	
Numerator:	(i)	Number of patients with pancreatic, duodenal or distal biliary tract cancer who receive curative treatment that die within 30 or 90 days of treatment.
	(ii)	Number of patients with pancreatic, duodenal or distal biliary tract cancer who receive palliative treatment that die within 30 days of treatment.
Denominator:	(i)	All patients with pancreatic, duodenal or distal biliary tract cancer who receive curative treatment.
	(ii)	All patients with pancreatic, duodenal or distal biliary tract cancer who receive palliative treatment.
Exclusions:	No exclusions.	
Target:	(i) 30 days <5% 90 days <7.5% (ii) 30 days <10%	

This QPI has been updated to incorporate both curative and palliative therapies. The target for 90 day mortality (curative) has been increased to <7.5%. Due to the numerous changes with this QPI, 2016 data is not comparable to that of previous years. As such, only 2016 data is displayed for this QPI. Data for part (i) has been presented at a national level, with breakdown by centre where mortality has exceeded targets. Part (ii) shows performance at each centre.

Figure 18: Proportion of patients diagnosed with pancreatic, duodenal or distal biliary tract cancer who die within 30 days of definitive treatment with curative intent in 2016.



QPI 11(i) (30 day curative)	2016 (%)	Num	Den	NR numerator	NR exclusions	NR denominator
Surgery	6.0%	4	67	0	0	1
Neo-Adjuvant Chemotherapy	0.0%	0	36	0	0	2
Adjuvant Chemotherapy	0.0%	0	31	1	0	5
Chemorad	0.0%	0	31	0	0	2
Curative	**2.4%**	**4**	**164**	**1**	**0**	**10**

Dash (-) denotes restricted data where the denominator is less than 5.

Across Scotland, the 30 day mortality target of 5% was met in three of the four curative treatment types. Surgical 30 day mortality was slightly over target at 6% and further detail is provided in Figure 19 and Table 3. All other forms of treatment had a 30 day mortality rate of 0%. The overall 30 day mortality for curative therapies was within target at 2.4%.

Figure 19: 30 day mortality rates following surgical resection for pancreatic, duodenal or distal biliary tract cancer by region in 2016.

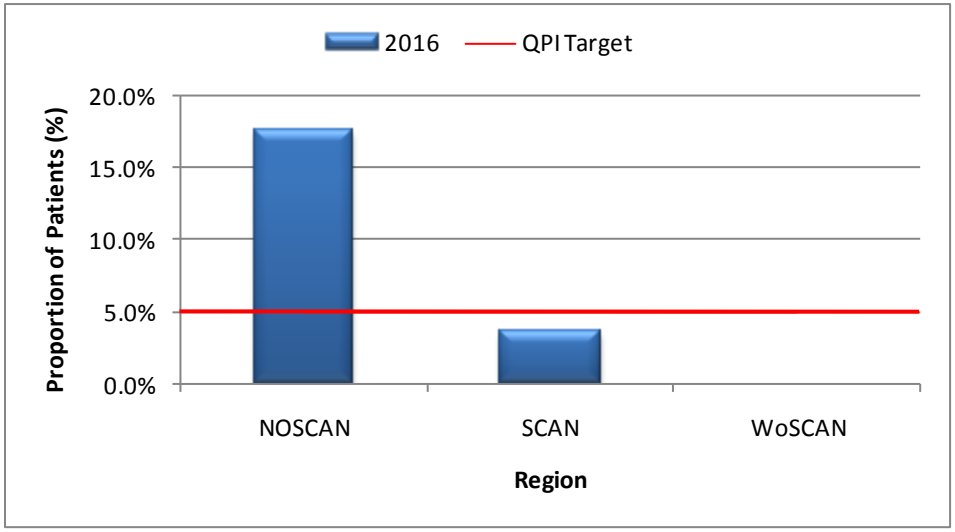


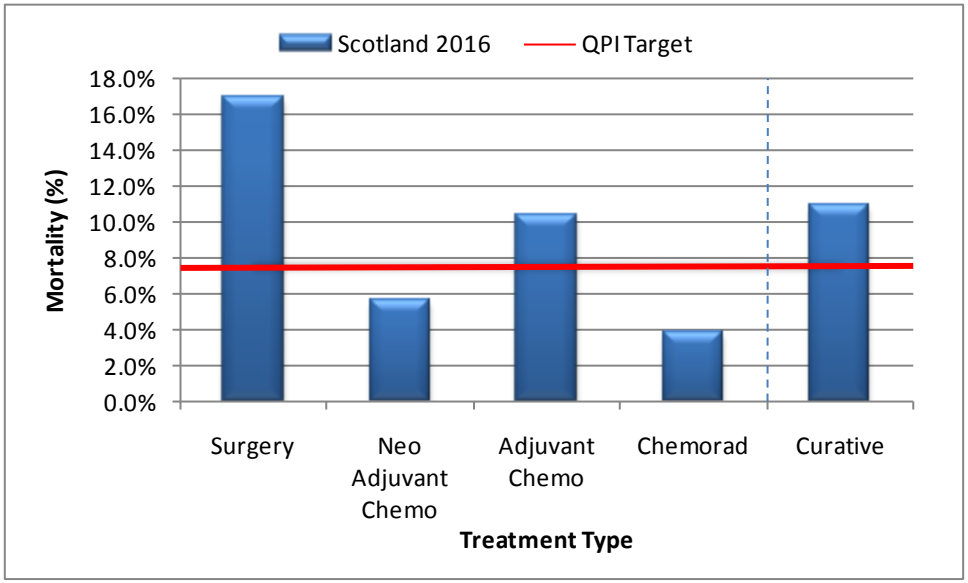
Figure 19 shows the regional breakdown of 30 day mortality following surgical resection in 2016. It highlights that NOSCAN had the highest rates of mortality nationally. Table 3 below, breaks this down further by centre for the last four years. It highlights the Aberdeen centre as an outlier for 2016.

Table 3: 30 day mortality following surgical resection for pancreatic, duodenal or distal biliary tract cancer 2013-2016

Resection 30 Day Mortality	Aberdeen		%	Inverness		%	Dundee		%	Edinburgh		%	Glasgow		%
	N	D		N	D		N	D		N	D		N	D	
2013	0	11	0.0%	0	5	0.0%	0	9	0.0%	2	20	10.0%	2	24	8.3%
2014	0	16	0.0%	1	7	14.3%	0	9	0.0%	0	29	0.0%	1	38	2.6%
2015	1	19	5.3%	0	7	0.0%	0	5	0.0%	0	42	0.0%	0	34	0.0%
2016	3	13	23.1%	-	-	0.0%	-	-	0.0%	1	27	3.7%	0	23	0.0%

***Target <5%**

Figure 20: Proportion of patients diagnosed with pancreatic, duodenal or distal biliary tract cancer who die within 90 days of definitive treatment with curative intent in 2016.



QPI 11(i) (90 day curative)	2016 (%)	Num	Den	NR numerator	NR exclusions	NR denominator
Surgery	16.9%	11	65	0	0	1
Neo-Adjuvant Chemotherapy	5.6%	2	36	0	0	2
Adjuvant Chemotherapy	10.3%	3	29	1	0	5
Chemorad	3.8%	1	26	0	0	2
Curative	**10.9%**	**17**	**156**	**1**	**0**	**10**

Dash (-) denotes restricted data where the denominator is less than 5. Asterisk (*) denotes a denominator of zero.NB: The denominator for 30-day and 90-day mortality may differ if 90 days has not passed since the date of surgery at time of audit.

Surgery and adjuvant chemotherapy performance exceeded the 7.5% target for 90 day mortality. Further detail is provided in Figure 21 and Table 4. Mortality for neo-adjuvant chemotherapy and chemoradiotherapy were within the target. The overall 90 day mortality for curative therapies exceeded the target with 10.9%.

Figure 21: 90 day mortality following surgical resection for pancreatic, duodenal or distal biliary tract cancer by region in 2016.

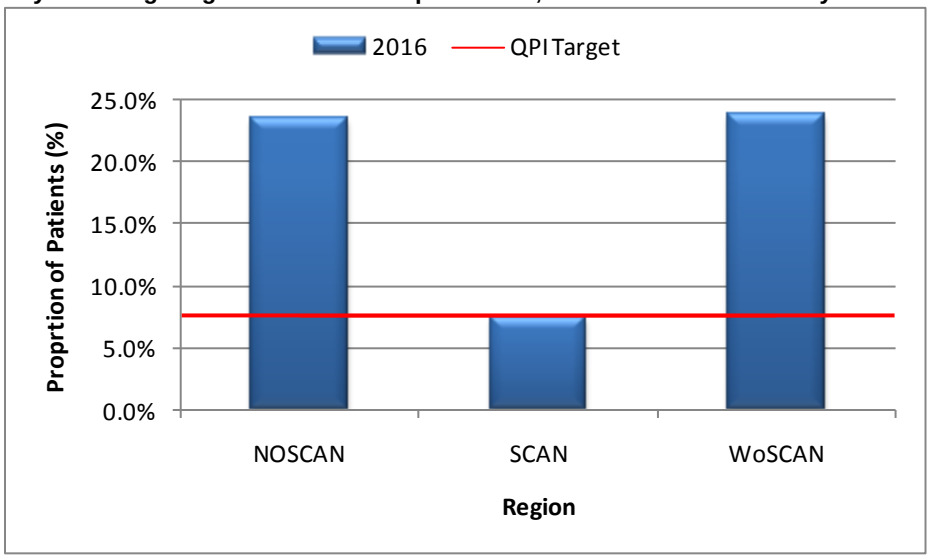


Figure 21 shows 90 day mortality for surgical resection by region for 2016. It highlights NOSCAN and WoSCAN as outliers with 23.5% and 23.8% respectively. SCAN was 0.1% within the target with 7.4%.
Table 4 further breaks down 90 day mortality by centre to show that the Aberdeen and Glasgow centres were outliers for 2016.

Table 4: QPI 11 - 90 day mortality following surgical resection for pancreatic, duodenal or distal biliary tract cancer 2013-2016

Resection 90 Day Mortality	Aberdeen		%	Inverness		%	Dundee		%	Edinburgh		%	Glasgow		%
	N	D		N	D		N	D		N	D		N	D	
2013	1	11	9.1%	0	5	0.0%	0	9	0.0%	2	20	10.0%	3	24	12.5%
2014	0	15	0.0%	2	7	28.6%	0	9	0.0%	0	29	0.0%	1	38	2.6%
2015	2	19	10.5%	0	7	0.0%	0	5	0.0%	1	42	2.4%	1	30	3.3%
2016	4	13	30.8%	-	-	0.0%	-	-	0.0%	2	27	7.4%	5	21	23.8%

***2013-2015 target <5%; 2016 target increased to <7.5%**

Figure 22: 90 day mortality following neo-adjuvant chemotherapy by region in 2016.

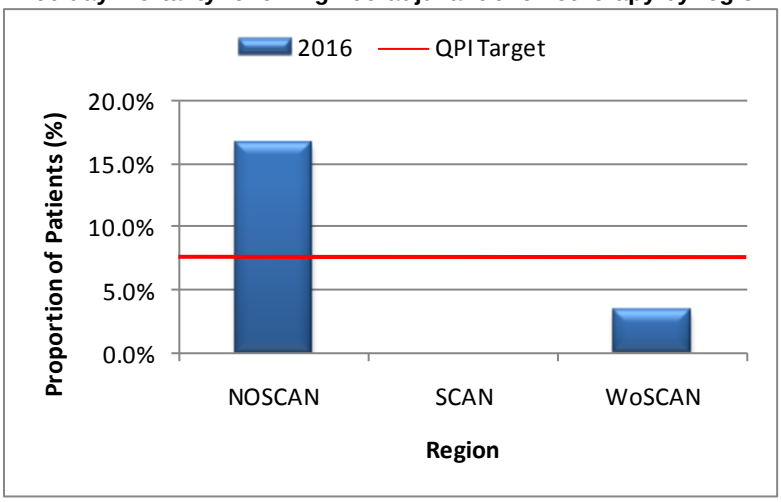


Figure 23: 90 day mortality following adjuvant chemotherapy by region in 2016.

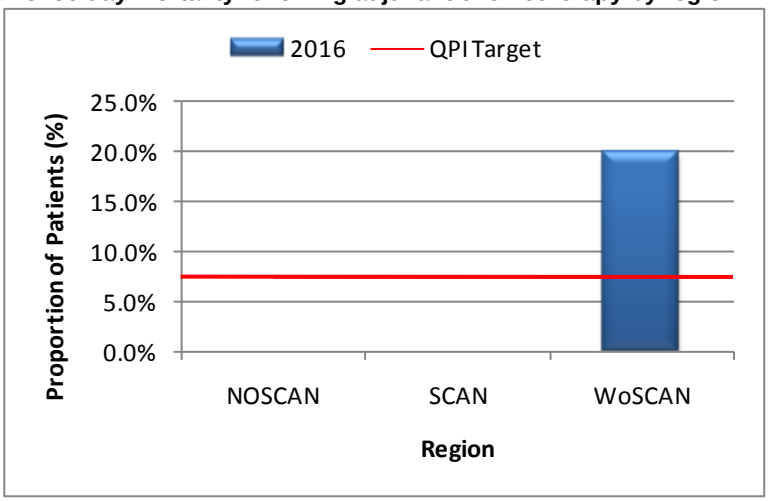


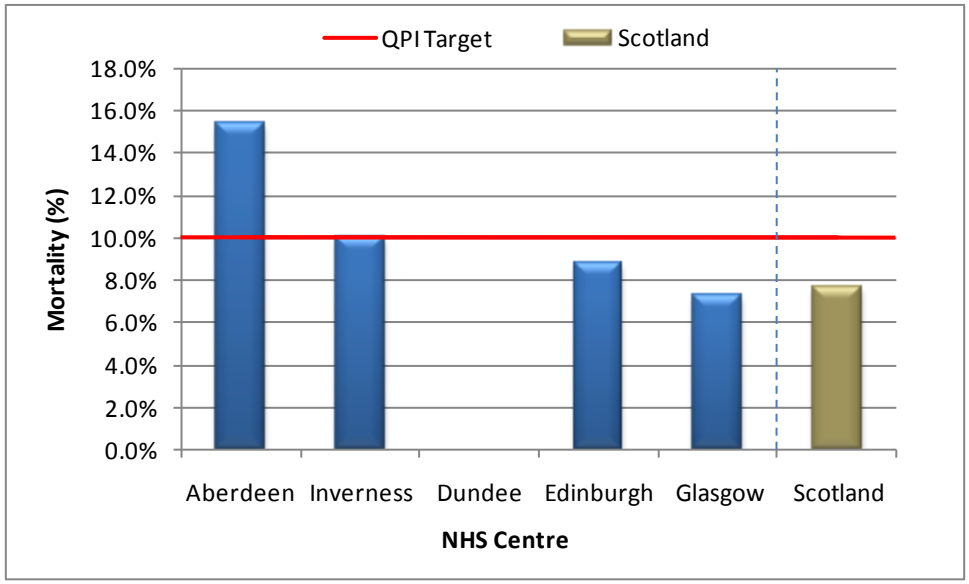
Table 5: 90 day Neo-Adjuvant and Adjuvant Mortality by Region in 2016

90 Day Mortality 2016	Neo-Adjuvant Chemotherapy		%	Adjuvant Chemotherapy		%
	N	D		N	D	
NOSCAN	1	6	16.7%	-	-	-
SCAN	*	*	*	0	10	0.0%
WoSCAN	1	30	3.3%	3	15	20.0%

***Target <7.5%**

Figures 22, 23 and Table 5 show the 90 day mortality for patients undergoing neo-adjuvant and adjuvant chemotherapy in 2016. This indicator was introduced following Formal Review and therefore comparable data from previous years is not available. This highlights Aberdeen as an outlier with regards to mortality following neoadjuvant chemotherapy and Glasgow as an outlier with regards to mortality following adjuvant chemotherapy.

Figure 24: Proportion of patients diagnosed with pancreatic, duodenal or distal biliary tract cancer who die within 30 days of definitive treatment with palliative intent in 2016.



QPI 11(ii) (30 day palliative)	2016 (%)	Num	Den	NR numerator	NR exclusions	NR denominator
Aberdeen	15.4%	2	13	0	0	1
Inverness	10.0%	1	10	0	0	0
Dundee	0.0%	0	8	0	0	0
Edinburgh	8.8%	3	34	0	0	0
Glasgow	7.2%	5	69	4	0	4
SCOTLAND	**7.7%**	**11**	**143**	**4**	**0**	**5**

9 patients in Scotland treated outwith a specialist centre. Included as part of denominator.

Aberdeen was the only centre to not achieve the target, with a 30 day palliative mortality of 15.4%. All other centres achieved the target and Dundee had no deaths. The overall performance for Scotland was within the target at 7.7%.

Both NHS Grampian and NHS GGC identified that mortality was particularly high this year. NHS Grampian undertook an urgent root cause analysis and identified areas for improvement. This was done in conjunction with the Quality Improvement Lead. A detailed programme has been agreed and implemented by HPB clinicians.

NHS GGC has undertaken a detailed review of mortality from 2012-2016 and having reflected on the information a number of changes have been implemented. The detailed review was commissioned by the Chief of Medicine, supported by the Clinical Director and is undergoing peer review through the North sector clinical governance processes. The increase in mortality observed in 2016 has been evidenced as multifactorial however overall mortality in the 5 years to 2016 was within the QPI target.

Action:

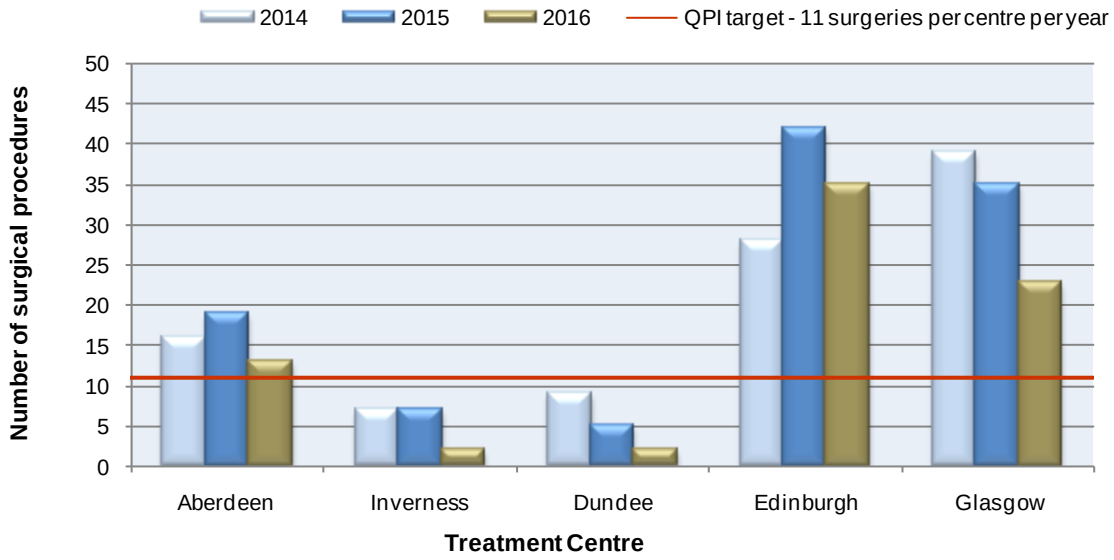
- NHSGGC to monitor and report the ongoing impact of changes implemented.
- Learning from NHS GGC and NHS Grampian to be shared across Centres via the National MCN.
- NHS Grampian to implement practice programme developed from root cause analysis.

QPI 12a/b: 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[1]. 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 hepatopancreatobiliary 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.

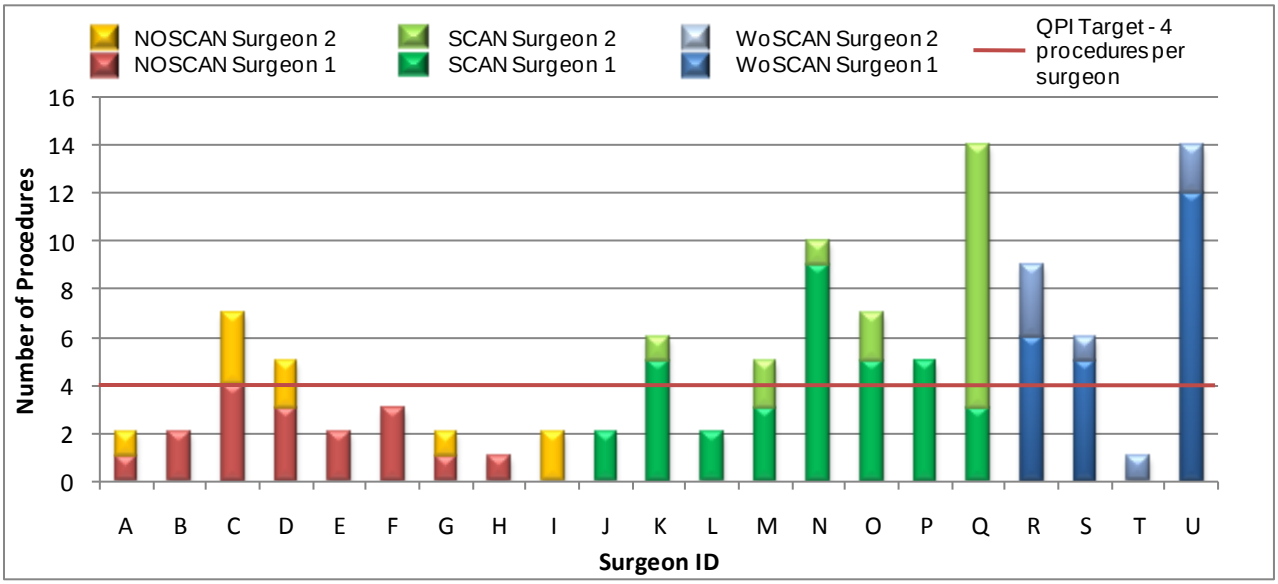
Figure 25: Number of surgical resections for pancreatic, duodenal and biliary tract cancer performed by a specialist centre over a 1 year period, from 2014 to 2016.



QPI 12a	Aberdeen	Inverness	Dundee	Edinburgh	Glasgow	Scotland
2014	16	7	9	28	39	99
2015	19	7	5	42	35	108
2016	13	2	2	35	23	75

Three of the five centres in Scotland achieved the target of 11 surgeries per year. Neither Dundee nor Inverness achieved the target with two surgeries each, a decrease on previous years for both centres.

Figure 26: Number of surgical resections for pancreatic, duodenal or biliary tract cancer performed by a specialist surgeon over a 1 year period (surgeon 1 or surgeon 2).



QPI 12b	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
N1	1	2	4	3	2	3	1	1	0	2	5	2	3	9	5	5	3	6	5	0	12
N2	1	0	3	2	0	0	1	0	2	0	1	0	2	1	2	0	11	3	1	1	2
Total	2	2	7	5	2	3	2	1	2	2	6	2	5	10	7	5	14	9	6	1	14

N1 = Number of surgeries performed as operating surgeon 1
N2 = Number of surgeries performed as operating surgeon 2

Two out of the nine surgeons in the NOSCAN region met the minimum requirement of 4 procedures. In SCAN, six of the eight surgeons achieved the target. In WOSCAN, three of the four surgeons met the target. For the purposes of the QPI, all non consultant grade surgeons are grouped into a single surgical ID within their NHS region.

NHS Tayside stated that two of their surgeons did perform more than 4 procedures and their data has been subject to a recording error.

Three year average data is shown in Appendix 2.

Action:

- Tayside to investigate and improve how surgical data is recorded.
- NHS Highland to review cases not meeting the target and provide formal feedback.

QPI 13: Clinical Trials Access

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

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

QPI 13:	All patients should be considered for participation in available clinical trials, wherever eligible.
Description:	Proportion of patients with HPB cancer who are enrolled in an interventional clinical trial or translational research.
Numerator:	Number of patients with HPB cancer enrolled in an interventional clinical trial or translational research.
Denominator:	All patients with HPB cancer.
Exclusions:	• No exclusions
Target:	Interventional trials – 7.5% Translational research – 15%

The QPI targets for clinical trials are 7.5% for interventional trials and 15% for translational trials. It should be noted that these targets are ambitious, especially with the move towards more targeted clinical trials. These trials are often genetically selective which target smaller populations of patients and therefore many of the cancer trials which are currently open to recruitment have very select eligibility criteria.

Figure 27: Proportion of patients with HPB cancer enrolled in interventional clinical trials in 2016.

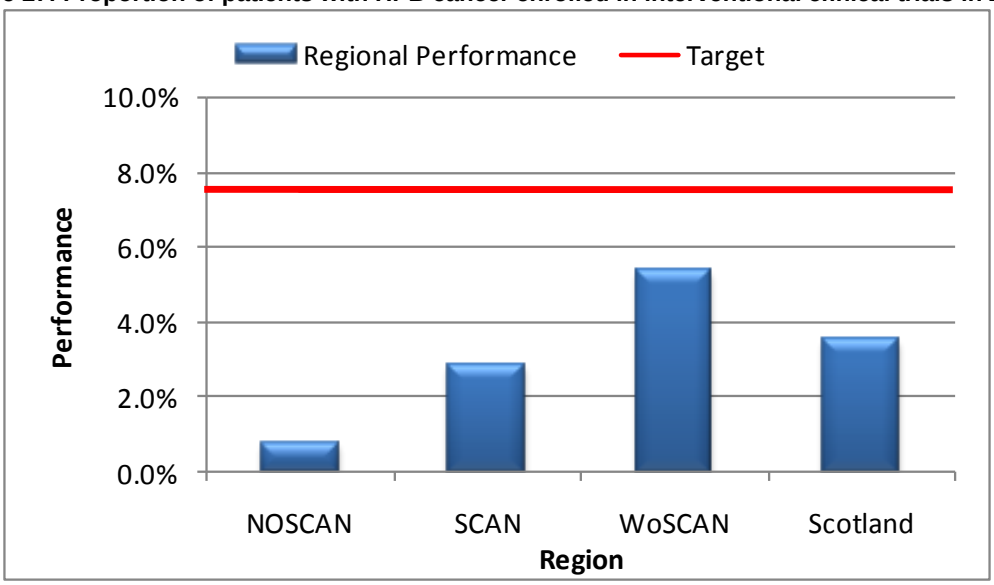


Figure 28: Proportion of patients with HPB cancer enrolled in translational clinical trials in 2016.

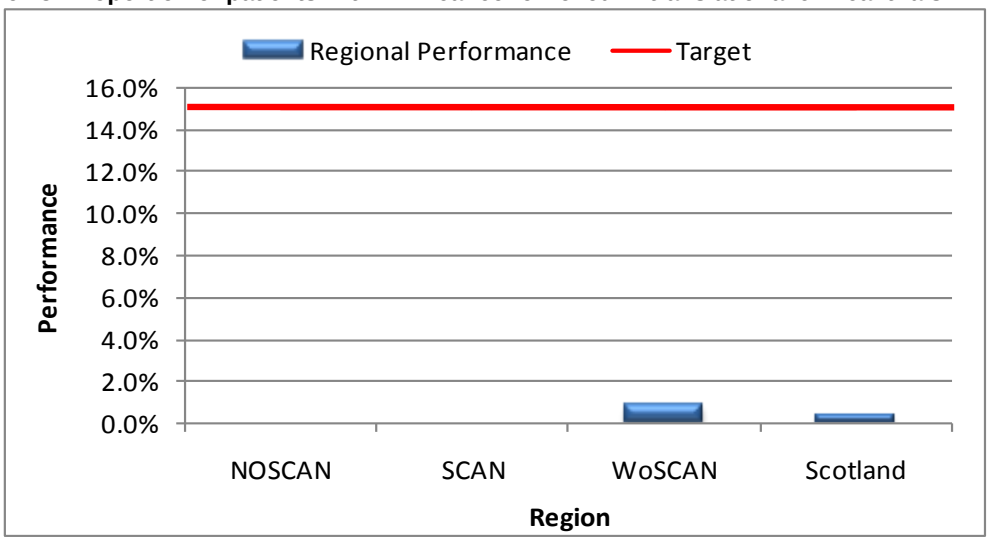


Table 6: Number of patients with HPB cancer who are enrolled in interventional and translational clinical trials in 2016, by region.

HPB	Interventional - QPI Target 7.5%			Translational - QPI Target 15%		
	N	D	%	N	D	%
NOSCAN	3	388	0.8%	0	388	0.0%
SCAN	12	418	2.9%	0	418	0.0%
WoSCAN	40	747	5.4%	6	747	0.8%
Scotland	55	1553	3.5%	6	1553	0.4%

There were 61 patients with HPB cancer recruited to clinical trials nationally in 2016 (55 interventional and 6 translational research). The target was not met by any Boards for interventional or translational clinical trials.

It is also more common for current interventional clinical trials to have a translational aspect rather than separate translation research, this explains the decreasing performance for recruitment into translation trials. As these are no longer distinct categories it was proposed that the QPI should measure screening into clinical trials as a whole, rather than by trial type. Any proposed amendments to the Clinical Trials Access QPI will be finalised and published by the National Cancer Quality Steering Group (NCQSG).

5. Conclusions

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.

Analysis of 2016 audit data demonstrates a continual commitment to provide an equitable and consistent standard of care for HPB cancer patients across Scotland. Improvements in data quality and completeness have been observed in recent years facilitating more meaningful data analysis and national comparison to help inform NMCN activity. The results presented illustrate that many of the QPI targets set have been challenging for NHS Boards to achieve, however it is noted that many of the QPIs exhibit improved performance in 2016.It is also encouraging that targets relating to lymph node yield were achieved by all centres.

Where QPI targets were not met NHS Boards have provided detailed commentary. In the main these indicate valid clinical reasons or that, in some cases, patient choice or co-morbidities have influenced patient management.

There are a number of actions required as a consequence of this assessment of performance against QPIs. Some of these relate to data quality improvement, specifically in relation to the documentation of information (following CT or MRI) to enable correct management decisions to be made by the multidisciplinary team. Additional actions were identified particularly in relation to the proportion of patients discussed at MDT, variance in treatment rates and lymph node yield following resection.

NHS Boards are asked to develop local Action/Improvement Plans in response to the findings presented in the report.

Action Required:

QPI 1: Multi-Disciplinary Team (MDT) Meeting

- NHS boards should aim to discuss all definite and suspected cases at a specialist MDT prior to definitive treatment, where this is clinically appropriate.
- Boards to ensure patients are discussed, even if they are for supportive care only.
- NHS GGC to ensure that all patients discussed at local Clyde meeting are discussed at GGC MDT.
- NHS Highland and NHS Western Isles to review cases not meeting the target and provide formal feedback.

QPI 2: Diagnosis and Staging of HCC

- Boards within SCAN region to ensure full completion of referral forms for calculation of Child Pugh score.
- All boards to assess how data can be recorded more consistently.
- All boards to ensure comprehensive staging is performed where appropriate.
- NHS Highland and NHS Western Isles to review cases not meeting the target and provide formal feedback.

QPI 3: Referral to Scottish Liver Transplant Unit

- NHS Grampian to improve documentation to record reasons for non-referral.
- NHS GGC to encourage colleagues to refer all HCC patients to MDT.

QPI 4: Palliative Treatment for HCC

- All boards to commence suitable patients on palliative therapy where appropriate.
- NHS Highland and NHS Western Isles to review cases not meeting the target and provide formal feedback.

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

- NHS Grampian to implement actions agreed from root cause analysis.

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

- NHS Highland to review cases not meeting the target and provide formal feedback.
- NHS Lothian to ensure patients undergo both CT chest and abdomen when indicated.

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

- NHS Borders to independently review cases and provide feedback.
- NHS Highland and NHS Western Isles to review cases not meeting the target and provide formal feedback.

QPI 9: Resection Rate for Pancreatic, Duodenal or Biliary Tract Cancers

- Boards to assess ways to improve patient fitness for surgery.
- NHS GGC to explore how multidisciplinary colleagues and resources (i.e. clinics) can help improve results. Results to be shared and discussed at NMCN.
- NHS Orkney to await all investigation results before setting “decision to treat” date.
- NHS Highland and NHS Western Isles to review cases not meeting the target and provide formal feedback.

QPI 11a/b: 30 and 90-day Mortality after Treatment with Curative Intent

- NHSGGC to monitor and report the ongoing impact of changes implemented.
- Learning from NHS GGC and NHS Grampian to be shared across Centres via the National MCN.
- NHS Grampian to implement practice programme developed from root cause analysis.

QPI 12: Volume of Cases per Centre/Surgeon

- Tayside to investigate and improve how surgical data is recorded.
- NHS Highland to review cases not meeting the target and provide formal feedback.

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 SHPBN and any service or clinical issue which the SHPBN 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
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
NOSCAN	North of Scotland Cancer Network
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
SHPBN	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

References

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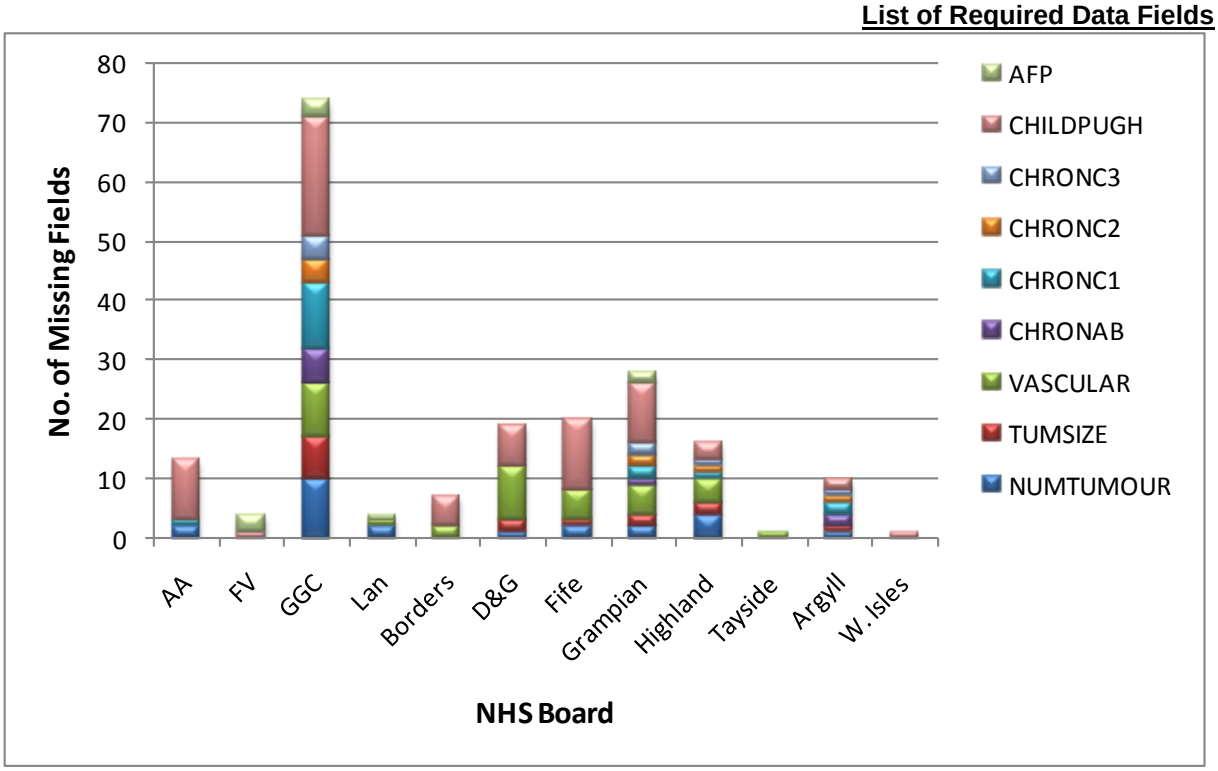
Appendix 1: QPI 2 Diagnosis and Staging of HCC

Missing values – data fields required for QPI 2

Figure A1: Total number of missing values per data field by NHS Board (all 9 fields must be complete to be defined as 'full information recorded'for QPI 2).

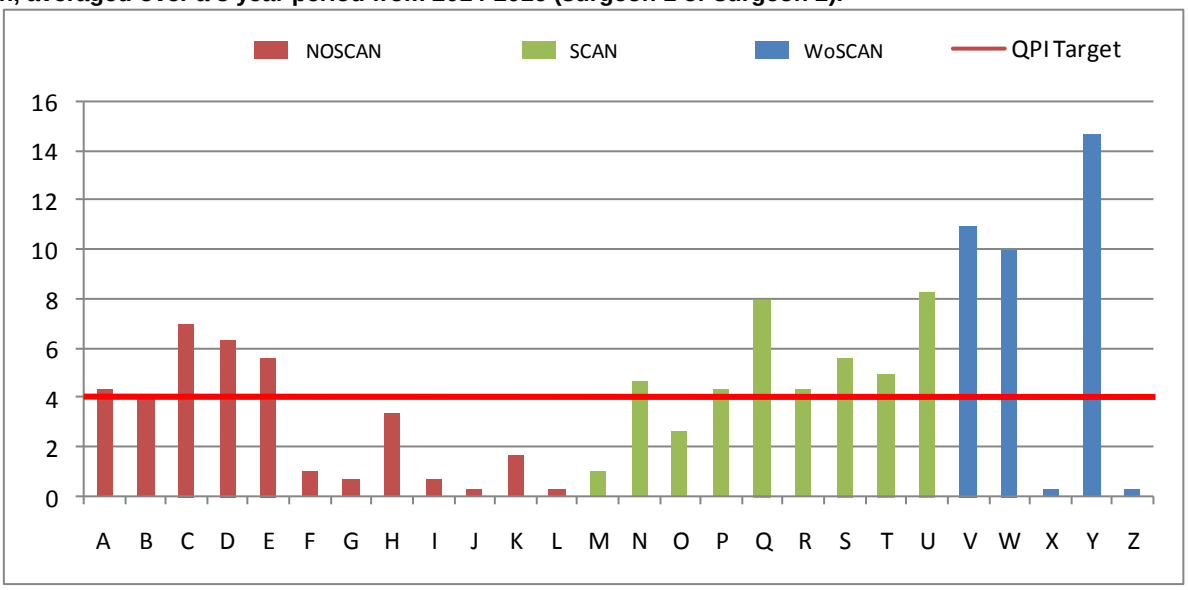


	NUMTUMOUR	TUMSIZE	VASCULAR	CHRONAB	CHRONC1	CHRONC2	CHRONC3	CHILDPUGH	AFP	Total Fields	Total Cases
AA	2	0	0	0	1	0	0	10	0	13	10
FV	0	0	0	0	0	0	0	1	3	4	3
GGC	10	7	9	6	11	4	4	20	3	74	24
Lan	2	0	1	0	0	0	0	0	1	4	5
WoSCAN	14	7	10	6	12	4	4	31	7	95	42
Borders	0	0	2	0	0	0	0	5	0	7	5
D&G	1	2	9	0	0	0	0	7	0	19	8
Fife	2	1	5	0	0	0	0	12	0	20	12
SCAN	3	3	16	0	0	0	0	24	0	46	25
Grampian	2	2	5	1	2	2	2	10	2	28	11
Highland	4	2	4	0	1	1	1	3	0	16	7
Tayside	0	0	1	0	0	0	0	0	0	1	1
Argyll	1	1	0	2	2	1	1	2	0	10	2
W. Isles	0	0	0	0	0	0	0	1	0	1	1
NOSCAN	7	5	10	3	5	4	4	16	2	56	22
Scotland	24	15	36	9	17	8	8	71	9	197	89

Appendix 2: QPI 12 Volume of Cases per Surgeon

3 Year Average Data (2014-2016)

Figure A2: Number of surgical resections for pancreatic, duodenal or biliary tract cancer performed by a specialist surgeon, averaged over a 3 year period from 2014-2016 (surgeon 1 or surgeon 2).



Three year average data for years 2014 - 2016 is shown in above. Five of twelve NOSCAN surgeons met the target of 4 surgical cases as an average over three years. Seven of nine surgeons in SCAN and three of five WoSCAN achieved the target over three years.

Surgeon	A	B	C	D	E	F
3 Year Average	4.3	4.0	7.0	6.3	5.7	1.0

Surgeon	G	H	I	J	K	L
3 Year Average	0.7	3.3	0.7	0.3	1.7	0.3

Surgeon	M	N	O	P	Q	R
3 Year Average	1.0	4.7	2.7	4.3	8.0	4.3

Surgeon	S	T	U	V	W	X
3 Year Average	5.7	5.0	8.3	11.0	10.0	0.3

Surgeon	Y	Z
3 Year Average	14.7	0.3

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
Action Plan Lead:	
Date:	

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

QPI No.	Action Required	Health Board Action Taken	Timescales		Lead	Progress/Action Status	Status (see Key)
			Start	End			
	Ensure actions mirror those detailed in Audit Report.	*Detail specific actions that will be taken by the NHS Board.*	*Insert date*	*Insert date*	*Insert name of responsible lead for each specific action.*	*Provide detail of action in progress, change in practices, problems encountered or reasons why no action taken.*	*Insert No. from key above*.
1.	Discuss all definite and suspected cases at a specialist MDT.						
1.	Ensure patients for supportive therapy only are discussed at MDT.						
2.	Assess how data can be recorded more consistently.						
2.	Ensure comprehensive staging is performed where appropriate.						
3.	Improve documentation for recording reasons of non-referral.						
4.	All boards to commence suitable patients on to palliative therapy where appropriate.						
5.	Implement actions agreed from root cause analysis.						
9.	Assess ways to improve						

QPI No.	Action Required	Health Board Action Taken	Timescales		Lead	Progress/Action Status	Status (see Key)
			Start	End			
	patient fitness for surgery.						
9.	NHS Orkney to await all investigation results before setting “decision to treat” date.						
11a/b.	Implement practice programme developed from root cause analysis and monitor progress.						
11a/b	Share learning points across centres via NMCN.						

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			
	Ensure actions mirror those detailed in Audit Report.	*Detail specific actions that will be taken by the NHS Board.*	*Insert date*	*Insert date*	*Insert name of responsible lead for each specific action.*	*Provide detail of action in progress, change in practices, problems encountered or reasons why no action taken.*	*Insert No. from key above*.
1.	Discuss all definite and suspected cases at a specialist MDT.						
1.	Ensure patients for supportive therapy only are discussed at MDT.						
1.	Review cases not meeting the target and provide formal feedback.						
2.	Assess how data can be recorded more consistently.						
2.	Ensure comprehensive staging is performed where appropriate.						
2.	Review cases not meeting the target and provide formal feedback.						
4.	Commence suitable patients on to palliative therapy where appropriate.						
4.	Review cases not meeting the target and provide formal feedback.						

QPI No.	Action Required	Health Board Action Taken	Timescales		Lead	Progress/Action Status	Status (see Key)
			Start	End			
6.	Review cases not meeting the target and provide formal feedback.						
7.	Review cases not meeting the target and provide formal feedback.						
9.	Assess ways to improve patient fitness for surgery.						
9.	Review cases not meeting the target and provide formal feedback.						
12a/b.	Review cases not meeting the target and provide formal feedback.						

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			
	Ensure actions mirror those detailed in Audit Report.	*Detail specific actions that will be taken by the NHS Board.*	*Insert date*	*Insert date*	*Insert name of responsible lead for each specific action.*	*Provide detail of action in progress, change in practices, problems encountered or reasons why no action taken.*	*Insert No. from key above*.
1.	Discuss all definite and suspected cases at a specialist MDT.						
1.	Ensure patients for supportive therapy only are discussed at MDT.						
2.	Assess how data can be recorded more consistently.						
2.	Ensure comprehensive staging is performed where appropriate.						
4.	Commence suitable patients on to palliative therapy where appropriate.						
9.	Assess ways to improve patient fitness for surgery.						
11a/b.	Review current practice and processes to ensure patient needs are being met.						
12a/b.	Investigate and improve how surgical data is recorded.						

Action / Improvement Plan

Area:	Edinburgh Centre/ 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			
	Ensure actions mirror those detailed in Audit Report.	*Detail specific actions that will be taken by the NHS Board.*	*Insert date*	*Insert date*	*Insert name of responsible lead for each specific action.*	*Provide detail of action in progress, change in practices, problems encountered or reasons why no action taken.*	*Insert No. from key above*.
1.	Discuss all definite and suspected cases at a specialist MDT.						
1.	Ensure patients for supportive therapy only are discussed at MDT.						
2.	Assess how data can be recorded more consistently.						
2.	Ensure comprehensive staging is performed where appropriate.						
2.	Boards within SCAN to ensure full completion of referral forms for calculation of Child Pugh Score						
4.	Commence suitable patients on to palliative therapy where appropriate.						
6.	NHS Lothian to ensure patients undergo both CT chest and abdomen where appropriate.						
7.	NHS Borders to independently review cases and provide feedback.						
9.	Assess ways to improve patient fitness for surgery.						

Action / Improvement Plan

Area:	Glasgow Centre/ NHSGGC
Action Plan Lead:	
Date:	

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

QPI No.	Action Required	Health Board Action Taken	Timescales		Lead	Progress/Action Status	Status (see Key)
			Start	End			
	Ensure actions mirror those detailed in Audit Report.	*Detail specific actions that will be taken by the NHS Board.*	*Insert date*	*Insert date*	*Insert name of responsible lead for each specific action.*	*Provide detail of action in progress, change in practices, problems encountered or reasons why no action taken.*	*Insert No. from key above*.
1.	Discuss all definite and suspected cases at a specialist MDT.						
1.	Ensure patients for supportive therapy only are discussed at MDT.						
1.	Ensure all patients discussed at local Clyde meeting are discussed at GGC MDT.						
2.	Assess how data can be recorded more consistently.						
2.	Ensure comprehensive staging is performed where appropriate.						
3.	Encourage colleagues to refer all patients to MDT.						
4.	Commence suitable patients on to palliative therapy where appropriate.						
9.	Assess ways to improve patient fitness for surgery.						
9.	Explore how multidisciplinary colleagues and resources can help improve results.						
11a/b.	Monitor and report the ongoing impact of changes implemented.						
11a/b.	Learning to be shared across centres via the NMCN						