North, South East and West of Scotland Cancer Networks

HepatoPancreatoBiliary Cancers National Managed Clinical Network

Audit Report

Report of the 2015 Clinical Audit Data

Professor Stephen Wigmore
Consultant Surgeon
NMCN Clinical Lead

Lindsay Campbell
NMCN Manager

Sandie Ker
Information Officer
West of Scotland Cancer Network

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 2015 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 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 third 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. This review process resulted in measurability changes to some QPIs and therefore Year 1 data is only presented within this audit report alongside Year 2 and Year 3 data for QPIs where results have remained comparable. Future reports will continue to compare clinical audit data in successive years to further illustrate trends.

In order to ensure the success of the National Cancer QPIs in driving quality improvement in cancer care across NHS Scotland, it is critical that the QPIs continue to be clinically relevant and focus on areas which will result in improvements to the quality of patient care. A programme of formal review of all QPIs has therefore been implemented whereby all tumour-specific QPIs will be reviewed following three years of comparative reporting. Formal review of the HPB Cancer QPIs commenced in October 2012, with the revised QPIs scheduled for publication in early 2017.

Background

HPB cancers are a rare group of cancers. In 2015 the audit identified 1535 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 716 cases (46.6%). Survival rates for pancreatic cancer remain poor and it was the sixth most common cause of death from cancer in Scotland in 2014[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) and Western General Hospital (WGH - oncology)
Glasgow	Glasgow Royal Infirmary (GRI - surgery) and Beatson West of Scotland Cancer Centre (BWoSCC - oncology)
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 2015 and 31st December 2015 was downloaded from eCASE on 10th August 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 104.2% which indicates excellent data capture for 2015. 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. An additional table demonstrates past performance for Year 1 and Year 2 data analysis. Where Year 1 data has not remained comparable due to changes agreed at baseline review, results have been removed from graphs but remain in the accompanying table for information.

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 three years (2013 to 2015), 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 2015.

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

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%**	**90.2% <**		**87.8% >**		**85.7% <**		**87.4% <**	
		321	356	344	392	586	684	1251	1432
QPI 2: Patients with Hepatocellular Carcinoma (HCC) should be appropriately diagnosed and staged.	**90%**	**61.1% >**		**17.4% <**		**57.2% >**		**47.9% >**	
		44	72	16	92	115	201	175	365
QPI 3: Patients with early Hepatocellular Carcinoma (HCC) should be referred for consideration of liver transplantation.	**90%**	**78.9% >**		**90.0% <**		**79.1% >**		**81.9% >**	
		15	19	27	30	53	67	95	116
QPI 4: Patients with Hepatocellular Carcinoma (HCC) who are not suitable for curative treatment should receive palliative treatment.	**40%**	**25.5% <**		**40.3% >**		**37.0% >**		**35.7% >**	
		12	47	25	62	50	135	87	244
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%**	**80.5% >**		**78.7% >**		**84.1% >**		**81.8% >**	
		107	133	85	108	191	227	383	468
QPI 7: Patients with pancreatic, duodenal or biliary tract cancers having non-surgical treatment should have a cytological or histological diagnosis.	**50%**	**62.9% <**		**83.9% >**		**97.4% >**		**86.0% >**	
		22	35	26	31	75	77	123	143
QPI 9: Patients with localised pancreatic, distal biliary tract or duodenal cancer should have surgical resection.	**15%**	**12.9% <**		**12.2% >**		**11.9% <**		**12.3% <**	
		31	240	28	230	47	394	106	864

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. Liver Transplant	**< 10%**	**NA**		**NA**		**NA**		**5.6% <**		**NA**		**NA**		**5.6% <**	
		0	0	0	0	0	0	1	18	0	0	0	0	1	18
QPI 5a: 90 day mortality following treatment for Hepatocellular Carcinoma (HCC) with curative intent. Liver Transplant	**< 10%**	**NA**		**NA**		**NA**		**5.9% <**		**NA**		**NA**		**5.9% <**	
		0	0	0	0	0	0	1	17	0	0	0	0	1	17
QPI 5b: 30 day mortality following treatment for Hepatocellular Carcinoma (HCC) with curative intent. Resection	**< 10%**	**-**		**-**		**NA**		**0.0% =**		**NA**		**NA**		**0.0% >**	
		-	-	-	-	0	0	0	19	0	0	0	0	0	25
QPI 5b: 90 day mortality following treatment for Hepatocellular Carcinoma (HCC) with curative intent. Resection	**< 10%**	**-**		**-**		**NA**		**0.0% =**		**NA**		**NA**		**0.0% >**	
		-	-	-	-	0	0	0	19	0	0	0	0	0	25
QPI 5c: 30 day mortality following treatment for Hepatocellular Carcinoma (HCC) with curative intent. Ablation	**< 10%**	**NA**		**-**		**NA**		**0.0% =**		**0.0% =**		**NA**		**0.0% =**	
		0	0	-	-	0	0	0	11	0	12	0	0	0	26
QPI 5c: 90 day mortality following treatment for Hepatocellular Carcinoma (HCC) with curative intent. Ablation	**< 10%**	**NA**		**-**		**NA**		**0.0% =**		**0.0% >**		**NA**		**0.0% >**	
		0	0	-	-	0	0	0	11	0	11	0	0	0	25
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	36	0	34	-	-	0	83

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

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%**	**NA**		**NA**		**-**		**0.0% =**		**0.0% >**		**-**		**0.0% >**	
		0	0	0	0	-	-	0	8	0	12	-	-	0	22
QPI 8: Patients undergoing resection for pancreatic cancer should receive adjuvant chemotherapy, where appropriate.	**50%**	**70.0% >**		**-**		**-**		**84.0% >**		**68.8% >**		**-**		**77.2% >**	
		7	10	-	-	-	-	21	25	11	16	-	-	44	57
QPI 10: In patients undergoing surgery for pancreatic cancer the number of lymph nodes examined should be maximised (≥ 15 lymph nodes).	**100%**	**82.4% >**		**57.1% <**		**-**		**59.5% <**		**93.3% >**		**NA**		**75.5% >**	
		14	17	4	7	-	-	22	37	28	30	0	0	71	94
QPI 11a: 30-day mortality after surgery with curative intent for pancreatic, duodenal or distal biliary tract cancer.	**< 5%**	**5.3% <**		**0.0% >**		**0.0% =**		**0.0% =**		**0.0% >**		**-**		**0.9% >**	
		1	19	0	7	0	5	0	42	0	34	-	-	1	108
QPI 11b: 90-day mortality after surgery with curative intent for pancreatic, duodenal or distal biliary tract cancer.	**< 5%**	**10.5% <**		**0.0% >**		**0.0% =**		**2.4% <**		**3.3% <**		**-**		**3.8% <**	
		2	19	0	7	0	5	1	42	1	30	-	-	4	104
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**	**19**		**7**		**5**		**42**		**35**		**1**		**109**	
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**	MET See pg. 35		Surgeon E = 1 Surgeon G = 3		Surgeon I = 2		Surgeon J = 1 Surgeon L = 3		MET See pg. 35		NA		Surgeon E = 1 Surgeon G = 3 Surgeon I = 2 Surgeon J = 1 Surgeon L = 3	

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

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 in 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, lymph node yield following resection 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

- Specialist HPB centres should promote the referral of all cases of definite or suspected HPB cancer to a specialist MDT, regardless of treatment plan, within their prospective NHS Boards.

QPI 2: Diagnosis and Staging of HCC

- Aberdeen, Dundee and Edinburgh centres should review cases that did not undergo complete imaging and put measures in place to improve performance.
- Specialist HPB centres to develop HCC MDT referral forms to ensure consistency in capturing all required QPI data items and to promote use in their prospective NHS Boards.

QPI 3: Referral to Scottish Liver Transplant Unit

- Aberdeen, Edinburgh and Glasgow centres to ensure vascular invasion is recorded at MDT to determine inclusion/exclusion criteria.

QPI 4: Palliative Treatment for HCC

- The Dundee and Glasgow centres should review cases that did not undergo curative treatment, TACE or SACT and report results to NMCN.

QPI 10: Lymph Node Yield (pancreatic cancer)

- The Edinburgh centre should review cases where less than 15 lymph nodes are dissected and examined and investigate any reasons for decreased performance.

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

- All specialist HPB centres should discuss cases where patients died within 30 or 90 days of surgical resection at Morbidity and Mortality meeting and provide feedback to NMCN.

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 NMCN Advisory Board and any service or clinical issue which the Advisory Board considers not to have been adequately addressed will be escalated to the NHS Board Territorial Lead Cancer Clinician and 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 2015 through clinical audit data and to provide a summary of the first three 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].

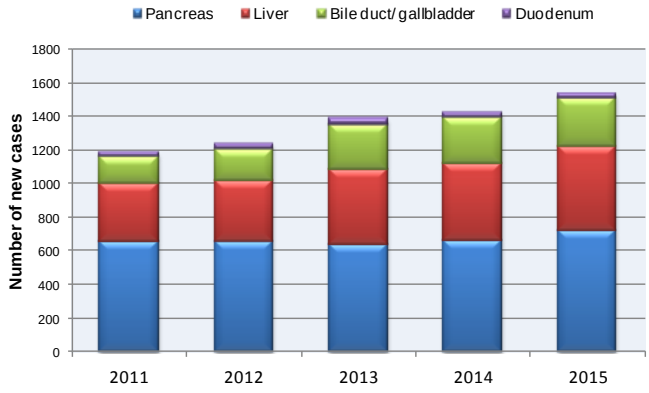
Twelve months of data were measured against the HPB Cancer QPIs for the third consecutive year. Following reporting of Year 1 data (2013), a process of baseline review was undertaken to ensure QPIs were fit for purpose and truly driving quality improvement in patient care. This review process resulted in measurability changes to some QPIs and therefore Year 1 data is only presented within this audit report alongside Year 2 and Year 3 data for QPIs where results have remained comparable. Future reports will continue to compare clinical audit data in successive years to further illustrate trends.

In order to ensure the success of the National Cancer QPIs in driving quality improvement in cancer care across NHS Scotland, it is critical that the QPIs continue to be clinically relevant and focus on areas which will result in improvements to the quality of patient care. A programme of formal review of all QPIs has therefore been implemented whereby all tumour-specific QPIs will be reviewed following three years of comparative reporting. Formal review of the HPB Cancer QPIs commenced in October 2012, with the revised QPIs scheduled for publication in early 2017.

2. Background

HPB cancers are a rare group of cancers. In 2015 the audit identified 1535 patients diagnosed with a new primary cancer of the liver, pancreas, bile ducts, gallbladder or duodenum in Scotland. Pancreatic cancer accounts for almost half of all HPB cancer diagnoses (46.6%) and Figure 1 illustrates the number of new cases of each HPB cancer type diagnosed in Scotland from 2011 to 2015.

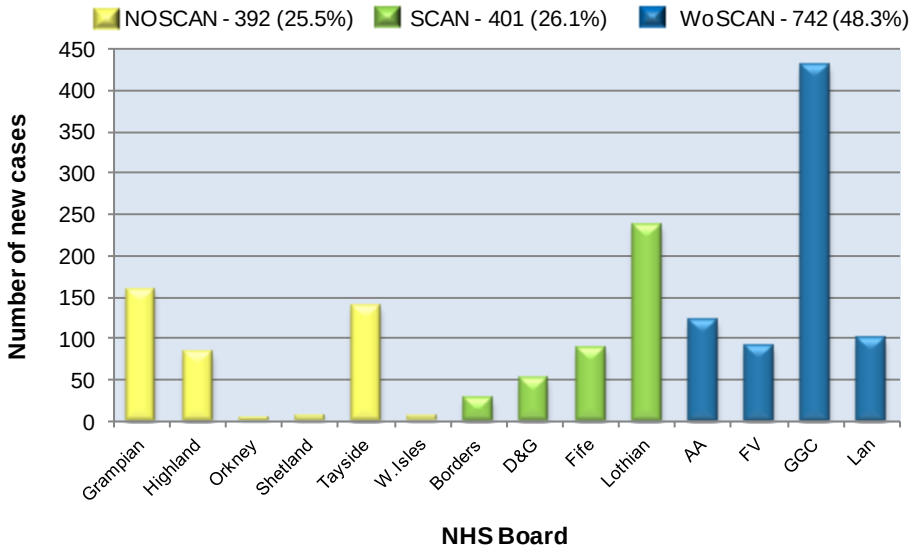
Figure 1: Number of new cases of HPB cancers per annum by site of tumour.



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

The distribution of the 1535 patients diagnosed in 2015 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 742 patients diagnosed in WoS in 2015 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 and 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 2015



NOSCAN						SCAN				WoSCAN			
Grampian	Highland	Orkney	Shetland	Tayside	W. Isles	Borders	D&G	Fife	Lothian	AA	FV	GGC	Lan
157	83	4	6	137	5	28	50	87	236	120	91	431	100

Table 1 details the five HPB cancer centres in Scotland. These are considered the centres for specialist treatment, which includes surgery, chemotherapy 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) and Western General Hospital (WGH - oncology)
Glasgow	Glasgow Royal Infirmary (GRI - surgery) and Beatson West of Scotland Cancer Centre (BWoSCC - oncology)
Inverness	Raigmore Hospital

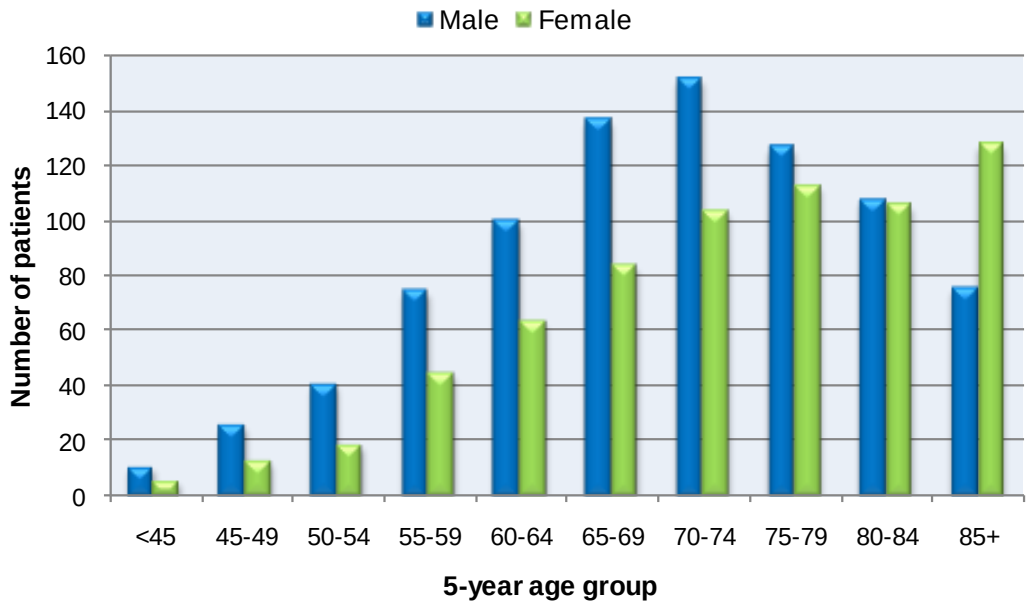
In Scotland, liver cancer is the eleventh most common cancer in males and seventeenth in females[4]. The incidence of liver cancer is rising and the last decade has seen the overall incidence of liver cancer increase by 60.9% in Scotland[4]. This rise is particularly reflected in the male population with increases in incidence of 66.1% and 47.8% in males and females respectively in the last decade[4]. The percentage frequency of liver cancer is however relatively low at 1.9% of all cancer types diagnosed[4].

There has been an overall rise in mortality rates for cancer of the liver over the past ten years of 52.4%, 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 2015, and the 10-year percentage change in mortality rates show significant increases of 45.6% and 68.6% for males and females respectively[5].

Pancreatic cancer is the twelfth most common cancer in males and eighth in females [6]. The increase in incidence from 2004 to 2014 is significant in both males and females[5] at 12.5% and 18.1% respectively[6]. Whilst pancreatic cancer is relatively rare (accounting for 2.5% 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, resultantly, 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 2015 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 all but one age group. 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 over a quarter of HPB cancers were diagnosed in individuals under the age of 65 years (26.1%).

Figure 3: Number of patients diagnosed with HPB cancer in Scotland in 2015 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	26	41	75	100	137	152	127	108	76	853
Female	6	13	19	45	64	84	104	113	106	128	682

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 2015 and 31st December 2015 was downloaded from eCASE at 2200 hrs on 10th August 2016. 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 National MCN 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.

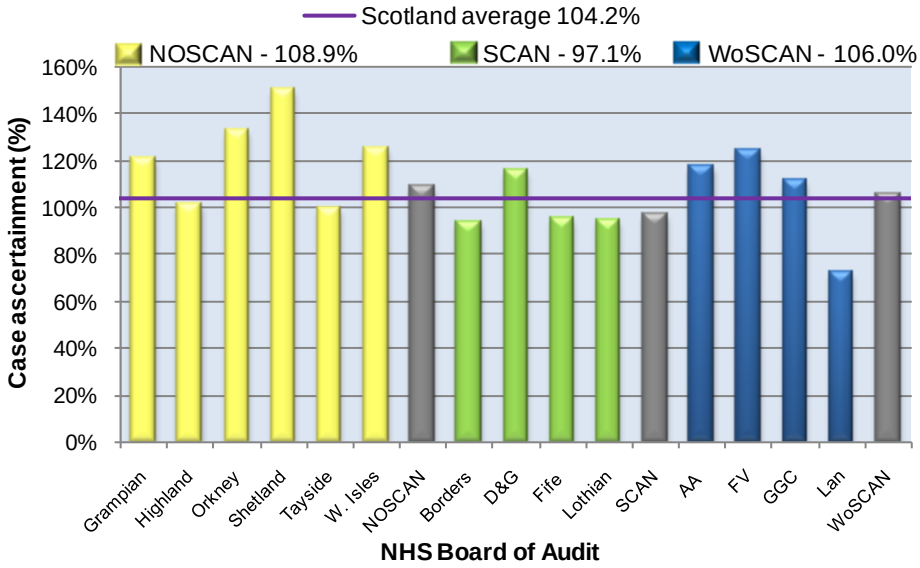
4. Results and Action Required

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 104.2% 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 2015. 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 location of diagnosis for patients diagnosed in 2015



	Grampian	Highland	Orkney	Shetland	Tayside	W. Isles	Borders	D&G	Fife	Lothian	AA	FV	GGC	Lan
Cases from audit	157	83	4	6	137	5	28	50	87	236	120	91	431	100
Cancer Reg. (2010-2014)	130	82	3	4	137	4	30	43	91	249	102	73	386	139
% Case ascertainment	120.8%	101.2%	133.3%	150.0%	100.0%	125.0%	93.3%	116.3%	95.6%	94.8%	117.6%	124.7%	111.7%	71.9%

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. An additional table demonstrates past performance for Year 1 and Year 2 data analysis (2013 and 2014). Where Year 1 data has not remained comparable due to changes agreed at baseline review, results have been removed from graphs but remain in the accompanying table for information

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 three years (2013 to 2015), 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.

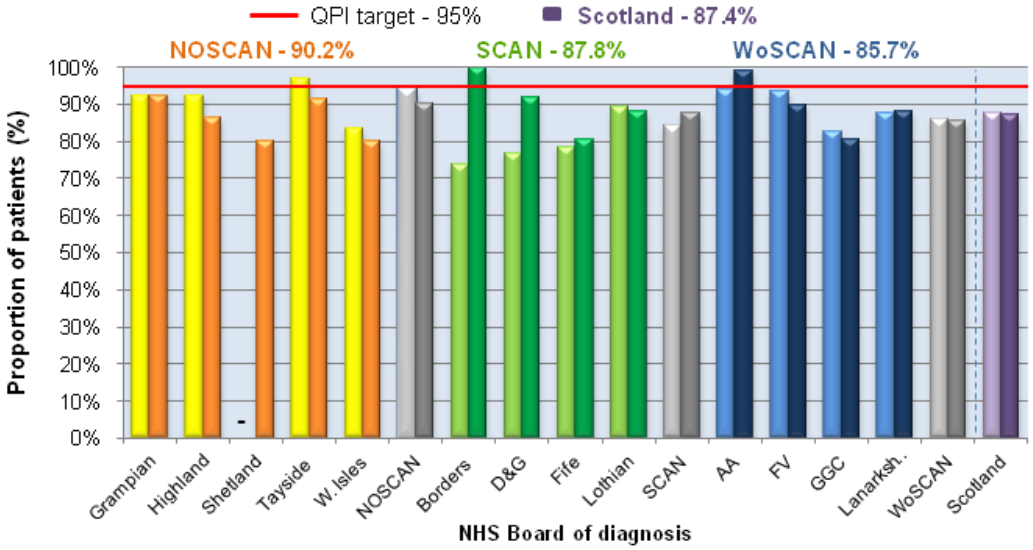
Specific regional and NHS Board actions have been identified to address issues highlighted through the data analysis.

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 and 2015.



QPI 1	2015 (%)	Numerator	Denominator	NR numerator	NR exclusions	NR denominator
Grampian	92.3%	132	143	0	0	0
Highland	86.3%	63	73	0	0	0
Orkney	-	-	-	0	0	0
Shetland	80.0%	4	5	0	0	0
Tayside	91.3%	115	126	0	0	0
W. Isles	80.0%	4	5	0	0	0
NOSCAN	**90.2%**	**321**	**356**	**0**	**0**	**0**
Borders	100.0%	28	28	0	0	0
D&G	91.8%	45	49	0	0	0
Fife	80.7%	67	83	0	0	0
Lothian	87.9%	204	232	0	0	0
SCAN	**87.8%**	**344**	**392**	**0**	**0**	**0**
AA	99.0%	104	105	0	0	0
Forth Valley	89.8%	79	88	0	0	0
GGC	80.7%	322	399	1	1	0
Lanarkshire	88.0%	81	92	0	0	0
WoSCAN	**85.7%**	**586**	**684**	**1**	**1**	**0**
Scotland	**87.4%**	**1251**	**1432**	**1**	**1**	**0**

QPI 1	2013 (%)	2014 (%)
Grampian	*	92.4%
Highland	*	92.1%
Orkney	*	*
Shetland	*	-
Tayside	*	96.8%
W. Isles	*	83.3%
NOSCAN	*	**93.9%**
Borders	*	73.9%
D&G	*	76.9%
Fife	*	78.2%
Lothian	*	89.3%
SCAN	*	**84.3%**
AA	*	93.9%
Forth Valley	*	93.5%
GGC	*	82.7%
Lanarkshire	*	87.7%
WoSCAN	*	**86.1%**
Scotland	*	**87.5%**

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

Two of the 14 NHS Boards met the 95% target in 2015 with 100% of patients in NHS Borders and 99.0% of patients in NHS Ayrshire & Arran being discussed at an MDT meeting before definitive treatment. Overall performance across Scotland was 87.4% with 1251 of 1432 patients being discussed prior to definitive treatment. This QPI was introduced in 2014 and current 2015 performance is similar to the 2014 performance of 87.5%.

All 12 NHS Boards which did not meet the target have reviewed individual cases and have submitted comments. All Boards have detailed similar reasons where patients do not meet the QPI criteria. The most common of these being patients who have incidental findings following surgery or where urgent treatment is required prior to MDT discussion, for example emergency surgery or stent insertion. Some patients also present with late stage disease and are placed on supportive care by the receiving physician, thus (as per the data definitions) have a definitive treatment date prior to MDT discussion date.

There are also cases where patients placed on best supportive care are not referred to an MDT and a number of Boards have stated that letters have been written to all relevant departments and peripheral hospitals to request that all definite and suspected cases of HPB cancer are referred to the MDT regardless of whether the patient is for supportive care only.

The measurement of this QPI was discussed at formal review and proposed changes will aim to ensure that all patients are discussed at MDT without delaying any urgent treatment that is required for acute presentations. It should also aim to identify patients who are started on best supportive care and are discussed within an appropriate time frame.

Action:

- Specialist HPB centres should promote the referral of all cases of definite or suspected HPB cancer to a specialist MDT, regardless of treatment plan, within their prospective NHS Boards.

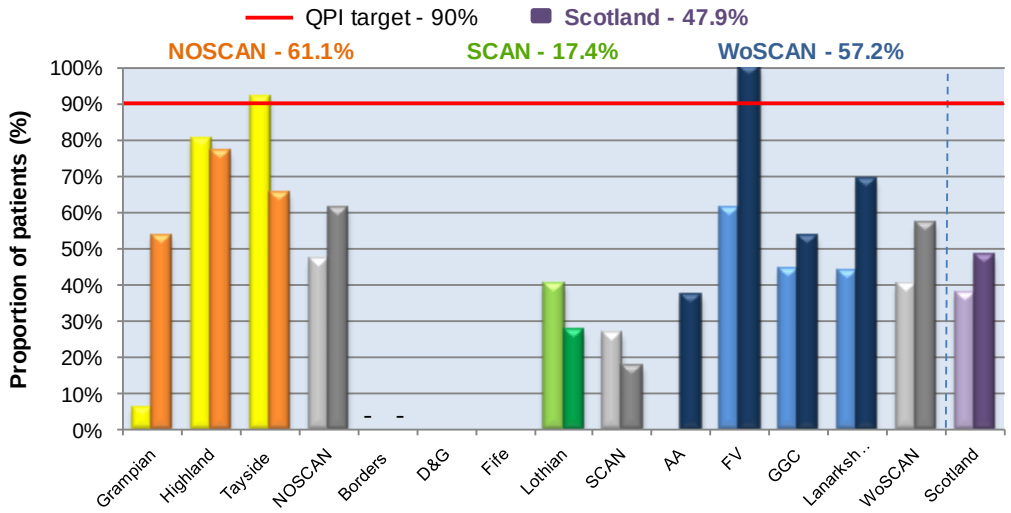
QPI 2: Diagnosis and Staging of HCC

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:	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 to the data definitions following baseline review and the reference to ‘triple phase’ CT liver was removed to account for cases where advanced disease did not warrant further CT imaging. Year 1 results (2013) are not included in the graph below as results are not directly comparable due to baseline review changes however performance is shown in the accompanying table for information.

Figure 6: Proportion of patients diagnosed with HCC in 2014 and 2015 that have undergone CT or MRI with full information recorded by NHS Board of diagnosis.



QPI 2	2015 (%)	Numerator	Denominator	NR numerator	NR exclusions	NR denominator
Grampian	53.6%	15	28	0	0	0
Highland	76.9%	10	13	0	0	0
Orkney	-	-	-	0	0	0
Shetland	*	0	0	0	0	0
Tayside	65.5%	19	29	0	0	0
W. Isles	-	-	-	0	0	0
NOSCAN	**61.1%**	**44**	**72**	**0**	**0**	**0**
Borders	-	-	-	0	0	0
D&G	0.0%	0	7	0	0	0
Fife	0.0%	0	25	0	0	0
Lothian	27.6%	16	58	0	0	0
SCAN	**17.4%**	**16**	**92**	**0**	**0**	**0**
AA	37.0%	10	27	0	0	0
Forth Valley	100.0%	21	21	0	0	0
GGC	53.6%	75	140	0	0	0
Lanarkshire	69.2%	9	13	0	0	0
WoSCAN	**57.2%**	**115**	**201**	**0**	**0**	**0**
Scotland	**47.9%**	**175**	**365**	**0**	**0**	**0**

QPI 2	2013 (%)	2014 (%)
Grampian	8.6%	6.1%
Highland	50.0%	80.0%
Orkney	*	*
Shetland	0.0%	*
Tayside	73.3%	91.7%
W. Isles	*	0.0%
NOSCAN	**38.9%**	**47.1%**
Borders	-	0.0%
D&G	0.0%	0.0%
Fife	0.0%	0.0%
Lothian	0.0%	40.0%
SCAN	**0.0%**	**26.7%**
AA	0.0%	0.0%
Forth Valley	50.0%	61.5%
GGC	13.3%	44.2%
Lanarkshire	0.0%	43.8%
WoSCAN	**14.3%**	**40.4%**
Scotland	**14.7%**	**37.6%**

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

Only NHS Forth Valley met the target for QPI 2 with a performance of 100% against the 90% target. All 21 cases of HCC diagnosed in NHS Forth Valley had complete radiological staging with full information recorded. Performance across Scotland is 47.9% which is an improvement on 2014 performance of 37.6%; however it falls short of the 90% target.

As demonstrated in Appendix 1, there are a number of data fields which require to be documented to ensure that 'full information' is recorded. Those data fields most frequently missing are; Child Pugh score, number of tumours, vascular invasion and final metastases stage. In 2015 across Scotland, there were a total of 261 missing fields affecting 141 cases and this contributed to the low performance across many NHS Boards, although it should be noted that this is an improvement on Year 1 data when 759 data fields had missing values.

The remaining 13 NHS Boards that did not meet the target have reviewed cases and provided comments on those cases not meeting the QPI. Proposed measures to help improve data capture have included adapting regional proformas and discussing the information that requires inclusion in imaging reports with the radiologists.

NHS Lothian will also consider the development of a 'crib sheet' for the MDT Chair as a reminder of the key points that need to be recorded. NHS Greater Glasgow and Clyde (NHSGGC) has stated that the development of a new HCC MDT referral form in conjunction with Edinburgh will ensure consistency in capturing all required data items. A reference to Child-Pugh will be included in the letter to Wards/departments in NHSGGC to reiterate the importance of including such information in referrals to the Glasgow MDT.

Where NHS Boards have cases that have not undergone the appropriate diagnostic imaging, the most common reason impeding this has been patient fitness. A number of Boards that have not met the 90% target for complete imaging have not commented on specific cases and it is likely that the low performance due to incomplete data was masking performance in this area. Dividing the QPI into the two separate components, as per proposal at formal review, will ensure all aspects the diagnosis and staging of HCC are being reviewed annually.

At formal review, it was proposed that the QPI should be divided to look at components separately by; (i) the current QPI measurement, (ii) appropriate imaging and (iii) full information recorded.

Actions:

- Aberdeen, Dundee and Edinburgh neuro-oncology centres should review cases that did not undergo complete imaging and put measures in place to improve performance.
- Specialist HPB centres to develop HCC MDT referral forms to ensure consistency in capturing all required QPI data items and to promote use in their prospective NHS Boards.

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 alpha-fetoprotein (AFP) >1000 IU/ml. • Patients with evidence of vascular invasion. • Patients with extrahepatic disease.
Target:	90%

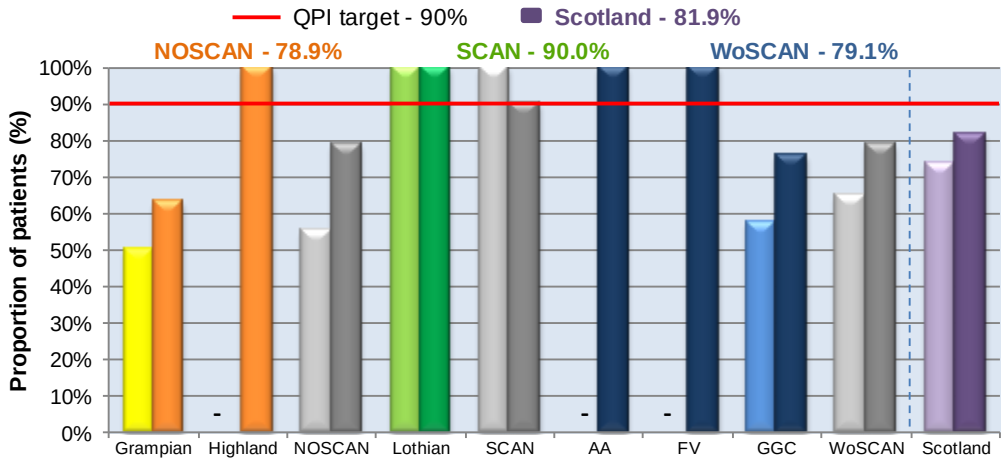
QPI 3 states that 90% of patients with HCC meeting the UK listing criteria should be referred to the SLTU for consideration of liver transplantation. The tolerance within this target accounts for cases where referral may not be appropriate due to factors with regard to patient fitness.

The measurability of QPI 3 was changed following baseline review where exclusion criteria were amended to exclude patients with AFP > 1,000 rather than > 10,000 IU/ml. It was also updated to exclude patients with extrahepatic disease. For this reason, Year 1 results have not been included in Figure 7 as results have not remained directly comparable.

Four of the fourteen Boards did not have any cases meeting the denominator criteria for QPI 3 in 2015; NHS Orkney, NHS Shetland, NHS Western Isles and NHS Borders. NHS Fife, NHS Tayside, NHS Dumfries & Galloway and NHS Lanarkshire are not shown due to small numbers.

Performance for the remaining six NHS Boards is shown in Figure 7, four of which exceeded the 90% target with 100% performance achieved in NHS Highland, NHS Lothian, NHS Forth Valley and NHS Ayrshire & Arran. Overall performance across Scotland was 81.9% which is an improvement of 8 percentage points on 2014 performance. SCAN was the only region to meet the 90% target in either 2014 or 2015.

Figure 7: Proportion of patients diagnosed with HCC in 2014 and 2015 who meet the UK listing criteria for orthotopic liver transplantation referred to the SLTU for consideration of liver transplant.



QPI 3	2015 (%)	Numerator	Denominator	NR numerator	NR exclusions	NR denominator
Grampian	63.6%	7	11	0	3	0
Highland	100.0%	6	6	0	0	0
Orkney	*	0	0	0	0	1
Shetland	*	0	0	0	0	0
Tayside	-	-	-	0	0	0
W. Isles	*	0	0	0	0	0
NOSCAN	**78.9%**	**15**	**19**	**0**	**3**	**1**
Borders	*	0	0	0	0	0
D&G	-	-	-	0	3	1
Fife	-	-	-	0	1	0
Lothian	100.0%	26	26	0	15	9
SCAN	**90.0%**	**27**	**30**	**0**	**19**	**10**
AA	100.0%	6	6	0	1	0
Forth Valley	100.0%	5	5	0	0	0
GGC	75.9%	41	54	0	6	3
Lanarkshire	-	-	-	0	0	1
WoSCAN	**79.1%**	**53**	**67**	**0**	**7**	**4**
Scotland	**81.9%**	**95**	**116**	**0**	**29**	**15**

QPI 3	2013 (%)	2014 (%)
Grampian	62.5%	50.0%
Highland	*	-
Orkney	*	*
Shetland	*	*
Tayside	16.7%	*
W. Isles	*	*
NOSCAN	**42.9%**	**55.6%**
Borders	*	*
D&G	-	-
Fife	-	*
Lothian	100.0%	100.0%
SCAN	**96.4%**	**100.0%**
AA	-	-
Forth Valley	-	-
GGC	73.7%	57.4%
Lanarkshire	-	-
WoSCAN	**70.8%**	**64.9%**
Scotland	**75.8%**	**73.9%**

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

NHS Grampian has reviewed individual cases and has stated that none of the four cases who did not meet the QPI in 2015 were suitable for referral to SLTU mainly due to comorbidities, and performance could not have been improved. It is suggested that the 90% target may be unrealistic.

There were 13 cases in NHSGGC that did not meet the QPI criteria resulting in a performance of 75.9%. Six cases had inadequate data to determine exclusion, mainly due to missing vascular

invasion data, 2 of which were not discussed at MDT meeting. A total of 9 cases (16.6%) were not suitable for referral to SLTU as these patients had comorbidities which precluded liver transplant.

NHSGGC has commented that the aforementioned new referral form and letter to promote referral of all cases to the Glasgow MDT should help to ensure the necessary data is available to support inclusion/exclusion in the denominator. It should be noted however that if 9 cases were not suitable for referral, the maximum achievable performance in GGC would have been 83.4%.

Action:

- Aberdeen, Edinburgh and Glasgow centres to ensure vascular invasion is recorded at MDT to determine inclusion/exclusion criteria.

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]. 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 or SACT are not appropriate[1].

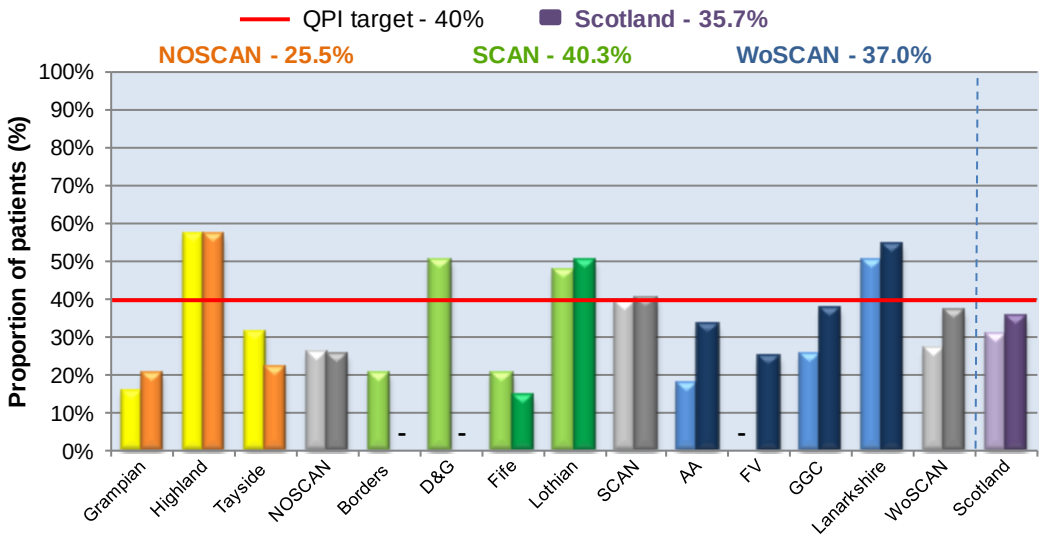
QPI 4:	Patients with Hepatocellular Carcinoma (HCC) who are not suitable for curative treatment should receive palliative treatment.
Description:	Proportion of patients with HCC not suitable for treatment with curative intent (liver transplantation, resection or ablative therapies) that undergo specific treatment with palliative intent (Trans-arterial chemoembolisation (TACE) or Systemic Anti Cancer Therapy (SACT)).
Numerator:	Number of patients with HCC not undergoing treatment with curative intent who receive TACE or approved SACT.
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%

QPI 4 underwent minor changes to the measurability following baseline review as it was noted that patients refusing treatment with TACE or SACT had not been excluded from the QPI measurement. Figure 8 shows performance for 2014 and 2015 results only due to this change to the measurability.

NHS Shetland had no cases meeting the denominator criteria for QPI 4. NHS Orkney, Western Isles, Borders and Dumfries & Galloway results are not shown for 2015 due to small numbers. Of the remaining 9 NHS Boards, NHS Highland, NHS Lanarkshire and NHS Lothian all met the 40% target with 57.1%, 54.5% and 50.0% of HCC patients who were not suitable for curative treatment receiving palliative treatment respectively. SCAN was the only region to meet the 40% target with 40.3% of HCC patients receiving palliative treatment. Overall Scotland performance was 35.7%, up 5.1 percentage points on the previous year's performance.

A number of Boards have reviewed those cases where patients did not receive curative treatment, TACE or SACT and documented appropriate clinical reasons for this, principally surrounding fitness for treatment and patient choice.

Figure 8: Proportion of patients diagnosed with HCC in 2014 and 2015 not suitable for treatment with curative intent that undergo specific treatment with palliative intent (TACE, SACT) by NHS Board of diagnosis.



QPI 4	2015 (%)	Numerator	Denominator	NR numerator	NR exclusions	NR denominator
Grampian	20.0%	3	15	0	6	0
Highland	57.1%	4	7	0	3	0
Orkney	-	-	-	0	1	0
Shetland	*	0	0	0	0	0
Tayside	21.7%	5	23	0	1	0
W. Isles	-	-	-	0	1	0
NOSCAN	**25.5%**	**12**	**47**	**0**	**12**	**0**
Borders	-	-	-	0	2	0
D&G	-	-	-	0	2	0
Fife	14.3%	3	21	0	19	0
Lothian	50.0%	18	36	0	13	0
SCAN	**40.3%**	**25**	**62**	**0**	**36**	**0**
AA	33.3%	8	24	0	14	0
Forth Valley	25.0%	3	12	0	0	0
GGC	37.5%	33	88	1	40	2
Lanarkshire	54.5%	6	11	0	0	0
WoSCAN	**37.0%**	**50**	**135**	**1**	**54**	**2**
Scotland	**35.7%**	**87**	**244**	**1**	**102**	**2**

QPI 4	2013 (%)	2014 (%)
Grampian	14.3%	15.4%
Highland	-	57.1%
Orkney	*	*
Shetland	-	*
Tayside	7.4%	31.3%
W. Isles	*	-
NOSCAN	**10.2%**	**26.0%**
Borders	-	20.0%
D&G	0.0%	50.0%
Fife	23.1%	20.0%
Lothian	33.3%	47.7%
SCAN	**27.1%**	**39.0%**
AA	33.3%	17.6%
Forth Valley	42.9%	-
GGC	32.1%	25.6%
Lanarkshire	14.3%	50.0%
WoSCAN	**31.5%**	**27.3%**
Scotland	**25.5%**	**30.6%**

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

Improved recording of Child-Pugh score would improve the quality of results for QPI 4. In Scotland, 41.8% of cases in the denominator do not have Child-Pugh recorded and an improvement in data capture through MDT referral forms would likely have a significant effect on results presented for this QPI in subsequent years. NHS Forth Valley reviewed all cases and stated that all 9 cases that did not undergo palliative treatment presented with advanced disease.

Actions:

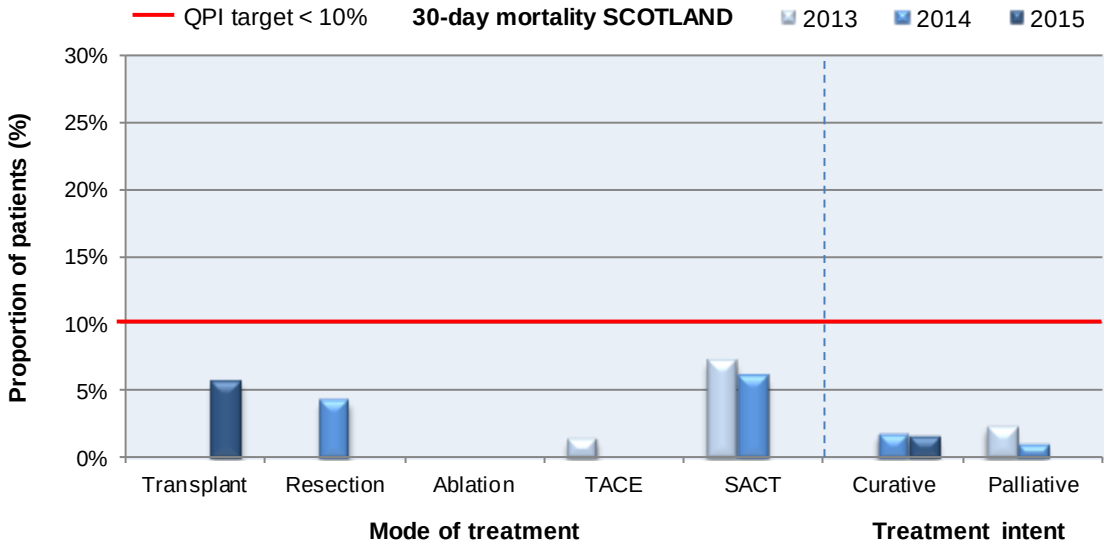
- The Dundee and Glasgow centres should review cases that did not undergo curative treatment, TACE or SACT and report results to NMCN.

QPI 5a-e: 30/90-day Mortality for HCC Cancers (palliative and curative treatments)

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 90 days of definitive treatment.
Numerator:	Number of patients with HCC undergoing curative or palliative treatment that die within 30 or 90 days of definitive treatment (90-day mortality measured for curative treatments only).
Denominator:	All patients with HCC undergoing:- **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:	< 10%

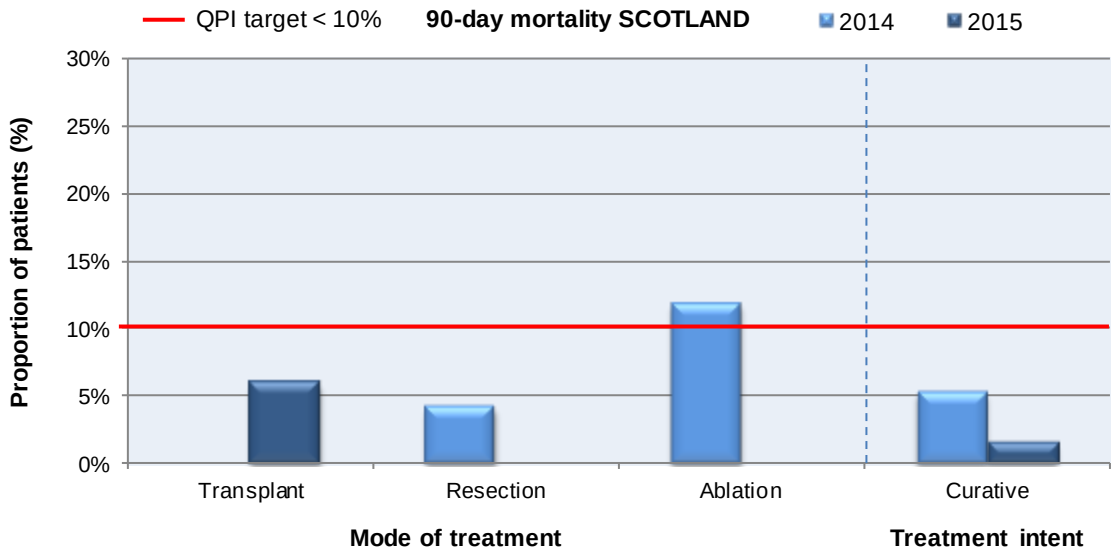
Figure 9: Proportion of patients in Scotland diagnosed with HCC 2013 to 2015 undergoing disease-specific treatment that die within 30 days of definitive treatment.



QPI 5 30-day	Performance (%)	Numerator	Denominator	NR numerator	NR exclusions	NR denominator	2013 (%)	2014 (%)	2013-2015 (%)
Liver Transplant	**5.6%**	**1**	**18**	**0**	**0**	**2**	**0.0%**	**0.0%**	**1.7%**
Liver Resection	**0.0%**	**0**	**25**	**0**	**0**	**2**	**0.0%**	**4.2%**	**1.4%**
Ablation	**0.0%**	**0**	**26**	**0**	**0**	**1**	**0.0%**	**0.0%**	**0.0%**
TACE	**0.0%**	**0**	**83**	**0**	**0**	**2**	**1.3%**	**0.0%**	**0.0%**
SACT	**0.0%**	**0**	**22**	**0**	**0**	**1**	**7.1%**	**5.9%**	**2.0%**

For the third consecutive year all treatment modalities, both curative and palliative, have shown an overall Scotland 30-day mortality of less than 10% which meets the QPI target. There was one death amongst patients who underwent liver transplantation in 2015 resulting in a 30-day mortality rate of 5.6%, however all other treatment types had a 30-day mortality rate of 0.0%.

Figure 10: Proportion of patients in Scotland diagnosed with HCC in 2014 and 2015 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	2013 (%)	2014 (%)
Liver Transplant	**5.9%**	**1**	**17**	**0**	**0**	**2**	*****	**0.0%**
Liver Resection	**0.0%**	**0**	**25**	**0**	**0**	**2**	*****	**4.2%**
Ablation	**0.0%**	**0**	**25**	**0**	**0**	**1**	*****	**11.8%**

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

The inclusion of 90-day mortality for curative treatments was introduced in Year 2 following baseline review. In 2015, curative treatment with liver resection or ablation both had 90-day mortality rates of 0.0% across all centres in Scotland. Liver transplant has a 90-day mortality of 5.9% in 2015 which also meets the target for this QPI and accounts for one death. Due to small numbers at treatment-centre level, 3-year average 90-day mortality results will be analysed next year to avoid the comparison of results with unwarranted variation due to small numbers.

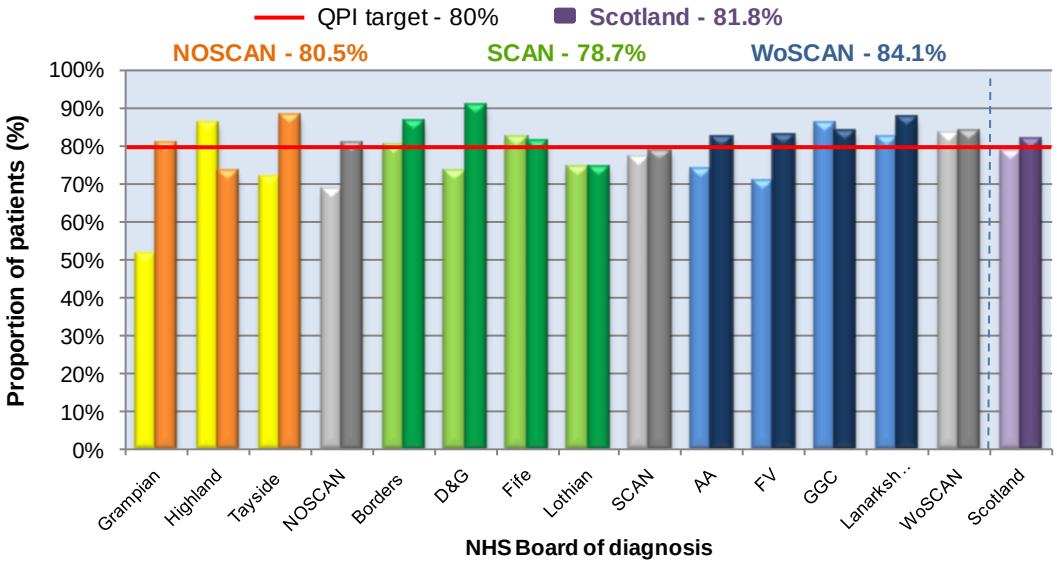
QPI 6: Radiological Diagnosis of Pancreatic, Duodenal or Biliary Tract Cancer

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.

Figure 11 illustrates 2014 and 2015 performance against QPI 6 as 2013 results are not comparable due to changes at baseline review. The reference to 'contrast enhanced' CT was removed from the data definitions to account for patients who are unable to tolerate IV contrast and the updated measurability also excludes patients undergoing supportive care only as it is generally not appropriate to subject these patients to fuller staging scans.

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 11: Proportion of patients diagnosed with pancreatic, duodenal or biliary tract cancer in 2014 and 2015 that underwent CT of the chest, abdomen and pelvis.



QPI 6	2015 (%)	Numerator	Denominator	NR numerator	NR exclusions	NR denominator
Grampian	80.8%	42	52	0	0	0
Highland	73.2%	30	41	0	0	0
Orkney	-	-	-	0	0	0
Shetland	-	-	-	0	0	0
Tayside	88.2%	30	34	0	0	0
W. Isles	-	-	-	0	0	0
NOSCAN	**80.5%**	**107**	**133**	**0**	**0**	**0**
Borders	86.7%	13	15	0	0	0
D&G	90.9%	10	11	0	0	0
Fife	81.3%	13	16	0	0	0
Lothian	74.2%	49	66	0	0	0
SCAN	**78.7%**	**85**	**108**	**0**	**0**	**0**
AA	82.1%	23	28	0	0	0
Forth Valley	82.8%	24	29	0	0	0
GGC	83.7%	108	129	0	0	0
Lanarkshire	87.8%	36	41	0	0	0
WoSCAN	**84.1%**	**191**	**227**	**0**	**0**	**0**
Scotland	**81.8%**	**383**	**468**	**0**	**0**	**0**

QPI 6	2013 (%)	2014 (%)
Grampian	38.5%	51.2%
Highland	51.5%	86.2%
Orkney	*	*
Shetland	-	-
Tayside	88.2%	71.8%
W. Isles	85.7%	-
NOSCAN	**61.2%**	**68.7%**
Borders	94.1%	80.0%
D&G	50.0%	73.3%
Fife	75.0%	82.4%
Lothian	66.2%	74.5%
SCAN	**68.1%**	**77.2%**
AA	70.7%	73.7%
Forth Valley	48.9%	70.6%
GGC	70.4%	86.0%
Lanarkshire	90.0%	82.4%
WoSCAN	**72.1%**	**83.2%**
Scotland	**68.2%**	**78.5%**

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

NOSCAN and WoSCAN have met the QPI target of 80% and overall Scotland results also exceed the target in 2015 with 81.8% of patients diagnosed with pancreatic, duodenal or biliary tract cancer undergoing CT of the chest, abdomen and pelvis.

NHS Orkney, Shetland and Western Isles are not shown in Figure 13 due to small numbers. Of the remaining 11 NHS Boards, 9 NHS Boards exceeded the 80% target, 7 of which also showed improved performance on 2014 results.

NHS Highland and NHS Lothian did not meet the target in 2015 with performance of 73.2% and 74.2% respectively.

NHS Highland has reviewed cases and stated that many patients not meeting the QPI had a CT abdomen initially which revealed advanced disease and question whether proceeding to CT chest is appropriate given the palliative nature of disease for these patients.

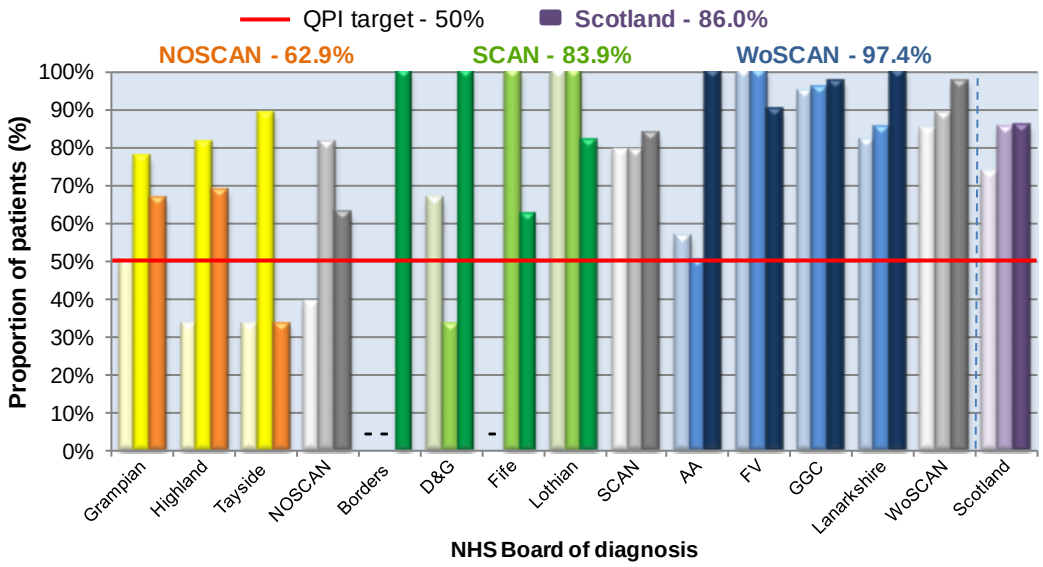
NHS Lothian has also stated that proceeding to CT chest or pelvis for patients who are diagnosed with metastatic malignancy would not be indicated. NHS Lothian has proposed that patients found to have metastatic disease on CT abdomen could be excluded from this QPI.

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 50% 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:	50%

Figure 12: Proportion of patients diagnosed with pancreatic, duodenal or biliary tract cancer undergoing non-surgical treatment that have a cytological or histological diagnosis, 2013 to 2015.



QPI 7	2015 (%)	Numerator	Denominator	NR numerator	NR exclusions	NR denominator
Grampian	66.7%	8	12	0	0	0
Highland	68.8%	11	16	0	0	0
Orkney	-	-	-	0	0	0
Shetland	*	0	0	0	0	0
Tayside	33.3%	2	6	0	0	0
W. Isles	*	0	0	0	0	0
NOSCAN	**62.9%**	**22**	**35**	**0**	**0**	**0**
Borders	100.0%	7	7	0	0	0
D&G	100.0%	5	5	0	0	0
Fife	62.5%	5	8	0	0	0
Lothian	81.8%	9	11	0	0	0
SCAN	**83.9%**	**26**	**31**	**0**	**0**	**0**
AA	100.0%	8	8	0	0	0
Forth Valley	90.0%	9	10	0	0	0
GGC	97.7%	43	44	0	0	0
Lanarkshire	100.0%	15	15	0	0	0
WoSCAN	**97.4%**	**75**	**77**	**0**	**0**	**0**
Scotland	**86.0%**	**123**	**143**	**0**	**0**	**0**

QPI 7	2013 (%)	2014 (%)
Grampian	50.0%	77.8%
Highland	33.3%	81.3%
Orkney	*	*
Shetland	*	-
Tayside	33.3%	88.9%
W. Isles	*	-
NOSCAN	**39.3%**	**81.1%**
Borders	-	-
D&G	66.7%	33.3%
Fife	-	100.0%
Lothian	100.0%	100.0%
SCAN	**79.2%**	**78.9%**
AA	56.3%	50.0%
Forth Valley	100.0%	100.0%
GGC	94.7%	95.9%
Lanarkshire	81.8%	85.2%
WoSCAN	**84.9%**	**89.0%**
Scotland	**73.6%**	**85.7%**

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

Overall performance across Scotland is high with 86.0% of non-surgical patients with pancreatic, duodenal or biliary tract cancer having a cytological or histological diagnosis. All NHS Boards met the QPI target level of 50% in 2015, with the exception of NHS Tayside who achieved 33.3% against the target. It should however be noted that patient numbers are small and therefore percentages should be compared with caution. NHS Tayside commented that all patients are considered for biopsy prior to proceeding with non-surgical treatment, however in some cases the radiology and tumour marker levels are considered to be sufficient for diagnosis (if an earlier biopsy has proved inconclusive).

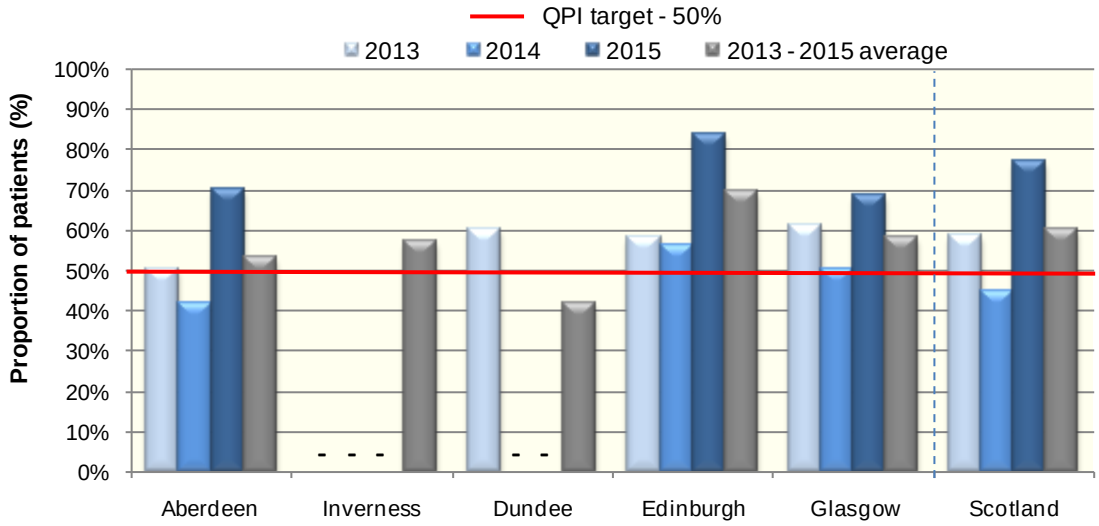
As most NHS Boards are consistently exceeding the target against this indicator, it was proposed at formal review that the target level is increased to ensure this QPI continues to drive improvement.

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 adjuvant chemotherapy, where appropriate
Description:	Proportion of patients undergoing resection for pancreatic cancer receiving adjuvant chemotherapy
Numerator:	Number of patients undergoing pancreatic cancer resection who receive 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 13: Proportion of patients diagnosed with pancreatic cancer undergoing surgery that receive adjuvant chemotherapy, 2013 to 2015.



QPI 8	2015 (%)	Num	Den	NR numerator	NR exclusions	NR denominator
Aberdeen	70.0%	7	10	0	0	0
Inverness	-	-	-	0	0	0
Dundee	-	-	-	0	0	0
Edinburgh	84.0%	21	25	0	0	0
Glasgow	68.8%	11	16	0	0	3
Other	-	-	-	0	0	0
SCOTLAND	**77.2%**	**44**	**57**	**0**	**0**	**3**

QPI 8	2013 (%)	2014 (%)	2013 – 2015 average (%)
Aberdeen	50.0%	41.7%	53.3%
Inverness	-	-	57.1%
Dundee	60.0%	-	41.7%
Edinburgh	58.3%	56.3%	69.8%
Glasgow	61.1%	50.0%	58.3%
Other	*	*	-
SCOTLAND	**58.7%**	**45.0%**	**60.1%**

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

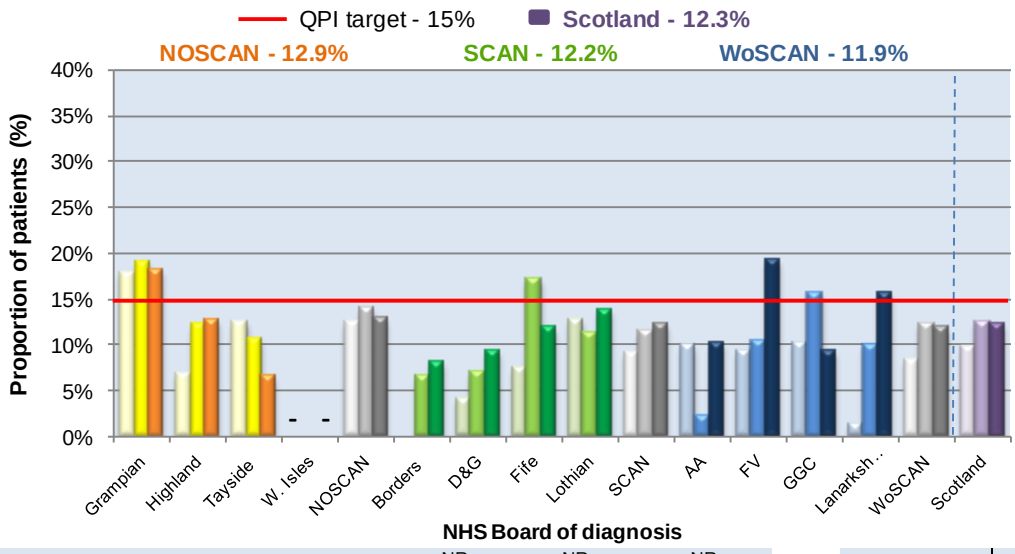
All five neuro-oncology centres in Scotland met the 50% target for QPI 8 in 2015. Across Scotland, 77.2% of patients diagnosed in 2015 who underwent surgical resection for pancreatic cancer had adjuvant chemotherapy which is an improvement on 2014 results. Inverness and Dundee results for 2015 are not shown due to small numbers. Both the Glasgow and Edinburgh centres have met the 50% target over three consecutive years and have a 3-year average performance of 58.3% and 69.8% respectively.

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 localised 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 14: Proportion of patients diagnosed with pancreatic, distal biliary tract or duodenal cancer that undergo resection, 2013 to 2015.



QPI 9	2015 (%)	Numerator	Denominator	NR numerator	NR exclusions	NR denominator
Grampian	18.2%	18	99	0	0	0
Highland	12.7%	7	55	0	0	0
Orkney	-	-	-	0	0	0
Shetland	-	-	-	0	0	0
Tayside	6.7%	5	75	0	0	0
W. Isles	-	-	-	0	0	0
NOSCAN	**12.9%**	**31**	**240**	**0**	**0**	**0**
Borders	8.0%	2	25	0	0	0
D&G	9.4%	3	32	0	0	0
Fife	11.9%	5	42	0	0	0
Lothian	13.7%	18	131	0	0	0
SCAN	**12.2%**	**28**	**230**	**0**	**0**	**0**
AA	10.2%	6	59	0	0	0
Forth Valley	19.3%	11	57	0	0	0
GGC	9.3%	20	214	3	0	0
Lanarkshire	15.6%	10	64	0	0	0
WoSCAN	**11.9%**	**47**	**394**	**3**	**0**	**0**
Scotland	**12.3%**	**106**	**864**	**3**	**0**	**0**

QPI 9	2013 (%)	2014 (%)
Grampian	17.7%	19.1%
Highland	6.9%	12.2%
Orkney	*	*
Shetland	-	-
Tayside	12.5%	10.6%
W. Isles	-	0.0%
NOSCAN	**12.5%**	**13.9%**
Borders	0.0%	6.7%
D&G	4.0%	7.1%
Fife	7.5%	17.1%
Lothian	12.8%	11.2%
SCAN	**9.2%**	**11.5%**
AA	10.0%	2.3%
Forth Valley	9.4%	10.5%
GGC	10.2%	15.6%
Lanarkshire	1.4%	10.0%
WoSCAN	**8.2%**	**12.4%**
Scotland	**9.7%**	**12.6%**

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

The 15% target for QPI 9 has proved challenging with only four NHS Boards meeting the target in 2015. NHS Grampian, Forth Valley and Lanarkshire have met the target with performance of 18.2%, 19.3% and 15.6% respectively (NHS Orkney results are restricted due to small numbers). NHS Grampian has been the only Board to meet the target consistently over three consecutive years.

It should be noted that all decisions regarding suitability for surgical resection are made centrally at MDT and therefore variation across NHS Boards is likely to reflect differences in stage at presentation and the patient health of each cohort rather than highlighting differences in management decisions. In Scotland, 12.3% of patients with pancreatic, duodenal or biliary tract cancer have undergone surgical resection in 2015 which shows a minor decrease on the 2014 resection rate of 12.6%.

NHS Highland commented that the target was met for patients managed within NHS Highland, however when Argyll and Bute figures were added (as the QPI is analysed by NHS Board of diagnosis) the target was not met. As Argyll and Bute cases are managed through the Glasgow MDT, it has been proposed that figures are included in NHSGGC figures or presented separately.

The majority of Boards where the target of a 15% resection rate was not met have reviewed cases and documented appropriate clinical reasons for this, including; patients presenting with advanced disease where surgery is not appropriate, fitness and/or co-morbidities which preclude surgery, and patient choice. A number of Boards have stated that the 15% target is challenging or unrealistic and all patients are offered surgery if it is considered appropriate.

NHSGGC has commented that the high levels of poor health within GGC Board area make this a challenging target. They plan to explore the practice of prehabilitation; optimising patient health with the aim of converting non-resection patients into candidates for resection.

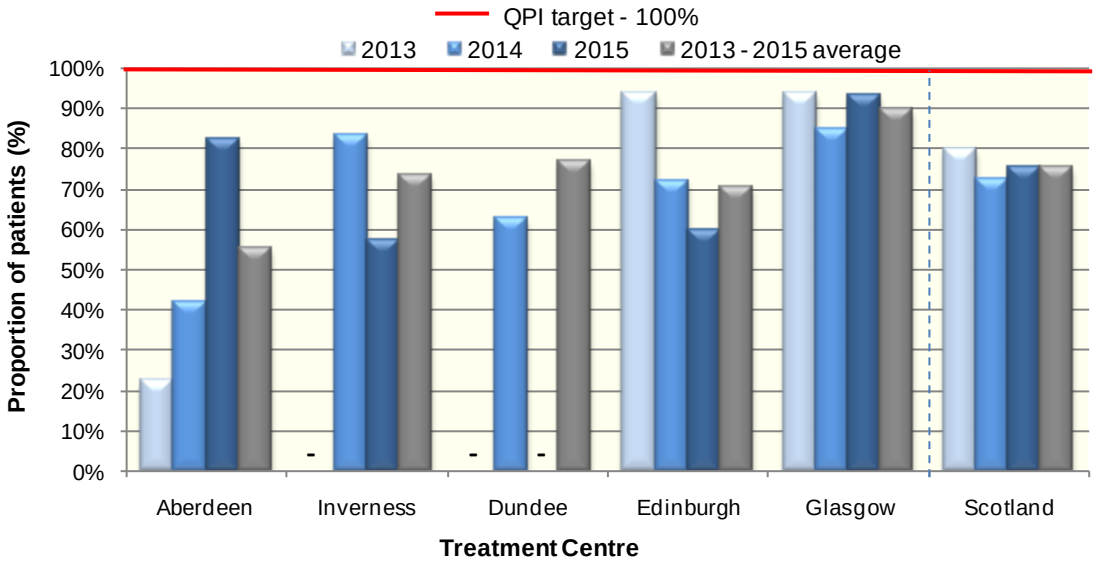
At formal review it was proposed that resection rates are likely to vary for each pathology, and therefore it would be beneficial to look at resection rates for pancreatic cancers and duodenal and distal biliary duct cancers separately.

QPI 10: Lymph Node Yield (pancreatic cancer)

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. Year 1 data is included in Figure 15 as results are comparable despite the above change to the measurability.

QPI 10:	In patients undergoing surgery for pancreatic, duodenal or distal biliary tract cancer the number of lymph nodes examined should be maximised.
Description:	Proportion of patients with pancreatic, duodenal or distal biliary tract cancer who undergo surgical resection (pancreatoduodenectomy) where ≥15 lymph nodes are resected and pathologically examined.
Numerator:	Number of patients with pancreatic, duodenal or distal biliary tract cancer who undergo pancreatoduodenectomy where ≥15 lymph nodes are resected and pathologically examined.
Denominator:	All patients with pancreatic cancer, duodenal or distal biliary tract cancer who undergo pancreatoduodenectomy.
Exclusions:	No exclusions.
Target:	100%

Figure 15: Proportion of patients with pancreatic, duodenal or distal biliary tract cancer that undergo surgical resection where ≥ 15 lymph nodes are resected and pathologically examined, 2013 to 2015 and 3-year average.



QPI 10	2015 (%)	Num	Den	NR numerator	NR exclusions	NR denominator
Aberdeen	82.4%	14	17	0	0	0
Inverness	57.1%	4	7	0	0	0
Dundee	-	-	-	0	0	0
Edinburgh	59.5%	22	37	0	0	0
Glasgow	93.3%	28	30	0	0	3
SCOTLAND	**75.5%**	**71**	**94**	**0**	**0**	**3**

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

QPI 10	2013 (%)	2014 (%)	2013 – 2015 average (%)
Aberdeen	22.2%	41.7%	55.3%
Inverness	-	83.3%	73.3%
Dundee	-	62.5%	76.9%
Edinburgh	93.8%	72.0%	70.5%
Glasgow	93.8%	84.8%	89.9%
SCOTLAND	**80.0%**	**72.6%**	**75.3%**

Asterisk (*) denotes a denominator of zero.

The target level has generally not been met by surgical centres across the three years of analysis which may be a function of pathological staging or of surgical resection. The Glasgow Centre achieved 93.3% against the 100% target in 2015 with 28 of the 30 patients undergoing surgical resection having 15 or more lymph nodes resected and pathologically examined. Overall performance across all five centres in Scotland was 75.5% which is 2.9 percentage points higher than performance in 2014, although continual improvement across all three years has not been demonstrated.

NHSGGC has stated that the two cases not meeting the QPI have been reviewed and there are no concerning issues. NHSGGC is satisfied that surgery and pathology is of good quality and it was unavoidable in these cases that there were not 15 nodes to remove/examine.

Performance across the remaining four surgical centres has been below target with 3-year average performance of 55.3%, 70.5%, 73.3% and 76.9% in Aberdeen, Edinburgh, Inverness and Dundee centres respectively. The Aberdeen Centre has seen an improvement of over 40 percentage points on 2014 performance whereas both Inverness and Edinburgh centres have seen a decrease in performance. The Inverness Centre reviewed the 3 cases not meeting the QPI in 2015 which revealed that 11, 12 and 13 nodes were examined.

The pathologists in Edinburgh advised that the Royal College of Pathologists dataset for carcinoma of the pancreas, CBD and ampulla states that an average (rather than a minimum) of 15 nodes should be achieved as a marker of quality of pathology dissection. This was discussed at formal review; however it was proposed that the overall QPI target should be lowered to account for cases where it is not possible to remove 15 lymph nodes rather than to reduce the minimum number of lymph nodes dissected. No comments were provided relating to individual cases not meeting the QPI.

Action:

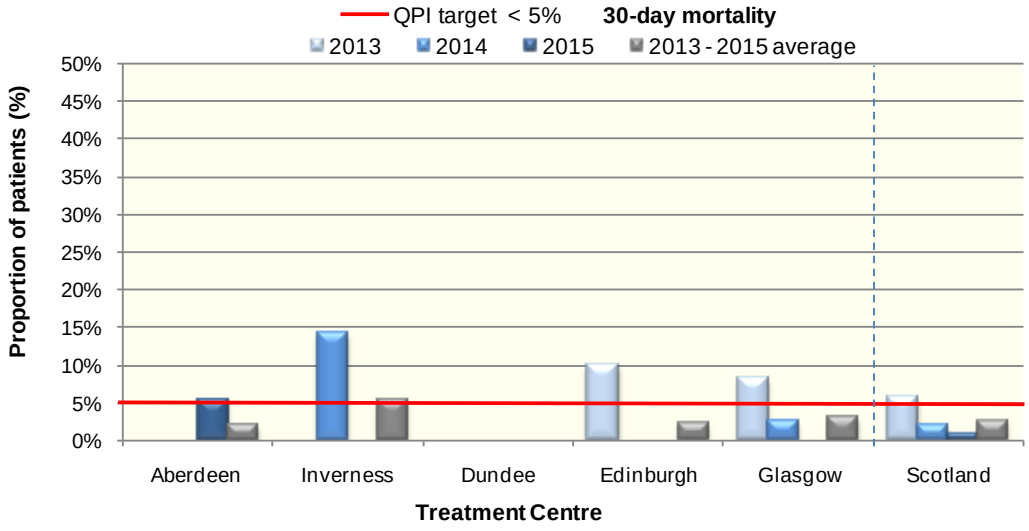
- The Edinburgh centre should review cases where less than 15 lymph nodes are dissected and examined and investigate any reasons for decreased performance.

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

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 after surgery with curative intent for pancreatic, duodenal or distal biliary tract cancer.
Description:	Proportion of patients undergoing surgical resection with curative intent for pancreatic, duodenal or distal biliary tract cancer who die within 30 or 90 days.
Numerator:	Number of patients with pancreatic, duodenal or distal biliary tract cancer undergoing surgical resection who die within 30 or 90 days of surgery.
Denominator:	All patients with pancreatic, duodenal or distal biliary tract cancer undergoing surgical resection.
Exclusions:	No exclusions.
Target:	< 5%

Figure 16: Proportion of patients diagnosed with pancreatic, duodenal or distal biliary tract cancer undergoing surgical resection that die within 30 days of surgery, 2013 to 2015.



QPI 11a	2015 (%)	Num	Den	NR numerator	NR exclusions	NR denominator
Aberdeen	5.3%	1	19	0	0	0
Inverness	0.0%	0	7	0	0	0
Dundee	0.0%	0	5	0	0	0
Edinburgh	0.0%	0	42	0	0	0
Glasgow	0.0%	0	34	0	0	3
SCOTLAND [a]	**0.9%**	**1**	**108**	**0**	**0**	**3**

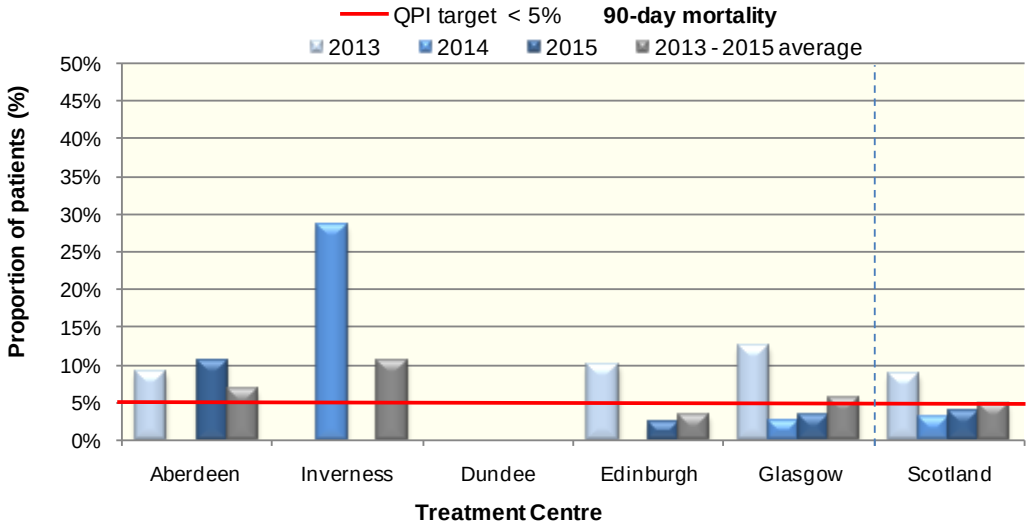
Dash (-) denotes restricted data where the denominator is less than 5.

QPI 11a	2013 (%)	2014 (%)	2013 – 2015 average (%)
Aberdeen	0.0%	0.0%	2.2%
Inverness	0.0%	14.3%	5.3%
Dundee	0.0%	0.0%	0.0%
Edinburgh	10.0%	0.0%	2.2%
Glasgow	8.3%	2.6%	3.1%
SCOTLAND	**5.8%**	**2.0%**	**2.5%**

Asterisk (*) denotes a denominator of zero.

[a] Scotland figures include 1 resection performed outwith HPB centres that was an incidental finding following surgery for colorectal cancer.

Figure 17: Proportion of patients diagnosed with pancreatic, duodenal or distal biliary tract cancer undergoing surgical resection that die within 90 days of surgery, 2013 to 2015.



QPI 11b	2015 (%)	Num	Den	NR numerator	NR exclusions	NR denominator
Aberdeen	10.5%	2	19	0	0	0
Inverness	0.0%	0	7	0	0	0
Dundee	0.0%	0	5	0	0	0
Edinburgh	2.4%	1	42	0	0	0
Glasgow	3.3%	1	30	0	0	0
SCOTLAND [a]	**3.8%**	**4**	**104**	**0**	**0**	**0**

QPI 11b	2013 (%)	2014 (%)	2013 – 2015 average (%)
Aberdeen	9.1%	0.0%	6.7%
Inverness	0.0%	28.6%	10.5%
Dundee	0.0%	0.0%	0.0%
Edinburgh	10.0%	0.0%	3.3%
Glasgow	12.5%	2.6%	5.4%
SCOTLAND	**8.7%**	**3.1%**	**4.8%**

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.

All Centres had a 30-day mortality rate of 0.0% in 2015 other than the Aberdeen centre. There was one death within 30 days which resulted in a mortality rate of 5.3% in Aberdeen. Average rates over three years were below the 5% target for all centres apart from Inverness which had a 3-year average 30-day mortality of 5.3%. Overall across Scotland, mortality was very low at 0.9% representing one death within 30 days of surgery in 2015.

Four patients diagnosed in 2015 died within 90 days of surgical resection for pancreatic, duodenal or distal biliary tract cancers. This resulted in 90-day mortality rates of 2.4%, 3.3% and 10.5% for Edinburgh, Glasgow and Aberdeen respectively. Only the Aberdeen centre did not meet the QPI target. Inverness and Dundee had 90-day mortality rate of 0.0% and overall Scotland results were 3.8% which meets the QPI target of less than 5%.

All cases where patients died within 30 or 90 days of surgical resection are discussed at the National Morbidity and Mortality meeting. Aberdeen commented that two-consultant operating is planned for all future major resections. There were also comments from centres stating that operations are sometimes performed as an emergency or with palliative intent but this is not taken into account for mortality data.

Action:

- All specialist HPB centres should discuss cases where patients died within 30 or 90 days of surgical resection at Morbidity and Mortality meeting and provide feedback to NMCN.

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].

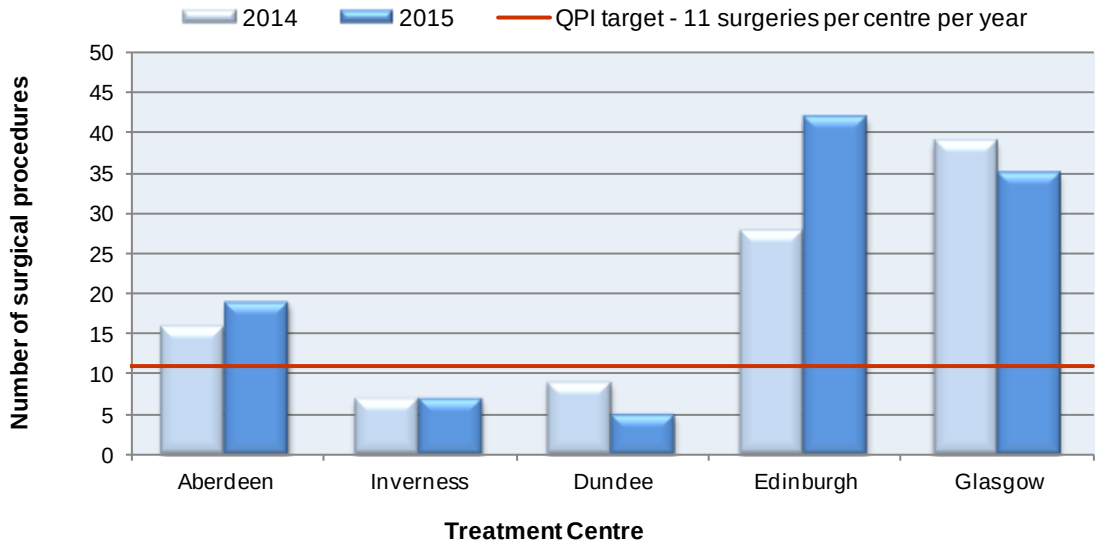
QPI 12a/b:	HPB resectional surgery should be performed in hospitals where there is an appropriate annual volume of such cases.
Description:	Number of surgical resections for pancreatic, duodenal or distal biliary tract cancer performed by each surgeon/centre in a given year.
Target:	a) 11 cases per centre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

Three of the five surgical centres in Scotland met the target of 11 surgeries per year.

Dundee and Inverness performed 5 and 7 surgeries respectively for patients diagnosed in 2015. Inverness queried whether it was more appropriate to look at all major pancreatic surgeries irrespective of the indications. Dundee also commented that some resections were excluded by the QPI definitions (e.g. pancreatic neuroendocrine tumours) and were therefore not counted in the totals.

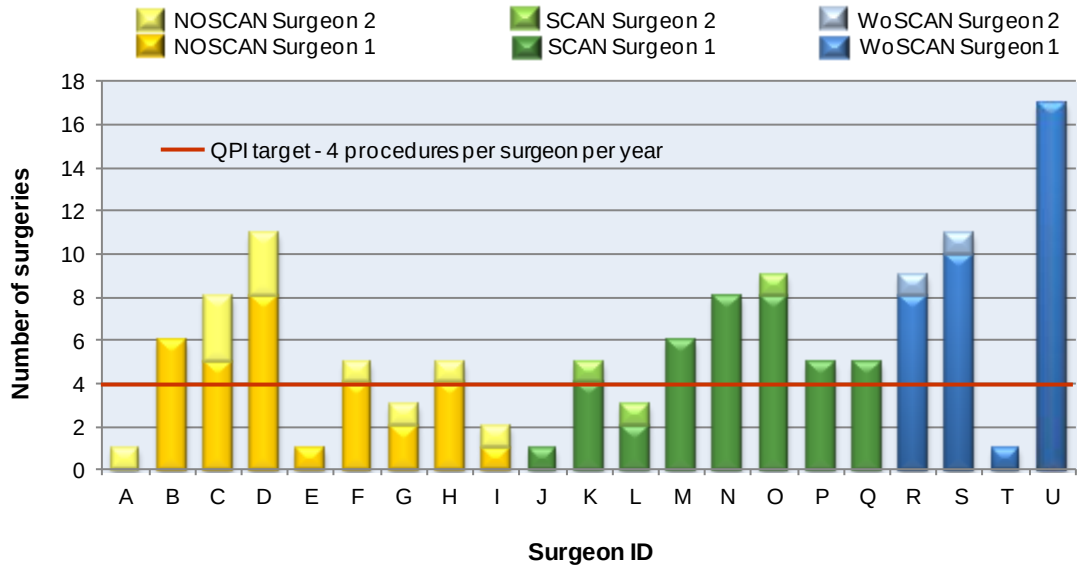
It was proposed at formal review that SMR01 data is utilised to measure this QPI which would analyse results based on the operation code irrespective of pathology.

Figure 18: Number of surgical resections for pancreatic, duodenal and biliary tract cancer performed by a specialist centre over a 1 year period.



QPI 12a	Aberdeen	Inverness	Dundee	Edinburgh	Glasgow	Scotland
2013	10	3	5	16	21	55
2014	16	7	9	28	39	99
2015	19	7	5	42	35	108

Figure 19: 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	0	6	5	8	1	4	2	4	1	1	4	2	6	8	8	5	5	8	10	1	17
N2	1	0	3	3	0	1	1	1	1	0	1	1	0	0	1	0	0	1	1	0	0
Total	**1**	**6**	**8**	**11**	**1**	**5**	**3**	**5**	**2**	**1**	**5**	**3**	**6**	**8**	**9**	**5**	**5**	**9**	**11**	**1**	**17**

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

A number of surgeons operating on HPB cancers did not reach the target level of 4 procedures in 2015. In NOSCAN there were four surgeons not meeting the target, in SCAN there were two and one in WoSCAN.

The WoSCAN case was due to an emergency surgery for colorectal cancer (incidental finding of pancreatic cancer). The Aberdeen centre commented that there was a recording error and all surgeons performed more than 4 operations. Inverness has stated that one surgeon has stopped performing elective pancreatic surgery in order to maximise case volume. The Edinburgh centre has commented that, when looking at the average over 2 years, all surgeons performing pancreatoduodenectomy met the requirement of 4 cases per year.

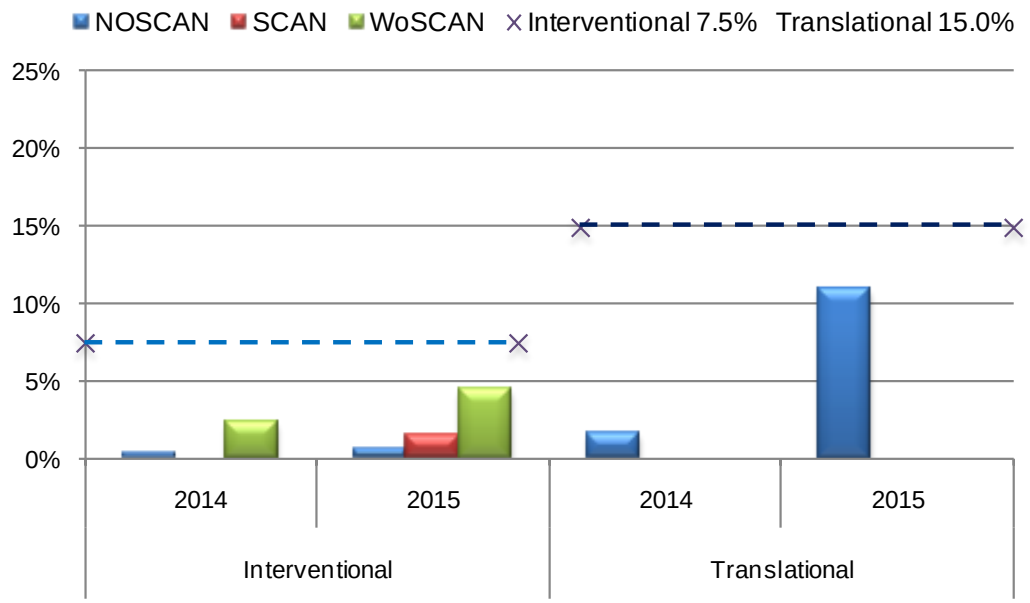
Due to measurability changes in Year 1, 3-year average analysis can be undertaken for each surgeon next year and presented in the 2016 Audit Report.

Clinical Trials QPI

Clinical trials are necessary to demonstrate the efficacy of new therapies and other interventions. Furthermore, 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. A list of the clinical trials open for recruitment in 2014 and 2015 for patients with HPB cancer is included in Appendix 2.

Clinical Trials:	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 who are enrolled in an interventional clinical trial or translational research.
Denominator:	All patients with HPB cancer.
Exclusions:	No exclusions.
Target:	Interventional – 7.5% Translational – 15.0%

Figure 20: Proportion of patients with HPB cancer who are enrolled in an interventional clinical trial or translational research by region, 2014 and 2015.



	Interventional		Translational		Cancer registry figures		% Interventional		% Translational	
	2014	2015	2014	2015	2009-13	2010-14	2014	2015	2014	2015
NOSCAN	1	2	5	39	320	358	0.3%	0.6%	1.6%	10.9%
SCAN	*	6	*	0	*	413	*	1.5%	*	0.0%
WoSCAN	16	31	0	0	666	700	2.4%	4.4%	0.0%	0.0%

** SCAN data was not submitted for 2014*

None of the three regions met the recruitment target for either interventional trials or translational research in 2014 or 2015. SCAN and WoSCAN did not recruit any patients into translational research; however NOSCAN achieved 10.9% against the 15% target in 2015. WoSCAN recruited 31 patients into interventional clinical trials in 2015, achieving 4.4% against the 7.5% target.

It should be noted that these targets are ambitious, particularly with the move towards more targeted trials. All patients diagnosed with HPB cancer in Scotland are considered for potential participation in the open trials currently available. However, subsequent to the departure from larger general trials and the advent of genetically selective trials that only target small populations of patients, many of the HPB clinical trials that are currently open to recruitment in Scotland have very select eligibility criteria. Consequently, they are only available to a small percentage of the total number of people who were diagnosed with HPB cancer.

NOSCAN have commented that due to the increasing complexity of trials and time burden needed to run them effectively, and a lack of clinical and research support to run such further trials, it is not currently possible to open a greater number (and thereby to have a greater scope) of available trials in the North of Scotland. Constraints imposed by the commercial trial sponsors also limit the number of trials it is possible to open in smaller cancer centres such as those in the NOSCAN region. However a large number of feasibility requests for trials are continually being reviewed by all consultants and if an expression of interest is submitted, the chances that the site will be selected for running the trial are high.

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 2015 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 across many of the QPIs improved performance in 2015 is demonstrated. It is also encouraging that targets relating to histological diagnosis and 30-day mortality following curative and palliative treatment for HCC were achieved by all centres. The target for the proportion of patients receiving adjuvant chemotherapy following surgical resection for pancreatic cancers has also been exceeded 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

- Specialist HPB centres should promote the referral of all cases of definite or suspected HPB cancer to a specialist MDT, regardless of treatment plan, within their prospective NHS Boards.

QPI 2: Diagnosis and Staging of HCC

- Aberdeen, Dundee and Edinburgh centres should review cases that did not undergo complete imaging and put measures in place to improve performance.
- Specialist HPB centres to develop HCC MDT referral forms to ensure consistency in capturing all required QPI data items and to promote use in their prospective NHS Boards.

QPI 3: Referral to Scottish Liver Transplant Unit

- Aberdeen, Edinburgh and Glasgow centres to ensure vascular invasion is recorded at MDT to determine inclusion/exclusion criteria.

QPI 4: Palliative Treatment for HCC

- The Dundee and Glasgow centres should review cases that did not undergo curative treatment, TACE or SACT and report results to NMCN.

QPI 10: Lymph Node Yield (pancreatic cancer)

- The Edinburgh centre should review cases where less than 15 lymph nodes are dissected and examined and investigate any reasons for decreased performance.

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

- All specialist HPB centres should discuss cases where patients died within 30 or 90 days of surgical resection at Morbidity and Mortality meeting and provide feedback to NMCN.

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 NMCN Advisory Board and any service or clinical issue which the Advisory Board considers not to have been adequately addressed will be escalated to the NHS Board Territorial Lead Cancer Clinician and 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
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
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

1. Healthcare Improvement Scotland. Hepatopancreatobiliary Cancer Quality Performance Indicators, August 2012 (updated May 2015 v2.1). [Accessed on: 21st September 2016]. Available at: http://www.healthcareimprovementscotland.org/our_work/cancer_care_improvement/cancer_qpis/quality_performance_indicators.aspx

2. Information Services Division. Data Definitions for the National Minimum Core Data Set to support the introduction of HPB Quality Performance Indicators v2.6 [Accessed on: 21st September 2016]. Available at: http://www.isdscotland.org/Health-Topics/Cancer/Cancer-Audit/#qpi

3. Scottish Public Health Observatory. Population: estimates by NHS Board – mid-2014 population estimates. [Accessed on: 21st September 2016]. Available at: http://www.scotpho.org.uk/population-dynamics/population-estimates-and-projections/data/nhs-board-population-estimates

4. Information Services Division. Cancer statistics for liver cancer [Accessed on: 21st September 2016]. Available at: http://www.isdscotland.org/Health-Topics/Cancer/Cancer-Statistics/Liver/

5. Information Services Division. Cancer in Scotland, June 2004 (updated May 2016) [Accessed on: 21st September 2016]. Available at: http://www.isdscotland.org/Health-Topics/Cancer/Cancer-Statistics/

6. Information Services Division. Cancer statistics for pancreatic cancer [Accessed on: 21st September 2016]. Available at: http://www.isdscotland.org/Health-Topics/Cancer/Cancer-Statistics/Pancreatic/#summary

7. ISD, NHS National Services Scotland. Trends in Cancer Survival in Scotland, 1983-2007. August 2010. [Accessed on: 8th November 2016]. Available at: http://www.isdscotland.org/Health-Topics/Cancer/Cancer-Statistics/Survival_summary_8307.pdf?1

8. NHS Blood and Transplant Liver Advisory Group. Consensus Meeting Summary: LAG (14)9b, January 2014. [Accessed on: 8th November 2016]. Available at: http://www.odt.nhs.uk/pdf/advisory_group_papers/LAG/HCC_recommendations_IR_TS_b_NAS_Work_in_Progress.pdf

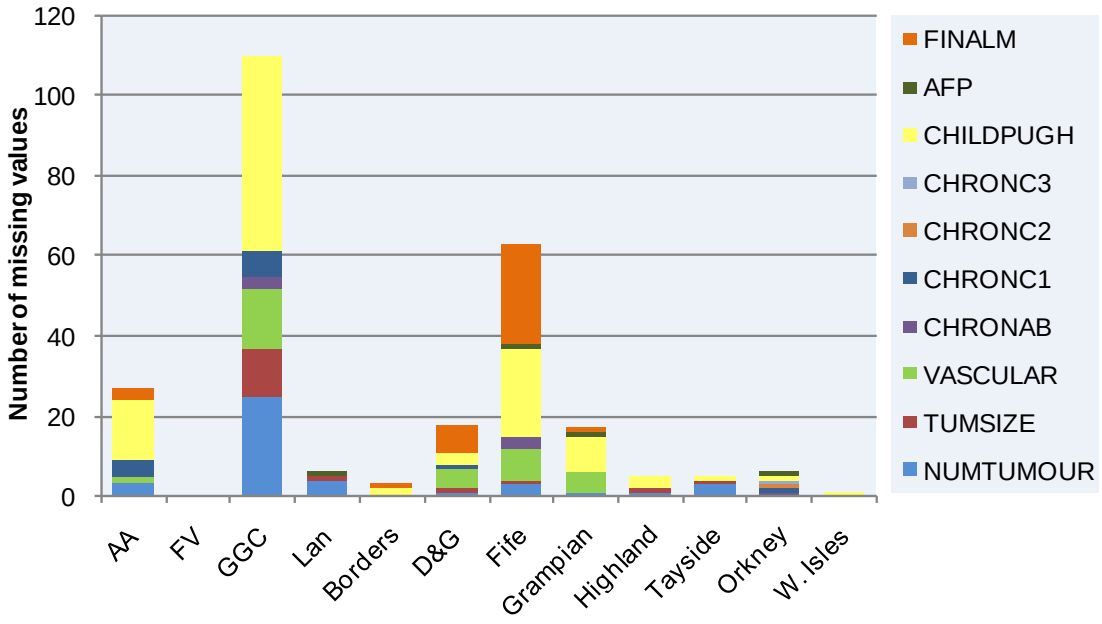
Appendix 1:

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 10 fields must be complete to be defined as 'full information recorded' for QPI 2).

List of Required Data Fields



	NUMTUMOUR	TUMSIZE	VASCULAR	CHRONAB	CHRONC1	CHRONC2	CHRONC3	CHILDPUGH	AFP	FINALM	**Total Fields**	No. of cases
AA	3	0	2	0	4	0	0	15	0	3	**27**	17
FV	0	0	0	0	0	0	0	0	0	0	**0**	0
GGC	25	12	15	3	6	0	0	49	0	0	**110**	65
Lan	4	1	0	0	0	0	0	0	1	0	**6**	4
WoSCAN	**32**	**13**	**17**	**3**	**10**	**0**	**0**	**64**	**1**	**3**	**143**	**86**
Borders	0	0	0	0	0	0	0	2	0	1	**3**	2
D&G	1	1	5	0	1	0	0	3	0	7	**18**	7
Fife	3	1	8	3	0	0	0	22	1	25	**63**	25
SCAN	**4**	**2**	**13**	**3**	**1**	**0**	**0**	**27**	**1**	**33**	**84**	**34**
Grampian	1	0	5	0	0	0	0	9	1	1	**17**	11
Highland	1	1	0	0	0	0	0	3	0	0	**5**	4
Shetland	0	0	0	0	0	0	0	0	0	0	**0**	0
Tayside	3	1	0	0	0	0	0	1	0	0	**5**	4
Orkney	0	0	0	1	1	1	1	1	1	0	**6**	1
W. Isles	0	0	0	0	0	0	0	1	0	0	**1**	1
NOSCAN	**5**	**2**	**5**	**1**	**1**	**1**	**1**	**15**	**2**	**1**	**34**	**21**
Scotland	**41**	**17**	**35**	**7**	**12**	**1**	**1**	**106**	**4**	**37**	**261**	**141**

NB. NHS Lothian is not included in the additional analysis as only the analysed QPI results are submitted.

Appendix 2:

List of Clinical Trials in Scotland – 2014 and 2015

Interventional Trials
NOSCAN
• CANC - 3482 JANUS 1: Ruxolitinib or placebo + Capecitabine in pancreatic adenocarcinoma • ESPAC-4 • ESPAC-5
SCAN
• ESPAC-4 • SORAMIC • TACE2 • TOFFEE
WoSCAN
• ABC-06: ASC alone or with mFOLFOX for advanced biliary tract cancer • BILCAP • CA209040 Phase 1 of Nivolumab in Advanced HCC • CANC - 3482 JANUS 1: Ruxolitinib or placebo + Capecitabine in pancreatic adenocarcinoma • Cancer Research UK MK-0752 • CDI-CS-001 • CheckMate-032 • CHR2845 in HCC • Dexanabinol • ESPAC-4 • ESPAC-5F: European Study Group for Pancreatic Cancer - Trial 5F • ETS2101-001 • NCRN - 2446 Lenvatinib (E7080) vs. Sorafenib in First-LineTreatment of Unresectable HCC • NCRN - 2902:nabr-Paclitaxel+Gemcitabine vs. Gemcitabine as Adj.therapy in pancreatic adenocarcinoma • NCRN092 SEARCH - Sorafenib + Erolitinib in 1st line HCC • NCRN287 -Dasatinib + Gem advanced pancreatic • NCRN292: E7050 +/- Sorafenib in 1st line HCC • NCRN503 MAESTRO - Phase III study of TH-302 + Gemcitabine in Pancreatic Cancer (EMR200592-001 - MAESTRO) • ONYX CFZ002 • PIONEER • POLO • SIEGE • TACE-2

Translational Trials
NOSCAN
• Bio-repository (hepatic)

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.	Specialist HPB centres should promote the referral of all cases of definite or suspected HPB cancer to a specialist MDT, regardless of treatment plan, within their prospective NHS Boards.						
2.	Aberdeen centre should review cases that did not undergo complete imaging and put measures in place to improve performance.						
2.	Specialist HPB centres to develop HCC MDT referral forms to ensure consistency in capturing all required QPI data items and to promote use in their prospective NHS Boards.						
3.	Aberdeen centre to ensure vascular invasion is recorded at MDT to determine inclusion/exclusion criteria.						

QPI No.	Action Required	Health Board Action Taken	Timescales		Lead	Progress/Action Status	Status (see Key)
			Start	End			
11 a/b	Specialist HPB centres should discuss cases where patients died within 30 or 90 days of surgical resection at Morbidity and Mortality meeting and provide feedback to NMCN.						

Action / Improvement Plan

Area:	Inverness Centre/ NHS Highland
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.	Specialist HPB centres should promote the referral of all cases of definite or suspected HPB cancer to a specialist MDT, regardless of treatment plan, within their prospective NHS Boards.						
2.	Specialist HPB centres to develop HCC MDT referral forms to ensure consistency in capturing all required QPI data items and to promote use in their prospective NHS Boards.						
11 a/b	Specialist HPB centres should discuss cases where patients died within 30 or 90 days of surgical resection at Morbidity and Mortality meeting and provide feedback to NMCN.						

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.	Specialist HPB centres should promote the referral of all cases of definite or suspected HPB cancer to a specialist MDT, regardless of treatment plan, within their prospective NHS Boards.						
2.	Dundee centre should review cases that did not undergo complete imaging and put measures in place to improve performance.						
2.	Specialist HPB centres to develop HCC MDT referral forms to ensure consistency in capturing all required QPI data items and to promote use in their prospective NHS Boards.						
4.	Dundee centre should review cases that did not undergo curative treatment, TACE or SACT and report results to NMCN.						

QPI No.	Action Required	Health Board Action Taken	Timescales		Lead	Progress/Action Status	Status (see Key)
			Start	End			
11 a/b	All specialist HPB centres should discuss cases where patients died within 30 or 90 days of surgical resection at Morbidity and Mortality meeting and provide feedback to NMCN.						

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.	Specialist HPB centres should promote the referral of all cases of definite or suspected HPB cancer to a specialist MDT, regardless of treatment plan, within their prospective NHS Boards.						
2.	Edinburgh centre should review cases that did not undergo complete imaging and put measures in place to improve performance.						
2.	Specialist HPB centres to develop HCC MDT referral forms to ensure consistency in capturing all required QPI data items and to promote use in their prospective NHS Boards.						
3.	Edinburgh centre to ensure vascular invasion is recorded at MDT to determine inclusion/exclusion criteria.						
10.	Edinburgh centre should review cases where less than 15 lymph nodes are dissected and examined and investigate any reasons for decreased performance.						

QPI No.	Action Required	Health Board Action Taken	Timescales		Lead	Progress/Action Status	Status (see Key)
			Start	End			
11 a/b	Specialist HPB centres should discuss cases where patients died within 30 or 90 days of surgical resection at Morbidity and Mortality meeting and provide feedback to NMCN.						

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.	Specialist HPB centres should promote the referral of all cases of definite or suspected HPB cancer to a specialist MDT, regardless of treatment plan, within their prospective NHS Boards.						
2.	Specialist HPB centres to develop HCC MDT referral forms to ensure consistency in capturing all required QPI data items and to promote use in their prospective NHS Boards.						
3.	Glasgow centre to ensure vascular invasion is recorded at MDT to determine inclusion/exclusion criteria.						
4.	Glasgow centre should review cases that did not undergo curative treatment, TACE or SACT and report results to NMCN.						
11 a/b	Specialist HPB centres should discuss cases where patients died within 30 or 90 days of surgical resection at Morbidity and Mortality meeting and provide feedback to NMCN.						